

TC DOCUMENT

WATER RESOURCES AND ADAPTATION TO CLIMATE CHANGE IN EMERGING AND SUSTAINABLE CITIES RG-T2075

I. Basic Information for TC

- Country/Region: REGIONAL
- TC Name: CLIMATE CHANGE ACTION PLANS IN EMERGING AND SUSTAINABLE CITIES
- TC Number: RG-T2075
- Associated Loan/Guarantee Name: N/A
- Associated Loan/Guarantee Number: N/A
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Javier Jiménez (LEG/SGO)
Patricia Torres (ICF/FMM)
Irene Cartin (INE/WSA)
- Date of TC Abstract authorization: N/A
- Donors providing funding: Multi-donor Aquafund (MAF)
- Beneficiary (countries or entities which are the recipient of the technical assistance): REGIONAL
- Executing Agency and contact name: BANK EXECUTED
- IDB Funding Requested: 700,000 USD
- Local counterpart funding, if any: N/A
- Execution period: 24 Months
- Disbursement period (which includes execution period): 30 Months
- Required start date: June 2012
- Types of consultants (firm or individual consultants): FIRM AND INDIVIDUAL CONSULTANTS
- Prepared by Unit: INE/WSA
- Unit of Disbursement Responsibility : INE/WSA
- TC Included in Country Strategy (y/n); TC included in CPD (y/n): N/A
- GCI-9 Sector Priority: CLIMATE CHANGE AND ENVIRONMENTAL SUSTAINABILITY

II. Description of the Associated Loan/Guarantee

N/A

III. Objectives and Justification of the TC

In emerging urbanizing areas of the LAC region, climate change will likely lead to greater variability in the intensity and frequency of hydro-meteorological events, sea level rise, with potentially significant effects on water availability and associated flooding/scarcity risks. In most cases, it is expected that climate change will increase pressure on vulnerable populations, who have a lower capacity to adapt to these changes. For instance, half of LAC cities with populations of over five million are located in low-elevation coastal zones, prone to flooding and vulnerable to hydroclimatic extreme events. Sea level rise could result in salinization of coastal aquifers, which are the primary source of water in these cities. On the other hand, cities located at high altitudes are vulnerable to changes in the availability of water, caused, for example, by the deterioration of highland wetlands and natural reservoirs.

The main objective of this project is to support water resources and adaptation to climate change methodological development and project identification in emerging cities of the LAC region. To this end, the project will develop and implement a methodology and implementation that will allow these cities to: (i) identify vulnerabilities in their water resources systems -water sources, access and sanitation infrastructure, and management of the water cycle- to climate change; (ii) prioritize the necessary actions to manage these vulnerabilities; and (iii) develop action plans for three emerging cities in C & D countries in the region.

The execution of this project will be linked to climate change action plans that will be developed under a separate Technical Cooperation Project (RG-X1140), which is focused on the development of complementary mitigation (emissions reduction) and adaptation actions that are not related to water resources (e.g., land use, institutional, governance, and others).

This project is aligned with the lending target of “climate change, sustainable energy and environmental sustainability” of the GCI9.

IV. Description of activities/components and budget

The methodology to be developed and implemented for this project entails the following activities, outputs and results:

ACTIVITIES:

Activity 1. The hydroclimatic risk and vulnerability mapping proposed as a tool to identify adaptation measures in three cities in C&D countries will include the study of several hydrological, climatological and water resources phenomena such as tropical cyclones, storm surge, extreme rainfall, flooding, heat or cold-waves, drought, temperature, precipitation, salinity intrusion, and sea level rise. Analyzing vulnerability, or the degree to which cities may be harmed, will require integration of different types of information about

exposure, susceptibility (sensitivity) and adaptive capacity. For each city, this information will consist of the following databases (as existing):

- **Water Infrastructure and Investments:** mapping of water, sanitation and other utilities, public health facilities, industrial systems, as well as natural infrastructure (e.g., wetland delineation).
- **Climatology:** Gridded objective analysis of daily rainfall, surface temperature and other quality-controlled data for mapping extreme events (e.g., droughts, floods, and heat waves), standardized precipitation index based on the long-term climate and satellite-based precipitation data.
- **Hydrology:** Map watersheds, stream flow, runoff, infiltration, evapotranspiration, surface water and groundwater elevation.
- **Socioeconomic:** Gridded maps of population estimates; map livelihood patterns (rural/urban); income and consumption patterns; food grain prices and trends over the long-term; variations in prices during extreme climate events.
- **Agriculture:** Quantify and map sown area, crop vigor and variations using long-term vegetation indices; crop moisture index, change in cropping patterns, irrigation area, yield and productivity.

