TC Document

I. Basic Information for TC

▪ Country/Region:	REGIONAL
▪ TC Name:	Urban Climate Resilience through Neighborhood-level Experimentation and Design
▪ TC Number:	RG-T4735
▪ Team Leader/Members:	Menezes Fajardo, Washington (CSD/HUD) Team Leader; Becker Seco Rosario Paz (LEG/SGO); Madera Arends , Roberto Jose (CSD/HUD); Avila, Francy Dianela (CSD/HUD); Villota Coral , Maria Alejandra (CSD/HUD); Arnold Elisabeth Maria (CSD/HUD); Hernandez Yader Antonio (CSD/HUD); De Barros Torres Gabriel (CSD/HUD); Pelaez, Enrique (CSD/HUD)
▪ Taxonomy:	Research and Dissemination
▪ Operation Supported by the TC:	.
▪ Date of TC Abstract authorization:	.
▪ Beneficiary:	All borrowing countries of the Bank: Argentina, Barbados, Bahamas, Belice, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Perú, Panama, Paraguay, Surinam, Trinidad and Tobago, Uruguay and Venezuela
▪ Executing Agency and contact name:	Inter-American Development Bank
▪ Donors providing funding:	OC SDP Window 2 - Sustainability(W2A)
▪ IDB Funding Requested:	US$350,000.00
▪ Local counterpart funding, if any:	US$0
▪ Disbursement period (which includes Execution period):	24 months
▪ Required start date:	August 2025
▪ Types of consultants:	Individual consultants and consulting firms
▪ Prepared by Unit:	CSD/HUD-Housing & Urban Development
▪ Unit of Disbursement Responsibility:	CSD/HUD-Housing & Urban Development
▪ TC included in Country Strategy (y/n):	No
▪ TC included in CPD (y/n):	No
▪ Alignment to the Update to the Institutional Strategy 2024-2030:	Sustainable, resilient, and inclusive infrastructure; Gender equality and inclusion of diverse population groups; Gender equality; Diversity; Afro-descendants; Persons with Disabilities; LGBTQ+

II. Objectives and Justification of the TC

2.1 **Objective**. The primary aim of this Technical Cooperation (TC) is to enhance resiliency and biodiversity in Latin American and Caribbean (LAC) cities by integrating green solutions into urban design. The specific objectives of this TC are to (i) build a comprehensive knowledge base on climate vulnerability and resilience in urban areas across LAC, identifying gaps and opportunities for transformative climate resilience interventions; (ii) develop innovative solutions that enhance urban climate resiliency on a neighborhood level through pilot projects and urban experimentation; and (iii) increase the visibility of nature-based solutions, strengthen capacities and fill knowledge gaps on how to integrate climate resilience and biodiversity in the urban design process.

2.2 **Justification.** The LAC region is one of the most affected by climate change, with hazards such as floods, storms, extreme heat, and sea level rise disproportionally impacting the most vulnerable populations.[1] Depending on the dataset used, 2024 was either the warmest or the second warmest year ever recorded in LAC,[2] marking a period of unprecedented climatic extremes. For instance, the 2024 Atlantic hurricane season recorded above-average activity, with nine storms making landfall. In April, intense rainfall led to catastrophic flooding in Rio Grande do Sul, Brazil, displacing over 500,000 people and resulting in economic losses exceeding 8.8 billion Brazilian reais in the agricultural sector. Concurrently, severe droughts caused historically low water levels in the Negro, Paraguay, and Pantanal rivers. In Mexico, extreme heatwaves led to 1,937 heat-related medical cases and 90 fatalities due to heatstroke and dehydration.[3] All these extreme events affect cities, their residents, infrastructure, and supply chains. Several factors contribute to the increasing vulnerability of urban areas. For example, urban planning that overlooks the effects of land sealing can reduce the soil's capacity to absorb rainwater, leading to flooding, while also increasing heat retention and exacerbating urban heat islands. Additionally, restrictive planning regulations and competing urban agendas may obstruct the adoption of innovative design solutions that respond to evolving environmental conditions, instead reinforcing outdated approaches that fail to account for those. Finally, spatially unequal planning decisions can shift environmental risks from one neighborhood to another. Together, these – along with other factors – amplify the impacts of extreme events and can negatively impact public health and economic productivity.[4]

