

Technical Cooperation Document

I. Basic Information for TC

▪ Country/Region:	REGIONAL
▪ TC Name:	Strengthening Resilience in Latin America and the Caribbean
▪ TC Number:	RG-T3657
▪ Team Leader/Members:	Delgado, C. Raul (CSD/CCS) Team Leader; Grunwaldt, Alfred Hans (CSD/CCS) Alternate Team Leader; Almeida, Juliana Salles (CSD/CCS); Cabrera Botero, Maria Margarita (CSD/CCS); Carvajal Blanco, Paola (INE/INE); Ceva Alvarez, Mariana Daniela (CSD/CCS); Chamas Piedrabuena, Paula (CSD/HUD); Chevalier, Ophelie (CSD/HUD); Esquivel Gallegos, Maricarmen (CSD/CCS); Glass, Marie-Lena (CSD/CCS); Gomez, Juan Carlos (CSD/CCS); Jaramillo Gil, Marcela Cristina (CSD/CCS); Lacambra Ayuso, Sergio (CSD/RND); Lefevre, Benoit Jean Marie (CSD/CCS); Machado, Kleber B. (INE/WSA); Monter Flores, Ernesto (INE/TSP); Munoz Castillo, Raul (INE/WSA); Munoz, Gonzalo P. (CSD/RND); Nalesso, Mauro (INE/WSA); Negret Garrido, Cesar Andres (LEG/SGO); Nunez Castillo, Scarleth Jamileth (CSD/CCS); Paredes, Juan Roberto (INE/ENE); Rios Galvez, Ana R. (CSD/RND); Saavedra Gomez, Valentina (CSD/CCS); Torres Gracia, Daniel (INE/TSP) M.Lena (CSD/CCS); Gomez, Juan (CSD/CCS); Jaramillo, Marcela (CSD/CCS); Lacambra, Sergio (CSD/RND); Lefevre, Benoit (CSD/CCS); Machado, Kleber (INE/WSA); Monter, Ernesto (INE/TSP); Munoz, Raul (INE/WSA); Munoz, Gonzalo (CSD/RND); Nalesso, Mauro (INE/WSA); Negret, Cesar (LEG/SGO); Nunez, Scarleth (CSD/CCS); Paredes, Juan (INE/ENE); Rios, Ana (CSD/RND); Saavedra, Valentina (CSD/CCS); Torres, Daniel (INE/TSP)
▪ Taxonomy:	Research and Dissemination
▪ Operation Supported by the TC:	N/A
▪ Date of TC Abstract authorization:	13 Mar 2020.
▪ Beneficiary:	Latin-American and Caribbean Countries
▪ Executing Agency and contact name:	Inter-American Development Bank
▪ Donors providing funding:	NDC Pipeline Accelerator Multidonor Trust Fund(ACL); OC Strategic Development Program for Sustainability(SUS)
▪ IDB Funding Requested:	NDC Pipeline Accelerator Multidonor Trust Fund (ACL): US\$560,000.00 OC Strategic Development Program for Sustainability (SUS): US\$440,000.00 Total: US\$1,000,000.00
▪ Local counterpart funding, if any:	US\$0
▪ Disbursement period (Execution):	24 months
▪ Types of consultants:	Firms and individuals
▪ Prepared by Unit:	CSD/CCS-Climate Change
▪ Unit of Disbursement Responsibility:	CSD-Climate Change and Sustainable Development Sector
▪ TC included in Country Strategy:	No
▪ TC included in CPD:	No
▪ Alignment to the Second Update to the Institutional Strategy:	Productivity and innovation; Institutional capacity and rule of law; Environmental sustainability

II. Objectives and Justification of the TC

- 2.1 The effects of climate change (CC) and disasters triggered by natural hazards pose a significant threat to sustainable development in Latin-America and the Caribbean (LAC).