The methodology followed for the inventories and forecast report will be chosen in order to fit with local standards and coordinated with national communications. The information will be based on appropriate accounting methodologies depending on the sector and will ensure the reporting of a basic baseline. Based on the information collected, the Action Plan will contain areas of action and reduction potentials that will empower local authorities in their commitment to tackle global warming. Several potential providers to support this task have already been identified and a competitive bid will finalize the process of selection, for both studies.

The risk and vulnerability mapping results will be disseminated through a capacity building workshop to take place in each of the beneficiary cities (3 workshops).

Activity 2. This task consists of the development of a methodology to identify, prioritize and select actions in the water sector that offer the most return on investment in decreasing vulnerabilities and enhancing responsiveness in adapting to climate change effects.

The methodology to be developed will be based on the IDB-Developed ESCP methodology, deepening the focus on implementation of climate change adaptation actions (one of the three “pillars” of the ESCP methodology) in the water sector. This methodology consists of a rapid and action-oriented assessment that will guide the city to sustainability. By collecting data from the city with a set of over 50 quantitative indicators focusing on different topics of environmental, urban and fiscal sustainability, the results are compared to their

respective regional benchmarks and classified in three levels: “red” below minimum acceptability line for sustainability, “yellow” existence of a sustainability gap which needs improvement, and “green” sustainable performance. This comprehensive approach promotes an integrating vision, so as to be relevant and practical to all city stakeholders. Therefore, this stage involves the mayor and her/his work team, the public administration at different institutional levels, the private sector, and civil society. The information is also compared to peer cities of the country and the region across many indicators providing a greater visualization of areas for improvement in water related matters at the city level.

Activity 3. The methodology developed under Task 2 will be applied as a climate change adaptation “filter” tool in the three cities for water sector actions identified by the methodology. The filter will enhance the importance of the need of awareness of local authorities to consider adaptation to climate change into their development plans as a long term strategy. A combination of recently developed qualitative and quantitative methods (e.g., climate-proofing tools) as well as previous methodologies (e.g., decision trees and multiple objective optimization) will be considered for this task. The role of this filter is to upgrade actions that lead to greater improvements in the capacity of a city to answer to adaptation challenges in the water sector. It is envisioned that once the filter is tested and implemented in the three cities, it will become part of IDB’s “ESCP toolkit”.

Activity 4. This task consists of the formulation of action plans in three ESCP cities. The activities to be carried out in each city will be developed as indicated: (i) engagement of city stakeholders and assessment of city’s hydroclimatic vulnerability; (ii) identification and prioritization of adaptation areas and definition of a set of actionable solutions, including those actions prioritized by methodologies designed and applied on previous tasks; and (iii) creation of the action plan and financial plan for major initiatives. The prioritized issues, along with their solutions, will be structured into the action plan with clear goals (short/medium/long term). Also, conceptualization at the prefeasibility level of at least three water projects selected as a result of prioritization by their contribution to adaptation to climate change will be performed. An identification of estimated resources to execute them in the future in the beneficiary cities, as well as an estimate of investment amounts and schedules at a level of detail that is sufficient for preliminary loan preparation at the IDB will be performed. The results of this task will be disseminated through a capacity building workshop to take place in each of the beneficiary cities (3 workshops).

Activity 5. This task entails the structuring and implementation of an independent citizen monitoring system and an evaluation framework in the three cities. The objective of the latter is to monitor and evaluate medium and long-term changes in the conditions of sustainability (climate change) in the city’s water systems that are the subject of the action

plan. The resources will be used to design, install, and launch the system, which will subsequently be operated by the private sector, civil society, academia, or others.

A final summary capacity building workshop will take place at the IDB headquarters, to present the overall scope and results of this TC project. This workshop will be broadcasted to all IDB offices for regional dissemination purposes.

OUTPUTS

Output 1. Hydrology and climate related vulnerabilities in 3 beneficiary cities are characterized (vulnerabilities characterized).

Output 2. A methodology to identify, prioritize and select water sector actions which contribute to adaptation to CC effects in cities is developed (methodology developed).

Output 3. The methodology to filter water sector actions based on climate change impacts is implemented in three beneficiary cities (methodology implemented).

Output 4. Water resources and adaptation to climate change action plans for the 3 beneficiary cities are formulated (action plans formulated).

Output 5. Design and implementation of citizen systems to monitor and evaluate climate change performance of adapted water resources systems (systems designed and implemented).

OUTCOMES

Result 1. Hydrology and climate related vulnerabilities in water resources systems for 3 beneficiary cities are characterized according to the specifications of the studies financed by this TC.

Result 2. The methodology developed in this study identifies, prioritizes and selects water-related actions which contribute to adaptation to climate change effects in cities.

Result 3. The methodology in this study filters sectors and actions based on climate change impacts in the three beneficiary cities.

