

TC Document

I. Basic Information for TC

▪ Country/Region:	REGIONAL
▪ TC Name:	Support for flood preparedness and mitigation in urban basins and water security.
▪ TC Number:	RG-T4525
▪ Team Leader/Members:	Nalesso, Mauro (INE/WSA) Team Leader; Rezzano Tizze, Nicolas Guillermo (INE/WSA) Alternate Team Leader; Escovar Bernal, Maria Alejandra (CSD/RND); Centeno Lappas, Monica Clara Angelica (LEG/SGO); Inchauste Daza, Adriana (INE/WSA); Sanchez Greer Rilla May (CSD/CCS); Porta Garcia, Raimon (VPS/ESG); Crespin Villatoro, Alexandra (INE/WSA); Bendix, Willy (VPC/FMP)
▪ Taxonomy:	Client Support
▪ Operation Supported by the TC:	.
▪ Date of TC Abstract authorization:	March 24, 2024
▪ Beneficiary:	All borrowing Countries of the IDB
▪ Executing Agency and contact name:	Inter-American Development Bank
▪ Donors providing funding:	OC SDP Window 2 - Infrastructure(W2B)
▪ IDB Funding Requested:	US\$300,000.00
▪ Local counterpart funding, if any:	US\$0
▪ Disbursement period (which includes Execution period):	30 months
▪ Required start date:	August 1st, 2024
▪ Types of consultants:	Firms and Individuals
▪ Prepared by Unit:	INE/WSA-Water & Sanitation
▪ Unit of Disbursement Responsibility:	INE/WSA-Water & Sanitation
▪ TC included in Country Strategy (y/n):	No
▪ TC included in CPD (y/n):	No
▪ Alignment to the Update to the Institutional Strategy:	Environmental sustainability; Gender equality; Institutional capacity and rule of law; Productivity and innovation; Social inclusion and equality

II. Objectives and Justification

- 2.1 The objective of this TC is to improve institutional capacities for flood management, preparedness, and mitigation in urban areas. Additionally, it aims to support technical activities that ensure water security and to guarantee that infrastructure projects and investments meet their operational, financial and economic goals.
- 2.2 In 2016, through a PSG from Pepsico Foundation, the TC Inter-American Technical Support Center (TSC) for Applied Water Resources Management (ATM/CF-15895-RG) was established. This project facilitated the creation of the HydroBID Support Center (CeSH in Spanish), aimed at assisting countries in modernizing and improving their water resource management. The CeSH coordinates several key activities including a) developing and maintaining the HydroBID model suite, b) delivering and coordinating technology transfer processes, c) launching and promoting the HydroBID Community of Practice, d) supporting Sovereign Guarantee project preparation, and e) promoting the implementation of Information Support, Decision Support and Early Warning Systems.