As noted by the Bank's technical note "[What is Sustainable Infrastructure](#)", the region is one of the most vulnerable to the impacts of CC. In 2017 it experienced severe losses from natural events, including floods in Peru and Colombia estimated in US\$3.1 billion and resulted in 329 fatalities. Vergara et al. (2013) estimate that CC will cause damages estimated at about US\$100 billion per year across the region by 2050. The impact of CC is a growing concern, as it increases the vulnerability of assets and reduces the predictability of future infrastructure needs.

- 2.2 Adaptation and climate resilience are strongly emphasized in the Paris Agreement (Article 7) and includes a call for all countries to engage in national adaptation planning processes. Additionally, national governments are expected to submit a new iteration of Nationally Determined Contributions (NDC) by 2020. The early design of Long-Term Strategies (LTS) for adaptation and resilience, and the design of aligned NDC represents an opportunity to raise ambition and anticipate costs, manage trade-offs, and ensure a just transition,¹ while identifying immediate policy reforms and investment priorities necessary to accelerate adaptation. LTS for adaptation are especially relevant for LAC as it is one of the most vulnerable regions to the impacts of a changing climate. Its governments are incorporating climate resilience and adaptation into their planning processes and projects. However, the region is still facing difficult constraints, including limited institutional capacity and financial resources, and the need to strengthen coordination among relevant stakeholders. Efforts and results continue to vary largely across different countries.²
- 2.3 The process for strengthening long-term climate resilience in LAC is complex, as it needs to be supported by institutional, legislative and financial enabling environments that foster transformation.³ Among other things, robust long-term planning requires increasing local capacity; to be supported by the best available science for decision making; and at the same time be accompanied by the immediate policy, regulations and investments projects that incorporate future disaster risk and climate resilience measures in their design, construction and operation phases.
- 2.4 The proposed technical cooperation's (TC) general objective is to strengthen current efforts of LAC member countries to effectively implement climate resilience actions to achieve long-term climate adaptation. The TC specific objectives are: (i) support countries to inform the development of long-term plans for adaptation, in line with their NDC; (ii) foster the generation and practical use of knowledge on disaster and climate change risk as a way to enhance existing disaster and climate change mainstreaming processes (both within IDB and at country level); and (iii) support member countries in the development of pre-investment studies to identify adaptation measures that could be further financed through loans and/or international climate funds.
- 2.5 Long-term planning for adaptation will require profound institutional, legal, economic, financial and cultural transformations. These transformations, in alignment with long-term development goals and the Sustainable Development Goals (SDG), can and should bring significant economic and social benefits: estimations suggest that investing US\$1.8 trillion between 2020 and 2030 globally in early warning systems, climate-resilient infrastructure, improved dryland agriculture crop production, global

¹ Understood as a transition to a zero carbon and resilient economy that creates quality jobs.

² The [Index of Governance and Public Policy in Disaster Risk Management](#) (IGOPP) developed by the IDB provides a diagnostic of the current status of governance in this subject for the region.

³ In this case transformation makes reference to the mechanisms that lead to climate resilient pathways for sustainable development, while at the same time helping to improve livelihoods, social and economic well-being, and responsible environmental management (IPCC, 2014).

mangrove protection, and investments in making water resources more secure could generate US\$7.1 trillion in total net benefits.⁴ The transformation will also bring new challenges and costs that need to be anticipated to develop lines of action around them. For instance, making infrastructure more resilient can increase upfront costs by up to 3%, but has benefit-cost ratios of about 4:15.⁴ In addition, long-term planning for adaptation needs to incorporate uncertainties: (i) associated to the projections of climate change impacts' temporal and spatial distributions, and (ii) that can affect the successful implementation of structural and non-structural measures to increase climate resilience, such as technology costs, international markets, demand and supply of different services, land-use changes and conflicts, among others. In the face of such complexities, governments are not only in need of better understanding of climate hazards, exposure, vulnerability, and risks, but also of analytical support that can inform decision-making processes for long-term planning for resilience.