Result 4. Action Plans for the three beneficiary cities are formulated according to the specifications of the studies financed by this TC.

Result 5. Citizen-based systems to monitor and evaluate climate change performance provide measurable quantitative outcomes.

Indicative Results Matrix

Project Component	Outputs	Results
Component 1: Hydroclimatic risk and vulnerability mapping	Output 1. Hydrology and climate related vulnerabilities in 3 beneficiary cities are characterized (vulnerabilities characterized).	Result 1. Hydrology and climate related vulnerabilities in water resources systems for 3 beneficiary cities are characterized according to the specifications of the studies financed by this TC.
Component 2: Methodology development	Output 2. A methodology to identify, prioritize and select water sector actions which contribute to adaptation to CC effects in cities is developed (methodology developed).	Result 2. The methodology developed in this study identifies, prioritizes and selects water-related actions which contribute to adaptation to climate change effects in cities.
Component 3: Methodology implementation	Output 3. The methodology to filter water sector actions based on climate change impacts is implemented in three beneficiary cities (methodology implemented).	Result 3. The methodology in this study filters sectors and actions based on climate change impacts in the three beneficiary cities.
Component 4: Action plan formulation	Output 4. Water resources and adaptation to climate change action plans for the 3 beneficiary cities are formulated (action plans formulated).	Result 4. Action Plans for the three beneficiary cities are formulated according to the specifications of the studies financed by this TC.
Component 5: Citizen systems for monitoring and evaluation	Output 5. Design and implementation of citizen systems to monitor and evaluate climate change performance of adapted water resources systems (systems designed and implemented).	Result 5. Citizen-based systems to monitor and evaluate climate change performance provide measurable quantitative outcomes.

Indicative Budget

Component	Description	Total Funding (MAF) ⁽¹⁾
1	Hydroclimatic risk and vulnerability mapping	150,000
2	Methodology development	150,000
3	Methodology implementation	150,000
4	Action plan formulation	150,000
5	Citizen systems for monitoring and evaluation	100,000
TOTALS		700,000

(1) MAF = Multidonor AquaFund

V. Executing agency and execution structure

This is a Bank-originated TC, aimed at developing a set of water resources and adaptation to climate change case studies that can be used as a reference tool for similar interventions in other Bank member countries and regions. In synergy with the ESCP, it is important that knowledge in the area of water resources and adaptation to climate change is cultivated in the Bank, and this TC offers a clear opportunity to do so. The execution of this TC will provide a learning, knowledge transfer and data gathering opportunity for Bank staff involved in issues of water resources, vulnerability and adaptation to climate change, which is a new area of work that the Bank (and particularly the WSA division) has engaged in recently. Therefore, it is deemed critical that this TC is Bank-executed.

VI. Major issues

The primary risk for implementation of this TC project is the availability of baseline data for climate change in the potential beneficiary cities. Because of this, data availability will be made a key criterion for the selection of the three cities for this project, and also access to data and data-readiness will be a key criterion for consultant selection.

Another potential risk is the distributed nature of this project, which takes place in three cities simultaneously. To mitigate this risk, preference will be given to consultants who have the experience, person-power and local presence in the 3 study locations.

VII. Exceptions to Bank policy

N/A

VIII. Environmental and Social Strategy

Following ESG's project classification process (Safeguard Policy Filter and Safeguard Screening Form) requirements, it has been determined that this project falls under Category C. No environmental assessment studies or consultations are required for Category "C" operations. #[36729750](#)

Required Annexes:


- Request from the client (e.g. Letter of Request, Programming/Portfolio Review Mission Aide Memoire or Report requesting the TC): N/A
- Terms of Reference for activities/components to be procured: #[36728262](#)
- Procurement Plan: #[36728203](#)
- Detailed Budget: #[36728234](#)

WATER RESOURCES AND ADAPTATION TO CLIMATE CHANGE IN EMERGING AND SUSTAINABLE CITIES

RG-T2075

CERTIFICATION

I hereby certify that this operation was approved for financing under the Multidonor AquaFund (MAF) through a communication dated on March 13, 2012 and send by Gerhard Lair, ORP/GCM. Also, I certify that resources from the Multidonor AquaFund (MAF) are available for up to US\$700,000 in order to finance the activities described and budgeted in this document. This certification reserves resources for the referenced project for a period of three (3) calendar months counted from the date of signature below. 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 document. 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.

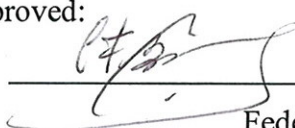


Sonia M. Rivera
Chief a.i.
Grants and Cofinancing Management Unit
ORP/GCM

03/30/2012
Date

APPROVAL

Approved:



Federico Basanes
Chief
Water and Sanitation Division
INE/WSA

4/21/2012
Date