- 2.3 In 2020, TC project HydroBID Support Center for Applied Water Resources Management in LAC (ATN/MA-18004-RG) was approved to ensure the continuity and consolidation of the CeSH's activities and support to IDB member countries. This initiative includes helping in the preparation and execution of investment programs, thereby strengthening the capacity of member countries to manage water resources effectively.
- 2.4 The CeSH has reached 23 of the 26 IDB borrowing member countries and has supported 20 investment programs in the infrastructure, climate change and sustainability sector. The CeSH has consistently worked to improve the technical capacity of agencies in the region by collaborating with various sectors, including academia, to guarantee the sustainability of these efforts.
- 2.5 The foundation of the CeSH's success lies in the suite of models known as HydroBID: HydroBID WAM, HydroBID Alloc and HydroBID Flood. HydroBID WAM is a water availability model based on the Latin-American and Caribbean Hydrographic Analytic Database (AHD), which contains information from over 300,000 basins in the region. HydroBID Alloc complements HydroBID WAM for water balance calculations, allowing the incorporation of intersectoral water demands, constraints, and reservoir and infrastructure operations to improve water distribution and minimize water deficits among sectors. HydroBID Alloc also includes an economic model to estimate the cost of water deficits.
- 2.6 HydroBID Flood is a top class 2D hydrodynamic and hydrologic model developed for the IDB, capable of detailed analysis of floods effects (rain, rivers and coast) including their economic impacts. This model supports the design of resilient infrastructure such as channels, drainage systems, dams, levees and bridges. Since 2018, HydroBID Flood has been used to assess flood impacts and support or evaluate infrastructure design in Brazil, Argentina, Colombia, Paraguay, Bolivia, Uruguay, Venezuela, Peru, Guyana, Honduras, Guatemala, México, Haiti, Trinidad and Tobago, and Dominican Republic.
- 2.7 The success of the initiative relies on four main elements: 1) model's quality in terms of accuracy and adaptability, 2) technology transfer through guided projects and an extensive capacity building program, 3) technical support and sustainability guarantees provided by the IDB CeSH, and 4) the license-free nature of the model.
- 2.8 This TC will enable the CeSH to continue supporting regional clients through focused workshops that promote knowledge sharing, best practices and discussion on challenges related to flood preparedness, mitigation and adaptation. These workshops will precede the 5th Encounter of the HydroBID Community of Practice will take place, to be held in El Salvador, aimed at establishing a regional network of experts to support future activities. A ministerial roundtable will be convened to under scope the importance of investing in preparedness and planning to mitigate economic losses due to extreme events.
- 2.9 Additionally, this TC will ensure the continuity of CeSH activities in supporting internal clients (IDB's sectors, divisions and units) by implementing models to evaluate infrastructure and conduct climate change analyses to support loan preparation and execution. It will also facilitate studies in improving flood hazard, risk and vulnerability assessment at different scales, aiming to create a unified framework across all the sectors of the bank. In 2024, the CeSH is already supporting the following investment programs: Resilient Transport Infrastructure: Support for the Development to Transport Infrastructure Adaptable to Climate Change (DR-T1173 – ATN/AC-16831-

DR/OC-16930-DR) (INE/TSP), Road Infrastructure Program and promotion of Public-Private Partnerships (CR-L1139 - 4864/OC-CR) (INE/TSP), CA-9 North Corridor Development Program: Teculután – Mayuelas Sub Section (GU-L1189) (INE/TSP) and ProMorar Sao Luis/MA – Vem Pro Centro (BR-L1628) (CSD/HUD) assisting in hazard, risk and vulnerability assessments at an infrastructure level.

- 2.10 In 2023, the Municipality of Montevideo, Uruguay, requested access to HydroBID Flood and support for technology transfer to evaluate its potential in mitigating the effects of regular rainfall-induced flooding in certain areas of the capital. Using the RG-T3602 resources and as part of the CeSH's activities, a short training was conducted in 2023, and a license was granted to the municipality. Since then, the municipal technicians have made significant efforts to implement the model in prioritized urban watersheds. Due to the magnitude and complexity of these efforts, providing dedicated support is one of the main objectives of this TC. Through this TC, targeted support for the implementation and use of flood models in Montevideo's urban watersheds, including the incorporation of drainage systems, will be delivered, thereby bolstering ongoing IDB efforts in flood management in Uruguay.
- 2.11 Women and children are 14 times more likely than men to die during a disaster. Furthermore, globally, 80% of people displaced by extreme climate events are women. However, they are underrepresented in discussions on climate change: their presence in the delegations that countries send to the COP does not exceed 40%, while their participation as heads of delegation is limited to 27%¹. For this reason, this TC will include awareness-raising and training activities on the link between gender inequalities and climate change, in the Encounter of the Community of Practice (ECOP in Spanish) event. The aim is to ensure that mitigation and adaptation strategies include a gender focus, guaranteeing equality and inclusion in the policies designed.
- 2.12 This TC aligns with the IDB Group Institutional Strategy: Transforming for Scale and Impact (CA-631 / 03/10/2024) and supports objective(s) including: (i) reducing poverty and inequality; and (ii) addressing climate change; and (iii) bolstering sustainable regional growth by improving the technical-scientific knowledge for flood mitigation and promoting o intersectoral collaboration. The Program is also consistent with the operational focus area(s) of: (i) biodiversity, natural capital and climate action by improving technical-scientific knowledge required for flood preparedness and mitigation, particularly in the context of climate change; and (ii) gender equality and inclusion of diverse population groups by strengthening institutional capacities with a significant gender mainstreaming; and (iii) enhancing institutional capacity, rule of law, and citizen security by consolidating the HydroBID Community of Practices network, contributing to the "Sustainable, Resilient, and Inclusive Infrastructure" focus area. The TC also aligns with the priorities 1) climate change and environmental sustainability) and 2) resilient and sustainable infrastructure of the OC SDP Window 2 - Infraestructura (W2B) fund. The TC aligns with the Country Strategy ([GN-3056-1](#)) as it will help to mitigate one of the principal risk identified for the country (natural disasters).
- 2.13 Women and children are 14 times more likely than men to die during a disaster. Furthermore, globally, 80% of people displaced by extreme climate events are women. However, they are underrepresented in discussions on climate change: their presence in the delegations that countries send to the COP does not exceed 40%, while their