- 2.6 In addition, the COVID-19 pandemic has brought health and economic impacts that will require countries to implement economic recovery packages for the medium and long-term, after implementing immediate health, fiscal and monetary measures. It will be central to align the national stimulus packages to a “build back better approach”. As mentioned, green investments can bring significant social and economic benefits and can, therefore, serve as spearheads for economic recovery. In the short term, they are crucial to promote job creation, and boost economic activity. In the long term, it will be relevant to assess the growth potential of projects and programs and their alignment with a decarbonized future. Because disaster and CC in general have a disproportionate effect on the most vulnerable, by improving disaster and CC resilience and adaptation pathways, this TC would contribute to reducing the vulnerability of communities already affected by other shocks including the COVID-19 crisis.⁵
- 2.7 Governments of the region have been increasingly requesting support to the IDB on different strategies to include climate resiliency on their development planning processes. The Bank has responded through different initiatives. For example, on issues related to long-term planning for climate resilience, the Bank is currently providing support to the Government of Colombia on the identification of climate risks to prioritize robust long-term resilient strategies/investments (structural and non-structural measures), which will inform the development of the country's 2050 Climate Strategy, to be presented in COP26 in Glasgow, UK.⁶
- 2.8 Improving resilience of infrastructure will require suitable governance and institutional systems with the adequate capacity and attributes to manage and implement procedures, policies and plans for long-term adaptation in LAC countries. As such, governments of the region are in need of operational and non-operational support for the application of specific knowledge regarding disaster and climate risk identification and evaluation methods and processes to be integrated into their own investment systems and become operational in countries. The IDB already supports LAC governments on this endeavor. For instance, it provided support to the Government of Jamaica on the elaboration of an action plan to include climate resiliency in infrastructure Public Private Partnerships (PPP), which includes practical guidelines

⁴ “Global Commission on Adaptation. 2019. [Adapt Now: A Global Call for Leadership on Climate Resilience](#). Washington, DC: World Resources Institute. © Global Commission on Adaptation. License: CC BY 4.0 International.”

⁵ Hallegatte, Stéphane; Vogt-Schilb, Adrien; Bangalore, Mook; Rozenberg, Julie. 2017. [Unbreakable : Building the Resilience of the Poor in the Face of Natural Disasters](#). Climate Change and Development; Washington, DC: World Bank. © World Bank. License: CC BY 3.0 IGO.

⁶ Currently at initial phase (February 2020), financed by the French Development Agency.

and solutions in the form of a toolkit to identify, assess and mitigate climate-related risks in infrastructure delivered under a PPP scheme.⁷ This is an innovation as many countries of the region, despite having climate change/risks regulations for their consideration into national systems, and local knowledge and capacity that can feed such systems, do not know how to operationalize them. Approaches like the one implemented in Jamaica allows countries to better understand how to incorporate climate-resilience measures into their public investments planning and approval systems and increase the climate-resilience of their investment portfolios.

- 2.9 Long-term adaptation should be a key element of sustainable development in the region, opening a channel to identify opportunities to include climate resilience in infrastructure planning and deployment. As such, the IDB is committed to improve screening and evaluation of climate risks as a way to identify opportunities to mainstream climate-resilience. Consequently, the Bank, through its Community of Practice on Resilience (CPR) developed the Disaster and CC Risk Assessment Methodology (the Methodology)⁸ to facilitate the identification and assessment of disaster and CC risks and resilience opportunities in all relevant projects during their identification, preparation and implementation phases. In addition, the Bank has helped member countries increase the climate resilience of its projects by financing studies to support their pre-investment phase, which have been instrumental to ensure project viability with respect to climate resilience.⁹ Also, the CC Division of the IDB (CCS) has piloted successfully the application of the Decision Making Under Deep Uncertainty (DMDU) methodology to support the identification of adaptation measures in water and sanitation and transport projects. In the transport sector, the Blue Spot Analysis work has been done at the network level to identify and prioritize interventions that will strengthen the resiliency of the transport system, and thus of the economy and the population. The use of nature-based solutions to build resilience has been also included in more than 10 loan projects in the last three years. The adaptation climate finance of the IDB has increased in the last years and reached 34% in 2019. There is an increased demand from INE and CSD project teams to expand the inclusion of adaptation measures into their projects as climate impacts are increasingly threatening the infrastructure investments.
- 2.10 In spite of the work carried out so far during the last five years, there is still a need to support project teams and clients to identify and prioritize opportunities for climate resilience in development investments with ease and as part of a continuous adaptation process. Additional climate risk information around projects' viability and economics is still required upstream the projects' approval cycle to effectively identify and further reduce vulnerability to climate risks. Ultimately, this analysis will also inform and hopefully influence current NDCs on adaptation as a contribution to the Paris Agreement. In connection with this last point, current investment needs in the LAC region on infrastructure, opens a door of opportunity to include climate resilience elements in the planning, design, construction and operation of new strategic/critical infrastructure.
- 2.11 The TC is consistent with the Second Update to the Institutional Strategy (AB-3190-2), and is aligned with the development challenges of: (i) productivity and innovation, as it enables the identification of climate-related risks and opportunities in development