2.3 Climate resilience is deeply interwoven with biodiversity. Healthy ecosystems play a crucial role in regulating the climate by sequestering carbon and mitigating the effects of extreme events, thereby reducing their impact on cities and infrastructure.[5] At the same time, biodiversity enhances the adaptive capacity of urban environments, helping them to better withstand and recover from extreme climate events.[6] However, climate change threatens this very biodiversity, putting stress on plants, animals, and the ecosystem services they provide – services essential to human well-being and urban sustainability.

2.4 While LAC cities are advancing with planning and adaptation measures, they face challenges in the implementation and monitoring phases due to knowledge gaps and limited access to technology.[7] Moreover, the actions taken in the urban realm are described as reactive and incremental, suggesting that these efforts are not enough to cope with current and projected environmental challenges. This highlights the need to strengthen the information base for climate resilience and biodiversity strategies, as

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1 Castellanos, E., M.F. Lemos, L. Astigarraga, N. Chacón, N. Cuvi, C. Huggel, L. Miranda, M. Moncassim Vale, J.P. Ometto, P.L. Peri, J.C. Postigo, L. Ramajo, L. Roco, and M. Rusticucci, 2022: Central and South America. In: Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 1689–1816, doi:10.1017/9781009325844.014.

2 World Meteorological Organization (2025). State of the Climate in Latin America and the Caribbean 2024.

3 Ibid.

4 Dodman, D., B. Hayward, M. Pelling, V. Castan Broto, W. Chow, E. Chu, R. Dawson, L. Khirfan, T. McPhearson, A. Prakash, Y. Zheng, and G. Ziervogel, 2022: Cities, Settlements and Key Infrastructure. In: Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 907–1040, doi:10.1017/9781009325844.008.

5 Pörtner, H.-O., Scholes, R. J., Agard, J., Archer, E., Arneth, A., Bai, X., Barnes, D., Burrows, M., Chan, L., Cheung, W. L. (William)., Diamond, S., Donatti, C., Duarte, C., Eisenhauer, N., Foden, W., Gasalla, M. A., Handa, C., Hickler, T., Hoegh-Guldberg, O., … Ngo, H. (2021). Scientific outcome of the IPBES-IPCC co-sponsored workshop on biodiversity and climate change (Version 5). Zenodo.

6 Ibid.

7 United Nations Environment Programme (2024). Adaptation Gap Report 2024: Come hell and high water — As fires and floods hit the poor hardest, it is time for the world to step up adaptation actions. Nairobi.

well as climate vulnerability assessments, and to develop monitoring and evaluation tools to assess the effectiveness of implemented solutions.[8]

2.5 A wide range of green solutions – such as expanding green areas, re-naturalizing urban parks with native species, implementing green roofs, and promoting urban gardening and urban agriculture – can significantly strengthen urban resilience. At the same time, each city has its own unique natural, social, and economic context, including varying levels of vulnerability, distinct regulatory frameworks, and varying technical capacities. These factors can challenge the integration of innovative green solutions in the urban fabric. Therefore, a comprehensive and context-sensitive approach to urban design is needed. This applies not only to the physical design but also to the design process itself: resiliency is also built through community participation, capacity building, and the cultivation of trust. An iterative, participatory, and co-creative approach helps ensure spatial equity and enhances the quality of these solutions.[9] Piloting adaptation actions presents a valuable opportunity to generate hands-on experience, test scalable models, and engage communities in climate and biodiversity-focused efforts. The neighborhood level is optimal for driving change – large enough to have a citywide impact yet small enough to enable rapid, visible transformation. These pilot initiatives serve not only as proof of concept but also as learning platforms for refining design, governance, and financing models.