¹ Marcos, Paloma (2021). El techo de cristal para las mujeres en la agenda de cambio climático. Blog del BID.

participation as heads of delegation is limited to 27%². For this reason, this TC will include awareness-raising and training activities on the link between gender inequalities and climate change, in the Encounter of the Community of Practice (ECOP in Spanish) event. The aim is to ensure that mitigation and adaptation strategies include a gender focus, guaranteeing equality and inclusion in the policies designed.

III. Description of components and budget

- 3.1 The proposed TC project entails the following components, outputs and results.
- 3.2 **Component 1 HydroBID Flood Service Offering and Applications in Montevideo, Uruguay (100,000.00 USD).** Through a consultancy service, the CeSH will support the Municipality of Montevideo, Uruguay, in implementing HydroBID Flood in the urban watershed of the Arroyo Malvin and other urban watersheds. It will also improve technical capacities of the agency team to operate the model³: A technical note regarding the implementation of HydroBID Flood will be developed.
- 3.3 The support will include, at least the following activities:
 - Technical Support: (i) Technical support delivered remotely using email, phone, and Web; (ii) Technical support delivered in-person at the client institution's site to develop expert HydroBID Flood users as lead practitioners for the institutions; (iv) Data review, formatting; Technical support will be provided by the IDB team or the technical consultant. This support will facilitate the implementation of the complete model of the Arroyo Malvin watershed in order to have a fully operational model that will allow to evaluate and improve the design of drainage infrastructure and be the base of an urban early warning system.
 - Training: advanced training will be provided to the technicians of the Municipalidad of Montevideo to guarantee the appropriate level of technological transfer. This training scope will be tailored based on the client's specific requests.
 - This TC will have synergies with other bank operations in Uruguay like the UR-T1314 (Strengthening the governance of Disaster Risk Management (GRD) and Upgrading the Early Warning System (SAT) in Uruguay) by adding a digital solution that will improve preparedness and set the basis for an early warning system in Montevideo and UR-T1319 by implementing technology transfer for the improving of knowledge and capacities of local authorities.
- 3.4 **Component 2- Encounter of the Community of practice (ECOP in Spanish) event (150,000.00 USD).** This component will focus on dissemination to strengthen the institutional capacities. The ECOP financed with this component serves as a forum for presenting and discussing issues relevant to the implementation of the HydroBID initiative and water resources management in Latin America and the Caribbean. The annual and itinerant event features plenary sessions, workshops, panels and refresher courses to establish a technical and direct regional dialogue. The event will be

² Marcos, Paloma (2021). El techo de cristal para las mujeres en la agenda de cambio climático. Blog del BID.

³ A Non-Objection letter from the Bank Liaison entity was requested and is available.

attended by representatives of agencies, institutions and universities in the region that have applied or are in the process of applying the HydroBID suite will also include current partners involved in the development and application of the models, along with globally recognized experts. This year's event will also feature a ministerial round table to discuss the importance of financing preparedness and adaptation to reduce economic losses from extreme events. A participation record will be made disaggregated by gender. An awareness-raising and training activities plan on the link between gender inequalities and climate change will be implemented in the Encounter of the Community of Practice event (gender target).

