TC Document

I. Basic Information

▪ Country/Region:	HAITI / CDH
▪ TC Name:	Capacity Building for Sustainable Management of the Flood Early Warning System
▪ TC Number:	HA-T1156
▪ Associated Loan/Guarantee Name:	N/A
▪ Associated Loan/Guarantee Number:	N/A
▪ Team Leader/Members:	Co-Team Leaders: Bruno Jacquet (RND/CHA) and Hori Tsuneki (INE/RND); Marion Le Pommellec (RND/CHA); Emilie Chapuis and Marise Etienne (PDP/CHA); Jean Eddy Amajuste (CDH/CHA); Lisa Restrepo (INE/RND); Taos Aliouat (LEG/SGO)
▪ Date of TC Abstract authorization:	November 15, 2012
▪ Donors providing funding:	Multi-Donor Disaster Prevention Fund (MDP)
▪ Beneficiary:	Ministry of Agriculture, Natural Resources and Rural Development, 6 departmental and 32 municipal disaster preparedness committees.
▪ Executing Agency and contact name:	Ministry of Agriculture, Natural Resources and Rural Development;
▪ IDB Funding Requested:	US$440,000
▪ Local counterpart funding, if any:	N/A
▪ Disbursement period:	18 months
▪ Execution period	15 months
▪ Required start date:	January, 2013
▪ Types of consultants:	Individual consultants and firms
▪ Prepared by Unit:	INE/RND
▪ Unit of Disbursement Responsibility:	CDH/CHA
▪ TC Included in Country Strategy : ▪ TC included in CPD :	NO YES
▪ GCI-9 Sector Priority:	Protect the environment, respond to climate change, promote renewable energy, and ensure food security

II. Objectives and Justification of the TC

This TC has been designed to support the Government of Haiti in consolidating the results of the National Program of Flood Early Warning System (PNAP[1]), which is being executed since 2006 by the Ministry of Agriculture, Natural Resources and Rural Development (MARNDR) with the support of the Bank through both operations 2389/GR-HA and ATN/MD-11565-HA, and expected to be closed at the end of 2012.

These initiatives are articulated with the priority investments identified in the former and current Country Strategies (respectively GN-2465 for 2007-2011 and GN-2646 for 2011-2015) regarding mitigation and adaptation to disaster risks. These includes particularly prevention to natural disaster in priority watersheds (2187/GR-HA, ATN/OC-11564-HA, GRT/FM-11803-HA) or future support to climate

[1] *Programme National d'Alerte Précoce, PNAP.*

resilience, for example in the framework of the Pilot Programme for Climate Resilience to be financed by the Climate Investment Funds' resources managed by World Bank and IDB in Haiti.

Both operations 2389/GR-HA (US$5 million Investment Grant) and ATN/MD-11565-HA (US$ 1 million Technical Cooperation) were designed to provide the country with the capacity to identify and better prepare for flood risk, with special emphasis on reducing the loss of lives. The investment program closed on November 30 and the TC ended in September 2012. The final evaluation of both operations, conducted between June and November 2012, highlighted that the following outputs have been generated:

- **Installation of hydro-meteorological monitoring stations:** 2389/GR-HA has provided 54 operational hydro-meteorological monitoring stations in the 13 most vulnerable watersheds of the country with population at high risk. Installed equipment is providing quality information beyond the warning purpose in a context where almost no historic data is available. Today, the system is accumulating good quality of data for providing inputs to several researches including territorial and water management as well as its initial early warning purpose.
- **Information and communication system for flood alert:** 2389/GR-HA has developed observation wireless network connected from 54 monitoring stations to national authority, to forecast and observe potential flood and issue flood and hurricane alert to local authorities in real time. To this end, 2389/GR-HA has provided equipment (sirens, megaphones, mobile phones, etc.) to 32 target municipalities that allow alert communication from monitoring stations, national authority, and local authorities to communities. These 32 municipalities include 66 vulnerable communities that have been identified as the most vulnerable to floods. The communication process includes redundant satellite and GPRS (General Packet Radio Services) mobile network data transmission to servers in Haiti and France and the capacity to activate the alert systems.
- **Capacity development for departmental and municipal committees and authorities:** Both 2389/GR-HA and ATN/MD-11565-HA have provided series of training for organization of flood preparedness. As a result, 6 departmental and 32 municipal committees have been trained for emergency response and 32 municipal hazard maps, vulnerability assessment and community evacuation plans have been elaborated.
- **National authority's technical capacity** (particularly SNRE, CNM, COUN, DPC[2]) has been strengthened in order to be able to analyze data and activate the alert and sirens accordingly when rains, hurricanes or flooding are threatening the communities. 16 persons, from 6 key institutions have been trained to use the data management system (eVigilance software).
- **Public awareness and educational campaign:** Radio educational messages have been diffused continuously in 2012 in the 32 municipalities, reaching the 66 communities included at high risk.