2.6 The Adaptation Gap Report 2024,[10] published by the United Nations Environment Programme, identifies significant barriers and enablers for the implementation of climate adaptation measures. Chief among these are gaps in policies and frameworks, as well as a lack of adequate information and knowledge among key stakeholders. These challenges limit cities' ability to plan and implement effective adaptation strategies. To address these barriers, the report highlights several enabling factors. These include the availability of clear guidelines and frameworks for implementing adaptation plans, as well as ongoing skill development and capacity-building initiatives. In this context, efforts to systematize and disseminate well-documented experiences on climate resilience and biodiversity become crucial for equipping city officials and decision-makers with practical knowledge, thereby improving their ability to design and implement effective, locally tailored adaptation measures.

2.7 This TC leverages the experience that Cities LAB has gathered in previous pilot projects addressing climate challenges. Several innovative solutions have been tested in the last years, like rainwater capture systems to improve the access to water for vulnerable families in Santo Domingo, Dominican Republic (ATN/CIT-18263-RG), which will be scaled up in the Housing and Urban Development Division (CSD/HUD) operation DR-L1084 of touristic and urban development in the Historical Center of Santo Domingo, Dominican Republic; green modules for roofs and facades for existing buildings and San Salvador, El Salvador (ATN/OC-18804-RG), whose learning have been integrated to the local sustainable building codes; urban furniture that temporarily retains rainwater in Quito, Ecuador (ATN/OC-19752-RG); climate shelters for public spaces in Belo Horizonte, Brazil (ATN/CIT-18263-RG and ATN/PI-19306-BR), which contribute to the CSD/HUD Operation BR-L1663 Belo Horizonte Green Blue Carbon Reduction Program; and a prototype of cooling system for existing buildings based on the geothermal principle in San Salvador, El Salvador (ATN/OC-19752-RG). These pilots delivered pragmatic solutions to recurring issues, tested prototypes to be scaled

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8 Ibid.

9 World Cities Report 2024: Cities and Climate Action. United Nations Human Settlements Programme 2024.

10 United Nations Environment Programme (2024). Adaptation Gap Report 2024: Come hell and high water — As fires and floods hit the poor hardest, it is time for the world to step up adaptation actions.

up and out in operations and regulations, strengthened local innovation ecosystems, connected stakeholders with public sector officials, enhanced the capacities of stakeholders, and accelerated knowledge on climate resilience in Latin American and Caribbean (LAC) cities. Additionally, the Cities LAB collaborates with C40's Green and Thriving Neighborhoods program to implement pilot projects focused on climate change and proximity-based urban planning. In summary, this TC seeks to enhance climate action in cities across LAC by addressing critical knowledge gaps related to climate resilience and its financing, strengthening local capacities, and promoting the co-creation of innovative, green, and scalable urban design solutions at the neighborhood level. The TC also facilitates knowledge exchange among practitioners and public officials and will produce capacity-building and knowledge products for stakeholders within the innovation ecosystems of LAC cities. Ultimately, it contributes to establishing the enabling conditions necessary for transformative climate action.

2.8 **Diversity and Gender Equality.** Climate impacts disproportionately affect individuals who experience discrimination based on gender, race, age, income, disability, or other socioeconomic factors.[11] These same groups often face systemic barriers to participating in decision-making, resulting in gaps in identifying their specific needs and limited representation in climate policy. Adaptation planning that addresses these inequalities is more likely to produce successful, cost-effective, and equitable outcomes. Ignoring such development gaps can instead lead to maladaptation.[12]

