**TC ABSTRACT**

**I. Basic Project Data**

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| ▪ Country/Region: | REGIONAL/IDB |
| ▪ TC Name: | Regional Hydropower Modernization Program |
| ▪ TC Number: | RG-T4006 |
| ▪ Team Leader/Members: | Arturo Alarcón (INE/ENE), Team Leader; Héctor Baldivieso (INE/ENE), Alternate Team Leader; Virginia Snyder; Sergio Ballón; José Antonio Urteaga; Jordi Abadal; Yumi Nakagawa and Fidel Márquez (INE/ENE); Daniela Acevedo (LEG/SGO); Robert Langsroth (VPS/ESG); PORTA GARCIA, RAIMON (VPS/ESG) |
| ▪ Taxonomy: | Client Support |
| ▪ Number and name of operation supported by the TC: | N/A |
| ▪ Date of TC Abstract: | 27 Sep 2021 |
| ▪ Beneficiary: | Bolivia, El Salvador, México, Suriname |
| ▪ Executing Agency: | Inter-American Development Bank |
| ▪ IDB funding requested: | US$1,500,000.00 |
| ▪ Local counterpart funding: | US$0.00 |
| ▪ Disbursement period: | 36 months |
| ▪ Types of consultants: | Individuals; Firms |
| ▪ Prepared by Unit: | INE/ENE - Energy |
| ▪ Unit of Disbursement Responsibility: | INE/ENE - Energy |
| ▪ TC included in Country Strategy (y/n): ▪ TC included in CPD (y/n): | No No |
| ▪ Alignment to the Update to the Institutional Strategy 2010-2020: | Productivity and innovation; Environmental sustainability |

**II. Objective and Justification**

2.1 The main objective of this TC is to support the modernization of hydropower plants in Latin American and Caribbean countries. Its specific objectives are to: (i) support studies to develop, at least, four hydropower modernization projects; (ii) support the development of regulations to support hydropower modernization; and (iii) conduct at least one capacity building seminar for hydropower modernization in the region.

2.2 Nearly half of electricity in Latin America and the Caribbean (LAC) depends on hydroelectricity, which continues to be the largest source of renewable energy (RE) in the region, with more than 200 GW installed. This hydro-energy capacity has allowed LAC to be the region with the cleanest electricity matrix in the world, to have low-cost RE, and to be in an excellent position to accelerate the penetration of variable renewable energies sources, such as wind and solar energy. Countries in the region are beginning to plan a transition towards a low carbon economy, which is based on the increased participation of RE sources and a higher electrification of other sectors of the economy (such as transport and industry). Electricity demand is expected to continue growing in the next decades (2.8 to 3.5% per year), doubling by 2040. In this context, hydropower is essential as the largest source of RE, also capable of providing storage and flexibility to the system. The storage and grid services provided by hydropower are critical to guarantee energy security and to support further penetration of variable renewable sources without increasing emissions. Digitalization of hydropower infrastructure will become essential in the coming years, to improve its efficiency, maintenance, and security, as well as to coordinate its operation with other energy sources and other water uses (irrigation, flood control, etc.).

2.3 More than half of the hydroelectric capacity in LAC has reached a stage of its useful life that requires some level of modernization. So, assessing the state the assets and implementing improvements in the existing hydropower infrastructure is one of the fundamental issues to enable LAC’s energy transition. According to the conclusions of the studies and analysis carried out by the Energy Division of the Inter-American Development Bank (IDB), the region needs to mobilize at least of US$5 billion of investments in the short-term, and US$30 billion in the medium-term, for the modernization of hydropower plants. These investments are estimated to allow the modernization and rehabilitation of around 127 GW of hydropower capacity.

2.4 The modernization of hydropower in LAC is essential to reach net zero emissions by 2050. This task requires a multidimensional approach, including the development of technical, economic, and environmental assessments, the financial structuring of projects, and the development of regulatory incentives that promote these investments. There are no local or regional facilities that provide financial support and technical assistance for hydropower modernization in the region, with a comprehensive vision, so there is an opportunity for the IDB. In the last ten years, the IDB has financed the modernization of close to 5 GW in the region and has extensive experience supporting the implementation of this type of projects. Additionally, the Energy Division, through its Hydropower Group, has also developed regional diagnostic studies and training for hydropower modernization and digitalization. This experience positions the IDB as a natural leader in this area in the region. Currently, the Bank is implementing three loans for hydropower modernization (US$262 million) and it is involved in dialogue for four potential projects across the region.