After the implementation of both operations (2389/GR-HA and ATN/MD-11565-HA), the system is now in operation and managed by the executing unit that reports to MARNDR. The Ministry of Interior and Territorial Collectivities (MICT), through the Civil Protection Directorate (DPC) and the National Risk and Disaster Management Permanent System (SNGRD), is gradually increasing its participation in the use of the system.

Impacts of both operations are significant and generated a real improvement in the way early warning systems are being used effectively in the country. During four important events in 2011 and 2012 (Hurricanes Emily, Irène, Isaac and Sandy), the system has been used successfully. The alert sirens have been set off in most exposed towns and prevented potential loss in human lives. The program Technical Director participates in the National Emergency Operations Center (COUN), providing support and backstopping the use of the system capacities among COUN representatives.

2 SNRE: Water Resources National Service; CNM: Meteorology National Center; COUN: National Emergency Operation Center; DPC: Civil Protection Directorate.

The data collection, transmission and management processes are considered as solid inputs for the National System, and, according to the evaluation, the project is very well perceived as a step towards the consolidation and harmonization of early warning in the country. International and national stakeholders have expressed their determination in using project results in the process of local capacity building, a very important way for ensuring sustainability and enhancing project contributions.

However, some constraints and lessons learned have been identified during and at the end of both operations, particularly:

- There are still **unclear institutional arrangements** among the different entities involved in the different functions of the early warning system (EWS). The repartition of responsibilities has to be better defined and agreed among the different stakeholders. The final evaluation proposed a framework, which has to be discussed among the stakeholders in order to take the corresponding decisions. This is essential since this current situation makes that system maintenance in terms of equipment, procedures, and implementation is still coordinated by the program executing unit, and the handover of these responsibilities is still not clear.
- There are still **weaknesses in data analysis and management** at the national level, including the procedures to store, analyze, manage and use the information due to its complex processes. For example, on the basis of the more accurate hydro-meteorological data, it is still needed to further calibrate the system, for example by defining the thresholds of rains and river flows to which alarms have to be set off. Weaknesses in data management are particularly due to institutional weaknesses in the Water Resources National Service (SNRE), the agency responsible for information management in the field of water. This situation of this service is still unclear, its mandate and programmatic functions have to be better defined and its budget has to be increased.
- **Community awareness activities are very innovative and implicate new ways of working, behaving and collaborating** among institutions, national and local authorities and then providing activities toward the communities. This is particularly challenging in the Haitian context characterized by low educational level, as well as very weak public institutions which mandates are not always well defined. It is therefore still needed to further institutionalize technical outputs already developed (hazard maps, community safeguard plans etc.) toward local authorities in collaboration with other complementary initiatives.

Based on these lessons, the objective of this TC is to consolidate and upgrade the capacity of national and local authorities to identify and prepare for flood risk, by strengthening the flood early warning operation and communication system.

Although the institutional process for disaster risk reduction, initiated in 1999 with the creation of the National Risk and Disaster Management System, has been affected by the earthquake of January 2010, the post-impact context has created several concrete opportunities (in addition to the initiative of this TC) for continuing and enhancing the processes. For example, the World Bank (WB) is now implementing a project for capacity building at municipal level, USAID is implementing early warning systems in non-covered rivers, United Nations Development Program (UNDP) has been working in Departmental reinforcement for several years, and the Haitian Red Cross, with the support of the international community, has been working at community level. These initiatives from international organizations and the activities of this TC are considered to be complementary.

The proposed TC will contribute with GCI-9 sector priority “Protecting the environment, responding to climate change, promoting renewable energy, and enhancing food security” since it will contribute to protect vulnerable populations and reduce the economic damages and loss of lives from natural disasters.

III. Description of activities/components and budget

The objective of this TC is to consolidate and upgrade the capacity of national and local authorities to identify and prepare for flood risk, by strengthening the flood early warning operation and communication system.

The final evaluation has strongly suggested that the transfer of EWS should be immediately addressed and supported until a clear definition of responsibilities is established and future costs, operation and maintenance activities are assumed. Both operations have resulted in the production of reliable information that several institutions at different levels are ready to use. For this reason, this TC is mainly oriented to support this handover process and to develop simple and strategic mechanisms to ensure a smooth transition and mainstreaming of PNAP results into the National Risk and Disaster Management Permanent Secretariat. The activities are not intense in terms of resources or fieldwork (which have already been covered by both previous operations) but focused on knowledge transfer, definitions of EWS procedures, training to local users, and support to the institutional coordination process. In this sense the components are:

Consolidating EWS communication and operation system. Addressing the first and second aforementioned lessons (unclear institutional arrangements and weaknesses in data analysis and management), this component aims to: (i) define and reach consensus on the adequate institutional arrangement; and (ii) improve the processes for data collection and analysis as well as the transferability and use of such data to the responsible institutions at national and local levels. This will be achieved by improving protocols and procedures for data management, training for data users and supporting institutional arrangements required to facilitate these processes (see Result Matrix for activities in detail). Technical support will be provided to define and reach consensus on the institutional arrangements regarding EWS's functions and responsibilities in order to ensure adequate appropriation and sustainability of the investments in training and fine-tuning of the system. This implicates a strong commitment of the Government of Haiti in terms of mobilization of institutional, human and financial resources to the EWS.