2.9 **Strategic Alignment.** This TC is consistent with the IDB Group Institutional Strategy: *Transforming for Scale and Impact* (CA-631) and is aligned with the objective of *Addressing Climate Change* by promoting effective adaptation measures, reducing climate vulnerability, and developing solutions to foster biodiversity in an urban context. This TC is also aligned with the operational focus areas of (i) *Biodiversity, Natural Capital, and Climate Action* by addressing climate-related challenges in urban areas across Latin America and the Caribbean (LAC). It focuses on the development of innovative green solutions to implement strategies that enhance the resilience and biodiversity of cities and ensure more effective and visible climate adaptation measures; (ii) *Gender Equality and Inclusion of Diverse Population Groups* by utilizing co-creation methods to design innovative solutions in collaboration with local communities and stakeholders. Through the application of participatory approaches, the initiative ensures the inclusion of diverse groups, fostering equitable engagement and representation throughout the project; and (iii) *Sustainable, Resilient, and Inclusive Infrastructure* by focusing on the development of green, nature-based solutions. These solutions are designed with scalability in mind, aiming to create sustainable green infrastructure that will enhance the resilience and future readiness of urban environments. Furthermore, this TC will contribute to the Ordinary Capital Strategic Development Program Window 2, Priority Area 1: Climate Change and Environmental Sustainability (OC-SDP W2A) (GN-2819-14) by supporting the following objectives: (i) expand the knowledge base on climate change mitigation, adaptation, and sustainable energy geared towards leveraging climate investment; and (vi) support municipal governments to prepare for challenges related to rapid urban growth in a sustainable manner.

2.10 This TC is closely aligned with the objectives of COP 30 and Amazonia Forever, as it emphasizes promoting transformative climate action. The focus of the TC on

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[11] United Nations Environment Programme (2024). Adaptation Gap Report 2024: Come hell and high water — As fires and floods hit the poor hardest, it is time for the world to step up adaptation actions. Nairobi.

[12] Ibid.

integrating green solutions at the neighborhood level and fostering biodiversity is particularly relevant to the goals of COP 30, which aims to advance climate action and raise awareness about the importance of nature-based solutions. The TC's work on urban climate resiliency in LAC will contribute to these global discussions and showcase the region's potential as a model for sustainable urban development. The Amazon, as one of the world's most vital ecosystems, plays a crucial role in regulating the global climate. As such, the TC's activities will include working with cities in the Amazon region, directly supporting the goals of improving climate resilience while preserving biodiversity, and promoting sustainable urbanization, all of which are central to the Amazonia Forever Program. At least one of the products from this TC will be implemented in a city from the Amazon region. Also, the Cities LAB has an ongoing agenda with the Amazonia Cities Network (ATN/OC-20010-RG), supporting the design of several pilot projects focused on climate resilience. This TC will harness the previous experience and lessons learned in the Amazon region, fostering dialogue and knowledge exchange to benefit other regional operations by providing complementary networks and expertise.

III. Description of Activities/Components and Budget

3.1 **Component I. Research and Diagnosis: Laying the Foundations (US$100,000).** This component aims to establish a robust knowledge base on urban biodiversity, vulnerability, and exposure to climate hazards at the neighborhood scale in LAC cities. Data will be collected through surveys, interviews, participatory workshops, and local assessments to identify key barriers to implementing nature-based and climate resilience solutions. Utilizing tools and methodologies developed by the Cities LAB, the component will generate reports, policy briefs, and training sessions focused on neighborhood-level climate challenges. It will produce two diagnostic studies on climate resilience and biodiversity, which will form the foundation for the activities under Component II. They will also consider aspects related to possible gender and diversity gaps. Additionally, at least three workshops will be held to validate findings and gather stakeholder insights. The knowledge and evidence generated are expected to support holistic urban design processes, create enabling conditions for effective resilience strategies, and inform future CSD/HUD operations.