⁷ Improving Climate Resilience in PPP in Jamaica, ATN/MC-15636-RG.

⁸ The IDB developed the Methodology to facilitate the identification and assessment of disaster and CC risks, and resilience opportunities in relevant projects during their identification, preparation and implementation.

⁹ ATN/OC-15969-RG "*Strengthening current processes for the identification of resilience opportunities in IDB operations*".

projects to ensure that resources are invested in resilient initiatives in line with sector priorities and attractive to investors, and productive in terms of their goals and benefits; and (ii) institutional capacity and the rule of law, as it enables national institutions to include vulnerability and risk assessments in the design and execution of their projects. Additionally, the operation is aligned with the cross-cutting theme of CC and environmental sustainability, as it contributes to reduce the exposure of infrastructure and natural capital investments to climate change risks, through the provision of data and information to improve project design. This TC responds to the objectives of the Strategic Development Program for Sustainability (SUS), especially to the objective of expanding the knowledge base on climate change adaptation, as this TC will facilitate the development of investment plans, capacity building, and the creation of financial and non-financial instruments that will contribute to the compliance of the LAC countries in the context of the Paris Agreement. It will also contribute to the objective of strengthening capacities to manage disaster risks. The TC is also aligned to the objectives of the NDC Pipeline Accelerator Trust Fund (ACL) as it seeks to support: (i) the implementation of LAC's NDCs; and (ii) the development of a pipeline of climate-resilient projects. The operation is aligned with indicator 25 of the IDB Contributions to Development Results of the IDB Group Corporate Results Framework, 2020-2023, as it will support governmental agencies to inform decisions that enhance long term climate resilience.

- 2.12 This TC complements the work of other IDB operations that support the development and implementation of NDC and resilience in general in the region, such as: ATN/MC-17416-RG *“Financing the Design and Implementation of Nationally Determined Contributions”*; ATN/MC-17402-RG *“Consolidate the presence of NDC Invest in the Region”*; ATN/AC-17538-RG *“Support for Building Transportation Systems Resilience to Climate Change”*; ATN/JF-17864-RG *“Rolling-Out of the Methodology to Enhance Resilience to Disaster Risk and Climate Change Risk in IDB Projects”*. In addition, this TC will be executed in close coordination with TC RG-T3658 *“Support to the implementation of Long-Term Strategies in LAC”* (in preparation), as both will support countries to inform the design and implementation of LTS.

III. Description of Activities/Components and Budget

- 3.1 **Component 1. Development of studies to inform LTS for adaptation and resilience (US\$360,000).** This component will finance the elaboration of studies to inform the development of LTS for adaptation and resilience of countries of the region. The studies will employ methods such as DMDU,¹⁰ specifically the Robust Decision Making (RDM) approach (including Blue Spot Analysis in the transport sector), and the probabilistic risk assessment method¹¹ to assess climate change risks and vulnerabilities in different sectors, and inform strategies to anticipate the risks and costs for the long-term under a robustness approach.¹² One of the strengths of methods such as RDM is that, through

¹⁰ DMDU comprises a group of methods used in complex processes where key decisions could be affected by deep uncertainty of controlling variables. One DMDU method is Robust Decision Making (RDM) which is currently being used to account for deep uncertainty of CC models' projections.