Capacity building for local authorities for community awareness. Addressing the third lesson aforementioned (community awareness activities provision), this component aims to facilitate the transferability of risk management instruments developed in previous projects such as hazard maps, community safeguard plans, etc. to local authorities as well as departmental and communal civil protection committees, in collaboration with other complementary initiatives promoted by WB, USAID, UNDP or Red Cross (see Result Matrix for activities in detail).

Results Matrix

COMPONENT	OUTPUTS	RESULTS
Consolidating EWS communication and operation system	Workshop organized to define and reach consensus on the institutional arrangements regarding EWS's functions and responsibilities. Workshop organized to re-activate the Early Warning Thematic Committee Technical support provided to calibrate the EWS system, fine-tune the protocols, procedures and standards	EWS protocols and procedures clearly established and agreed upon with directly involved institutions.
	Training provided on data management processes (particularly E-Vigilance software[3]) for staff of relevant institutions.	40 staff of national institutions trained.

[3] E-Vigilance is the software developed to manage the flood early warning system. Through a remote control system using Internet network, the command center manages the data from monitoring stations as well as the alert system.

	Training provided on equipment maintenance for staff of relevant institutions	National team for the maintenance of EWS system is established
	Training provided on information and communication systems to national and local stakeholders (such as updating flood risk maps)	6 departmental and 32 municipal committees trained
Capacity building for local authorities for community awareness	Support provided to the "watch network" to strengthen its role in monitoring streams and flood anticipation Workshops organized to transfer operational instruments (evacuation maps, hardware, evacuation procedures and key messages) to Municipal Civil Protection Committees in coordination with DPC and other initiatives. Workshops organized to integrate EWS concepts and procedures in Community Intervention Teams in coordination with DPC, UNDP and Red Cross.	6 departmental and 32 municipal committees trained on the utilization of tools for community awareness Local protocols for the execution of the EWS established in accordance with National procedures

The supervision of the TC will be carried out by the RND specialist in COF/CHA. Technical visits and meetings will be held every two weeks with the executing agency, using transactional budget resources. Monitoring arrangements include a report to be elaborated by the executing unit every six month and will include the description and analysis of: i) physical and financial execution by component, ii) risk and related mitigation measures. A final financial audit will be carried by an independent firm at the end of the disbursement period, and a final evaluation of the TC will be done after the end of the execution period. The TC has a disbursement period of 18 months, including 15 months for activity execution.

Indicative Budget

Component	Description	MDP Funding '000 US$	Counterpart Funding	Total Funding '000 US$
COMPONENT 1 : activities				
Consolidating EWS communication and operation system	Workshop organized to define and reach consensus on the institutional arrangements regarding EWS's functions and responsibilities. Workshop organized to re-activate the Early Warning Thematic Committee Technical support provided to calibrate the EWS system, fine-tune the protocols, procedures and standards Training provided on data management processes (particularly E-Vigilance software) for staff of relevant institutions. Training provided on equipment maintenance for staff of relevant institutions Training provided on information and communication systems to national and local stakeholders (such as updating flood risk maps)	298	/	298
Capacity building for local authorities for community	Support provided to the "watch network" to strengthen its role in monitoring streams and flood anticipation Workshops organized to transfer operational instruments	70		70

awareness	(evacuation maps, hardware, evacuation procedures and key messages) to Municipal Civil Protection Committees in coordination with DPC and other initiatives. Workshops organized to integrate EWS concepts and procedures in Community Intervention Teams in coordination with DPC, UNDP and Red Cross.			
COMPONENT 2 : Administration, Audit and evaluation				
2.1 Administration		50		50
2.2 Audit		8	/	8
2.3 Evaluation		10	/	10
CONTINGENCIES		**4**		**4**
TOTAL		**440**	**/**	**440**