3.2 **Component II. Experimentation and Piloting: Breaking New Ground (US$150,000).** This component aims to co-create and test new approaches for green urban transformation. It will focus on high-quality pilot interventions related to climate resilience and nature-based solutions that are innovative, transformative, and scalable. The several stages of the urban design process will incorporate innovative tools and methods to leverage the latest technologies, knowledge, and collective intelligence, producing transformative solutions that strengthen the resilience of neighborhoods in LAC cities. This component will deliver two pilot project designs and implementation and two process evaluations that will synthesize the lessons learned and provide recommendations for the scalability and replicability of the concepts tested. The beneficiary cities will be selected during the TC implementation, using the following selection criteria: (i) alignment of the topic with IDB’s priorities (country and sector), as well as possibilities for synergies with HUD operations and previous IDB Cities Lab work; (ii) local governments with technical capacities and political will to foster innovative ecosystems. Special attention will be given to proposals that positively impact gender and diversity gaps in urban areas, and they will be implemented in close coordination with the respective Country Offices. Each pilot

design will also include a set of project specific indicators to assess the results obtained.

3.3 **Component III. Dissemination: Spreading the Word (US$100,000)**. This component supports the dissemination of the TC's findings across all Components, encompassing the overall dissemination strategy and concluding all activities undertaken within this TC. Additionally, the objective is to foster knowledge exchange and to convene forward-thinking conversations among local government officials and stakeholders from the innovative ecosystems across the region. This component is also crucial for disseminating lessons learned on how to finance adaptation measures, such as nature-based solutions and the re-naturing of cities. The dissemination activities will include knowledge products (i.e., monographs, learning materials, or technical notes) and two events, such as webinars, workshops, or conferences.

3.4 **Budget.** The total budget for this TC is $350,000, financed through the OC Strategic Development Program (SDP) Window 2 - Sustainability, W2A. No local counterparts are expected (neither in kind nor in cash).

Indicative Budget

Activity/Component	Description	IDB/Fund Funding	Total Funding
Component I. Research and Diagnosis: Laying the Foundations	Research activities, gap analyses, and assessments related to climate resilience	US$80,000	US$80,000
	Workshops and capacity building activities	US$20,000	US$20,000
Component II. Experimentation and Piloting: Breaking New Ground	Scouting, design and implementation of two pilot projects	US$130,000	US$130,000
	Process evaluations	US$20,000	US$20,000
Component III. Dissemination: Spreading the Word	Knowledge exchange events (webinars, workshops)	US$20,000	US$20,000
	Knowledge products (publication, learning materials)	US$40,000	US$40,000
	Dissemination event	US$40,000	US$40,000
	Total	**US$350,000**	**US$350,000**

3.5 The CSD/HUD team leader will supervise and execute this TC, working closely with IDB's Country Offices and their contacts in cities participating in its activities. Disbursements will be made from the IDB Headquarters, with the support of the IDB's Administrative Services and Corporate Procurement Division. The project team leader will monitor the TC by the approved budget and result matrix. It will be conducted annually, by the Bank's procedure for TC reporting, and will not require additional funding.

IV. Executing agency and execution structure

4.1 The Bank will serve as the Executing Agency through CSD/HUD, which will be responsible for the technical supervision and administration of the TC's activities, requiring consensus and coordination among multiple entities from the public, private,

and civil society sectors. The Bank can promote dialogue and facilitate agreements. CSD/HUD will leverage the experience that the Cities Lab has developed across LAC, and activities will be executed jointly with the IDB's Country Offices and their contacts in participating cities. Non-objection will be obtained before the design and execution stage.

4.2 All procurement to be executed under this TC 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 This TC is a research and dissemination TC, and as such, the Bank's execution is justified primarily based on its role in conducting research and disseminating findings, as well as managing the related complex activities, which will require centralized implementation and procurement across different countries, with limited technical and institutional capacities, to execute the project within the expected timeframe. Therefore, the Bank's capacity and experience in managing complex projects across multiple agencies (local or national) will be critical for the project's implementation. The Bank's execution is also justified as this is a regional TC where a regional entity with the legal capacity to execute the TC can't be identified (as it is stated in the guidelines OP-619-4). In addition, CSD/HUD and its Cities LAB have substantial experience in providing technical assistance, particularly in housing, urban planning, sustainability, and related areas, as well as in activities financed under this TC.