**III. Description of Activities and Outputs**

3.1 **Component I: Pre-feasibility and feasibility studies.** Resources will support development of pre-feasibility and feasibility studies with a comprehensive approach (technical, economic, financial, and socio-environmental aspects) for specific hydropower modernization projects. Initially, target countries that have been identified are Mexico, El Salvador, Suriname, and Bolivia. It aims to create a pipeline of at least four investment projects to be implemented in the coming decade, that could eventually be co-financed through the IBD-JICA CORE.

3.2 **Component II: Coordination and capacity building.** Will facilitate the coordination at a regional level. Also, a regional seminar of hydropower modernization will be financed.

**IV. Budget**

**Indicative Budget**

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| --- | --- | --- | --- |
| **Activity/Component** | **IDB/Fund Funding** | **Counterpart Funding** | **Total Funding** |
| Pre-feasibility and feasibility studies | US$1,350,000.00 | US$0.00 | US$1,350,000.00 |
| Coordination and capacity building | US$150,000.00 | US$0.00 | US$150,000.00 |
| **Total** | **US$1,500,000.00** | **US$0.00** | **US$1,500,000.00** |

**V. Executing Agency and Execution Structure**

5.1 At the request of the beneficiaries, and in line with the Operational Guidelines for Technical Cooperation Products (GN-2629-2), the Bank will act as the executing agency for this TC. Given the nature of the TC, which is regional, it will be executed by the Energy Division (INE/ENE) in order to facilitate the coordination among different stakeholders. The Bank will contribute with the harmonization of the activities at a regional level by providing a linkage between all hydropower plants studied, guaranteeing that all countries benefit from the experience of the others. Prior to the execution of the project activities in any of the selected beneficiary countries, the Bank shall obtain the corresponding no-objection in the form of a letter from the liaison entity of that country. The project will be implemented in close coordination with the CSD department, particularly with RND and CCS divisions, and ESG, who have been actively working in the areas of dam safety and sediment management.

5.2 The Bank is expected to serve as a catalyzer of knowledge, innovation, and impact policy on multiple scales within the region, making the regional coordination of the IDB a necessary condition of this TC. The Bank will lead implementation, programmatic oversight of the different activities. Active engagement with and awareness of the work of other organizations operating in the field will also help avoid any potential overlaps with ongoing efforts. Prior to the initiation of specific in-country activities in the beneficiary countries, the Bank will obtain the letter of non-objection from the corresponding liaison office.

5.3 The main objective of this TC is to create a pipeline of at least four (4) investment projects that could eventually be co-financed through CORE scheme of the IDB and JICA. In this context, through the implementation of this TC, the Bank will coordinate closely with JICA and receive its operational and technical inputs to this TC activities and outputs based on their operational experience in each country and their knowledge. JICA will join key meetings including progress meetings of this TC at least twice a year for an overall assessment of the program's progress and results and for necessary inputs to this program.

5.4 The Bank will be responsible for the selection and contracting of consulting firms and individual consultants, which will be carried out in accordance with the policies for the selection of consultants (GN-2765-1) and the operational guidelines (OP-1155-4) for the contracting of consulting firms, and the human resources standards (AM-650) for the hiring of individual consultants. In compliance with the Operational Guidelines for Technical Cooperation Products (GN-2629-1), this TC is classified as Client Support.

**VI. Project Risks and Issues**

6.1 One of the main risks associated to this TC is the coordination with different stakeholders related to the studies. As such it is contemplated to hire a project manager, who will be supported by the Hydropower Group in the energy division. A second risk is to get all the information required to produce the studies on a timeline manner. the To mitigate this risk, the studies will be conducted in countries which expressed interest to be part of this TC, and where the Bank has been already supporting the development of capacities regarding hydropower modernization.

**VII. Environmental and Social Classification**

7.1 The ESG classification for this operation is "undefined".