IV. Executing agency and execution structure

The Executing Agency will be the MARNDR, which will be responsible for the overall administration, execution and evaluation of the TC. It will be implemented through the *Bureau de Coordination de Programme PIA* (BCP-PIA), the executing unit within the MARNDR which implemented both operations HA-L1005 and HA-T1096. The BCP-PIA has extensive experience and capacities regarding project management on both technical and fiduciary aspects; it has all the financial and procurement mechanism in place and operational. The technical director of both operations, with the support of BCP-PIA, will be in charge of the TC execution, but in close collaboration with the different entities which are part of the EWS. All terms of reference, recruitment and supervision of firms and consultants will be done in hand with the respective institutions in order to ensure the appropriation of all processes. The different responsible parties are those already involved in EWS management, but with a clearer framework to be agreed (as recommended by the final evaluation): (i) MARNDR and MICT, which should animate the EWS thematic committee to ensure overall supervision of the system; (ii) SNRE, for equipment maintenance and data acquisition, transfer and analysis; (iii) National Geospatial Information Centre (CNIGS) for data storage; (iv) DPC for data analysis and activation of alarms; and (v) other complementary institutions involved in the different functions, such as the CNM for data acquisition or the Red Cross for alarm and warning activation.

V. Major issues

Fiduciary risks: The fiduciary risk is low since BCP-PIA has extensive experience in managing IDB-financed programs since it implemented the operations HA0016, HA-L1021, HA-L1009, HA-L1005 and HA-T1096, for a total amount of more than US$ 86 million. BCP-PIA manages an appropriate computerized accounting system and maintains a strong internal control where a clear separation of functions among administrative and accounting personnel is evident. BCP-PIA also shows an outstanding capacity to carry out procurement activities and is placed under ex-post supervision since April 2009 for direct contracting and shopping, based on the institutional capacity assessment performed by the Bank. For the procurement of goods, works and services the BCP-PIA will follow the procurement policies of the Bank (GN-2350-9 for services, GN-2349-9 for goods and works).

Other issues: From a technical point of view, the risk is low, considering that there is still an on-going maintenance contract with an international company for a period of two years, and that communication and data storage costs are not elevated. The main potential risk of the TC is associated with the insufficient institutional capacity and limited coordination among actors. In this sense the main issue concerns the political and institutional environment and the real possibility to ensure decision-making in the handover process, particularly:

- Decisions concerning the institutional arrangements that have to be taken by the national authorities (Ministers of Interior, Agriculture and Environment) will be determinant for EWS sustainability and performance. The transition from the project approach to the institutional approach requires clear institutional leadership from MARNDR and MICT, in order to mainstream PNAP results into the SNGRD processes. Otherwise, it will continue to be seen as a "project" initiative instead of a national institutional effort. This risk is medium and will be mitigated by the proper activities of this TC.
- The institution that should carry out the majority of EWS technical activities (SNRE) requires strong institutional development, or otherwise, a new institutional arrangement for climate and hydro-meteorological information management should be developed. This risk is medium and will be mitigated by part of the activities of this TC. IDB's strong role in sectorial policy dialogue will contribute to foster institutional development. The inclusion of a corresponding conditionality in the next policy-based grant linked to sector policy reforms should be envisaged.
- The evaluation pointed out the deterioration process of the technological equipment. It is crucial for sustainability that MARNDR, owner of the equipment, takes in charge the supervision and monitoring of the maintenance with the international company, and starts as soon as possible to integrate the maintenance into the pertinent institutions. This risk is medium and will be mitigated by the proper activities of this TC.

VI. Exceptions to Bank policy

There is no exception to Bank policy.

VII. Environmental and Social Strategy

This TC should be classified "C" as it will have no negative impact on environment and natural resources.

Required Annexes:

- Terms of Reference
- Procurement Plan
- Safeguard Policy Filter Report and Safeguard Screening Form

CAPACITY BUILDING FOR SUSTAINABLE MANAGEMENT OF THE FLOOD EARLY WARNING SYSTEM

HA-T1156

CERTIFICATION

I hereby certify that this operation was approved for financing under Multi-donor Disaster Prevention Fund (MDP) through a communication dated on November 12, 2012 sent by Jane de Souza Silva (ORP/GCM.) Also, I certify that resources from the Multi-donor Disaster Prevention Fund (MDP) are available for up to US$440,000 in order to finance the activities described and budgeted in this document. This certification reserves resources for the referenced project for a period of four (4) calendar months counted from the date of eligibility. If the project is not approved by the IDB within that period, the reserve of resources will be cancelled, except in the case a new certification is granted. The commitment and disbursement of these resources shall be made only by the Bank in US dollars. The same currency shall be used to stipulate the remuneration and payments to consultants, except in the case of local consultants working in their own borrowing member country who shall have their remuneration defined and paid in the currency of such country. No resources of the Fund shall be made available to cover amounts greater than the amount certified herein above for the implementation of this operation. Amounts greater than the certified amount may arise from commitments on contracts denominated in a currency other than the Fund currency, resulting in currency exchange rate differences, for which the Fund is not at risk.