4.4 The TC will finance activities in and across multiple countries and institutions in LAC and thus needs centralized and internalized execution from Bank headquarters. Additionally, CSD/HUD and its Cities LAB have extensive experience in providing technical assistance, particularly in housing, urban planning, sustainability, and related areas, as well as in activities financed under this TC.

4.5 In accordance with the Bank's intellectual property policy (AM-331), all documents, knowledge products, and outputs generated under this Technical Cooperation will be the property of the Inter-American Development Bank. The Bank retains all rights to use, reproduce, and disseminate these materials, unless otherwise agreed. In specific cases, licenses may be granted to beneficiaries or third parties for the use of such products, subject to prior written agreement and consistent with Bank policies. Appropriate acknowledgments will be included in all publicly shared outputs.

V. Major issues

5.1 Four main risks have been identified: (i) complexity in the coordination with internal and external stakeholders that might affect the development of the TC's activities and outputs; (ii) institutional weakness and changes in subnational administrations, which could affect the continuity of long-term initiatives or require repeated cycles of capacity building; (iii) cities' managerial, technical or regulatory limitations to implement pilot projects; and (iv) cities have difficulties in applying the knowledge generated in their urban planning practice.

5.2 The mitigation of these four risks derives from the experience and lessons learned from previous TCs that the Cities Lab has implemented: ATN/CIT-18263-RG: "Piloting Innovative Urban Solutions in LAC – ALC," ATN/OC-17313-RG: "Support to the Cities LAB activities to promote urban experimentation and civic innovation in LAC cities";

ATN/OC-18804-RG: "Innovation and Knowledge Platform for LAC Cities"; ATN/CV-21362-RG "Rethinking LAC cities: innovating to address common urban challenges in the region"; ATN/OC-19526-RG "Leveraging Urban Innovation in LAC"; and ATN/OC-19752-RG "Regional Collaborative Platform for Urban Innovation." The experience suggests that for internal coordination, an informal network of "champions" from various parts of the IDB group (INE, BID LAB, IFD, SOC) is necessary to prevent overlaps and ensure knowledge dissemination and cross-pollination. The platform will seek to maximize established alliances with stakeholders for external coordination.

5.3 To mitigate the second risk, the activities in this TC will encourage the participation of technical personnel, public officials, and relevant interest groups, such as NGOs or city development agencies, when applicable, in their activities. The Cities LAB will also encourage and support beneficiary local governments to create alliances with external stakeholders, such as the private sector and civil society organizations, to promote long-term sustainability. To address the potential lack of commitment from city governments, the TC will prioritize financing pilot projects aligned with the operational dialogue or those built within the CSD/HUD active portfolio. It will always include the Country Office's specialists in articulating client needs and co-designing solutions.

5.4 The third risk will be addressed through activities that include capacity-building sessions and hands-on workshops, where public servants have the opportunity to apply innovative tools and methods in real-life cases. Additionally, the expertise network that the Cities Lab has developed over the past few years provides support in cases where specific technical knowledge is required or inspiration from other innovation projects implemented in different cities is needed. On this matter, the Cities Lab promotes the sustainability of its experiments beyond the specific solutions by instilling an innovative mindset and culture in city officials.

5.5 Finally, to mitigate the fourth risk, learning materials and publications will be developed to minimize the technical expertise and equipment required for their use. Additionally, the TC envisions capacity-building activities to facilitate the application of the knowledge generated. Lessons learned from previous Technical Committees (TCs) indicate that the definition of the problem and design of pilot projects have more potential to achieve continuity and replicability when they are aligned with long-term and strategic plans that already have a budget or legally binding commitments for implementation.

VI. Exceptions to Bank policy

6.1 There are no exceptions to Bank policy.

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:

Results Matrix_53015.pdf

Terms of Reference_5202.pdf

Procurement Plan_87171.pdf