- 3.5 **Component 3 – HydroBID Support Center service offering, dissemination and innovation (50,000.00 USD).** The CeSH will continue to support both internal and external clients with the HydroBID suite of models. This includes maintaining the HydroBID software and website, providing necessary updates to ensure functionality; and developing new applications to meet the water resource planning and management needs of institutional clients. Additionally, the CeSH will provide access to the HydroBID software through licenses issued to institutional users. Specific responsibilities under this component include: (i) Update HydroBID software to preserve functionality on selected operating systems and inter-operability with related software; (ii) provide free access to HydroBID software and the LAC AHD to water resource management/water supply institutions and other non-profit institutions; (iii) develop specialized applications that add new functionalities within the HydroBID suite of models or operable links with related software; and, (iv) disseminate by developing knowledge products and increasing accessibility to digital products such as the HydroBID SPOC.
- 3.6 The total project cost amounts to US\$300,000 is financed entirely by the Ordinary Capital Strategic Development Program (OC SDP) Window 2 - Infrastructure (W2B).

Indicative Budget

Activity/Component	Description	IDB/Fund Funding	Total Funding
Component 1	HydroBID Flood Service Offering and Applications in Montevideo, Uruguay	100,000	100,000
Component 2	Encounter of the Community of practice	150,000	150,000
Component 3	HydroBID Support Center support, dissemination and innovation	50,000	50,000
Total		300,000	300,000

IV. Executing agency and execution structure

- 4.1 This TC is based on an IDB regional initiative, the HydroBID Support Center (CeSH) that has been given technical support and technology transfer to the borrowing countries and bank operations since 2016 through internal support (specialist and consultants), technical partners and member of the HydroBID community of practices, for this reason TC will be executed by the IDB through the Water and Sanitation

Division (INE/WSA) since the IDB has the necessary technical expertise in applying and providing technical support in collaboration with the country sector specialists and its offices, this was requested by the Ministry of Finance of Uruguay ([Request from the Client](#)). It should be noted that letters from the countries that will benefit from this TC will be obtained in due course.

- 4.2 All procurement to be executed under this Technical Cooperation have been included in the Procurement Plan (Annex IV) and will be hired in compliance with the applicable Bank policies and regulations as follows: (a) Hiring of individual consultants, as established in the regulation on Complementary Workforce (AM-650) and (b) Contracting of services provided by consulting firms in accordance with the Corporate procurement Policy (GN-2303-33) and its Guidelines
- 4.3 Since 2023, the Municipality of Montevideo has been receiving technical support on the implementation of HydroBID Flood from the HydroBID Support Center through one of its technical partners, Hydronia LLC (HydroBID Flood developer) for the implementation on the Arroyo Malvin. Due to its importance and complexity, the Municipality has requested more in-depth support to finalize and operationalize the model and implement the model in additional urban watersheds. As mentioned previously and following the new Corporate Procurement Policy this TC will include a direct contract for Hydronia LLC based on that the work is a natural continuation of a previous work, and because as developer of the model the company is the only qualified and with experience to deliver a quality product that additionally brings the compatibility with the model that is being implemented.
- 4.4 The ownership and intellectual property rights of the reports and other related documents produced within the framework of this TC will be property of the IDB.

V. Major issues

- 5.1 One risk associated with the implementation of this TC is that the CeSH may be unable to meet the high demand for HydroBID applications and technical support from IDB clients. To mitigate this risk, the IDB will strengthen its partnerships with academia, local agencies and institutions such as RTI International, Hydronia and the HydroBID community of practice. This collaboration aims to ensure that sufficient technical resources are available to meet both current and future demands.

VI. Exceptions to Bank policy

- 6.1 This TC does not involve any exceptions to the Bank's Policies.

VII. Environmental and Social Aspects

- 7.1 This Technical Cooperation is not intended to finance pre-feasibility or feasibility studies of specific investment projects or environmental and social studies associated with them; therefore, this TC does not have applicable requirements of the Bank's Environmental and Social Policy Framework (ESPF).

Required Annexes:

[Request from the Client 1918.pdf](#)

[Results Matrix 96423.pdf](#)

[Terms of Reference 87450.pdf](#)

[Procurement Plan_93517.pdf](#)

- [Gender Checklist](#)