¹¹ See definition in Table 6.2 of the [IDB's Disaster and Climate Change Risk Assessment Methodology](#). In a probabilistic risk assessment, the components that make up risk (mainly hazard and vulnerability) are modelled probabilistically and then mathematically integrated in a probabilistic manner, formally acknowledging and incorporating uncertainty throughout the model. This way the model can statistically represent the probability of all possible events, even those that have not yet occurred, making it a prospective model.

¹² Given the levels of uncertainty on the magnitude of climate change impacts, many authors recommend that an approach to identify plausible adaptation measures should be to look for those alternatives that allow a system to perform satisfactorily under several possible futures (robustness).

a “build-together” participatory process with relevant stakeholders, projects/strategies identified can be prioritized using metrics of success that go beyond the classic cost-benefit approach. This will allow to include criteria aligned to metrics of success of national stimulus packages to recover from the COVID-19 crisis. Other metrics that can be prioritized are metrics aligned to actions included in LTS or to projects that contribute to the achievement of the Paris Agreement goal of net zero emissions by 2050. The criteria to select countries for this component is the existence of a formal development/implementation LTS process for adaptation, prioritizing those where CCS has provided support for adaptation processes. The projects aim to develop adaptation pathways that attain adaptation priorities and other development priorities of countries. The inclusion of levers or metrics that align to COVID recovery packages and principles (which could go from metrics such as “job creation” to the inclusion of specific projects/investments included in the packages) will be discussed with local stakeholders and included to the extent possible, depending on the compatibility of the COVID packages/measures with options that improve climate-adaptation.

- 3.2 Component 2. Improve the application of specific knowledge around disaster and climate change risks in countries (US\$140,000).** This component will finance activities to strengthen institutional capacity for Bank sector specialists in the countries and government officials (including executing agencies) of the region. The main goal is to provide operational and non-operational support at the institutional level on the application of specific knowledge around disaster and climate change risks (this also includes the development of climate resilience and adaptive capacity indicators). These exercises will aim to help countries incorporate and adapt the Methodology and other tools into their own systems through workshops¹³ and analytical reports.¹⁴
- 3.3 Component 3. Development of studies to facilitate the analysis of climate related risks and implications to project viability and mainstream at project level (US\$500,000).** This component will finance key sectorial studies (including economic studies) to streamline climate resilience into the pre-investment phase of projects (IDBG loans and international climate funds) and the application of risk and adaptation tools, such as DMDU, Blue Spot Analysis and Disaster Risk Assessment at project level. This component will accompany relevant development projects of interest to the IDBG and its clients with any required climate impact, vulnerability and/or risk assessments needed to facilitate the identification of climate resilience opportunities. In turn, this will facilitate the need to link country development investment plans in key sectors to aspirational goals on adaptation established in their respective NDC and LTS for adaptation and climate resilience (Component 1). This component entails support to 10-12 projects from HUD, RND and INE, and will leverage funds to support prioritized loans in pipeline by VPC, including some already identified such as, but not limited to, 5027/OC-PR, AR-L1316 and UR-L1090, and other HUD, RND and INE loans in pipeline for 2020 or 2021. This component may also support loans in execution, if requested by a specific sector.
- 3.4** This TC will be financed with US\$560,000 from the NDC Pipeline Accelerator Multi-donor Trust Fund (ACL) and US\$440,000 from the OC Strategic Development Program for Sustainability (SUS). This TC does not include local counterpart.

Indicative Budget (US\$)

Component	ACL Funding	SUS Funding	Total
Component 1. Studies to inform Long Term Strategies	60,000	300,000	360,000

¹³ Workshops will be designed using a flexible approach in case they need to be conducted virtually.

¹⁴ Component 2 resources will in no way complement the administrative budget of any department of the IDB.

Component 2. Disaster and climate change risks knowledge	0	140,000	140,000
Component 3. Studies of climate risks to project viability	500,000	0	500,000
Total	560,000	440,000	1,000,000

IV. Executing Agency and Execution Structure

- 4.1 Due to the regional nature of this TC and since it is originated at the initiative of the Bank, in accordance with Appendix 10 of the Operational Guidelines for Technical Cooperation Products (GN-2629-1), the Bank will act as the executing agency through CSD/CCS. As such, the Bank will follow its procurement policies and guidelines related to contracting processes: (i) individual consultants will be hired according to the guidelines established in policy AM-650; (ii) consulting firms of an intellectual nature will be hired according to the "Policy for the selection and contracting of consulting firms for operational work carried out by the Bank" (GN-2765-4) and its Operational Guides (OP-1155-4); and (iii) other non-consulting services in accordance with the "IDB Institutional Procurement Policy" (GN-2303-28). IDB personnel will support and supervise the execution of this TC through their sector knowledge and will specifically provide technical and strategic assistance to high level trainings and meetings. By financing these costs, the Bank's administrative budget is not being complemented nor supported.¹⁵
- 4.2 Per Section II, C, 2.9, (b) of the Operational Guidelines for the Selection and Contracting of Consulting Firms in Bank-Executed Operational Work, it is possible to carry out the Single Source Selection method for small assignments where the contract value is US\$100,000 or less. All the firms to be hired under this method have a contract value under such amount.
- 4.3 Prior to the start of any activity in the territory of any member country of the Bank, a non-objection letter will be obtained from the official Liaison Agency of the country.
- 4.4 Additionally, CCS will coordinate with other participating IDBG departments and liaise with other key initiatives and stakeholders (including CCS Specialists in Country Offices) involved in adaptation and climate resilience activities especially from HUD, RND and INE. CCS will coordinate the activities of this TC. Prior to the start of any activity, coordination meetings will be held with the respective Country Representatives, Chiefs of Operations, and/or Country Specialists regarding the actions that will be carried out.

V. Major Issues

- 5.1 The operation faces the risk related to the lack of publicly available environmental/social and climate data that has the desired level of quality for the studies to be carried out. As such, the studies could be longer and costlier than originally expected. To mitigate, the team will: (i) use the latest methodologies and statistical tools to manage and effectively use limited amounts of data under high uncertainty; and (ii) involve national hydro-meteorological institutes through sectorial ministries participating in the proposed studies; they can collaborate with national expertise and provide quality-reviewed hydro-climatological information/data.
- 5.2 Another risk relates to CC and Disaster Risk Assessments interventions not being undertaken or maintained. To mitigate this risk and ensure sustainability the team will

¹⁵ The amount allocated for supervision activities includes costs associated with the participation of IDB specialists in the program to supervise products and collaborate with stakeholders in the preparation of products and capacity building activities. This will enable products' review and dissemination to beneficiaries.

work closely with relevant projects to ensure that measures proposed are implementable, and their maintenance plans take the measures into consideration.

- 5.3 To mitigate the COVID-19 risks, all workshops will be designed to be conducted both in-person and virtually. Travel restrictions can also impose risks related to data collected in field visits. However, the execution is expected to start by the end of the 2020, when most restrictions in the countries of the region are expected to be eased. Component 3 may also support the preparation of studies for loans in execution in case that some new loans get postponed/suspended due to the COVID-19 pandemic.

VI. Exceptions to Bank policy

- 6.1 There are no exceptions to the Bank Policy.

VII. Environmental and Social Strategy

- 7.1 Per the Environment and Safeguards Compliance Policy of the Bank (OP-703), the operation has been classified as “Category C”, thus no environmental assessment studies or consultations are required (see the [Safeguard Screening Form](#) and the [Safeguard Policy Filter](#)).

Required Annexes

- [Results Matrix](#)
- [Terms of Reference](#)
- [Procurement Plan](#)

[Results Matrix_69881.pdf](#)

[Terms of Reference_13457.pdf](#)

[Procurement Plan_38076.pdf](#)