TC DOCUMENT

I. Basic Information for TC

▪ Country/Region:	BRAZIL
▪ TC Name:	Urban Development and Low-Carbon Strategies for the Decarbonization of Brazilian Cities
▪ TC Number:	BR-T1502
▪ Team Leader/Members:	Arcia, Diego Andres (CSD/HUD) Team Leader; Cardenas, Anna Carolina (ORP/GCM) Alternate Team Leader; Silva Herreros, Jorge Alejandro (CSD/HUD) Alternate Team Leader; Garcia, Ana Cristina (CSD/HUD); Avila, Francy Dianela (CSD/HUD); Brakarz, Barbara (CSD/CCS); Celeste Marzo, Cristina (LEG/SGO); Chevalier, Ophelie (CSD/HUD); Lopez-Lamia, Alejandro (CSD/HUD); Villota, Maria (CSD/HUD); Navacerrada Busquets, Pablo (INE/ENE); Perez, Silvia (CSD/HUD)
▪ Taxonomy:	Client Support
▪ Operation Supported by the TC:	N/A
▪ Date of TC Abstract authorization:	21 Jan 2022.
▪ Beneficiary:	Brazilian municipalities[1]
▪ Executing Agency and contact name:	Inter-American Development Bank
▪ Donors providing funding:	United Kingdom Sustainable Infrastructure Program(SIP)
▪ IDB Funding Requested:	US$600,000.00
▪ Local counterpart funding, if any:	US$0
▪ Disbursement period (which includes Execution period):	24 months
▪ Required start date:	May 2022
▪ Types of consultants:	Firms and individual consultants
▪ Prepared by Unit:	CSD/HUD-Housing & Urban Development
▪ Unit of Disbursement Responsibility:	CSC/CBR-Country Office Brazil
▪ TC included in Country Strategy (y/n):	No
▪ TC included in CPD (y/n):	Yes
▪ Alignment to the Update to the Institutional Strategy 2020-2023:	Social inclusion and equality; Institutional capacity and rule of law; Environmental sustainability; Gender equality; Diversity

II. Objectives and Justification of the TC

2.1 **Objectives**. The objective of this Technical Cooperation (TC) is to develop tools and technical outputs to allow Brazilian cities to grow on a low carbon path by: (i) promoting territorial strategies for urban development and sustainable infrastructure; (ii) financing pre-investment studies for sustainable interventions and pilot projects; and (iii) building capacity by incorporating of climate change mitigation considerations in urban planning frameworks. In other words, this TC seeks to reduce the Brazilian

[1] At present, one municipality was identified and has formally requested the TC: Campo Grande. The final selection of the beneficiaries will depend on the reception of the respective request letter(s), as applicable, and the non-objection communication(s) from the Banks official liaison entity in Brazil, which will be obtained prior to the execution of the corresponding activities. Any additional municipalities to be supported by this TC will be selected and defined based on the criteria established in Component 2, and subject to resource availability.

infrastructure sustainability gap through low carbon investments and achieve a green recovery post-COVID-19 towards a more resilient society.

2.2 **Background.** Brazil is one of the most populated and urbanized countries globally, with 211 million inhabitants (IBGE, 2020), with approximately 85% living in urban areas. Brazilian cities generate 90% of the Gross Domestic Product (GDP) and most of the socio-economic innovation in the country. In 2018, Brazil had 37 medium-sized cities with between 300,000 and 1 million inhabitants, 19 cities ranging between 1 and 5 million people, and two megacities with 10 million or more inhabitants.[2]

2.3 Brazilian cities face the challenge of rapid urbanization, inefficient land use regulation, and increasing car ownership.[3] Several cities throughout the country are characterized by low-density developments, poor accessibility, and urban sprawl leading to vacant lots and inefficiencies. These land-use patterns lead to increased travel times, higher costs for commuters, and environmental impacts.

2.4 In April 2022, Brazil submitted the second update of its Nationally Determined Contribution (NDC) to meet its commitments under the Paris Agreement. The pledge is based on 2005 emission levels to reduce total net greenhouse gas emissions (GHG) by 37% in 2025 and 50% in 2030. Additionally, the country announced its goal of achieving climate neutrality – net zero emissions – by 2050. These targets need to be translated into policies and measures to be detailed and implemented by the Brazilian Federal Government.

2.5 **GHG's Emissions Inventories and Climate Planning**. There are still information gaps in terms of the participation of cities in the total greenhouse gas emissions. Given the significant urban profile of the country (more than 86.8% of its population lives in cities, which also concentrate a large portion of intensive economic activities), it is expected that cities play a significant role in the overall GHG emissions. Data for GHG emissions at the city level illustrates this point. Brazil's Climate Observatory publishes[4] estimates of GHG emissions for municipalities throughout the country. The Ministry of Science, Technology and Innovation also published information on GHG emissions for states and municipalities through its SIRENE system.[5] Finally, as part of IDB's work in the country, the Emerging and Sustainable Cities Initiative worked in four Brazilian capitals (Vitória, Palmas, João Pessoa, and Florianopolis). Detailed GPC-protocol GHG Inventories were developed for each city during the initiative's implementation.

2.6 In terms of climate action planning at the local level, Brazilian Federal Government initiatives have a significant lag. While six of the largest cities[6] have published climate action plans, most municipalities do not have a proper climate planning tool.

2.7 **Urban Planning and Climate Change Impacts.** Cities can reduce GHG emissions by adjusting their urban plans, infrastructure, and energy use. In terms of urban plans and land use planning, many Brazilian cities face the threat of rapid urbanization, inefficient planning regulation, and expansion in car ownership. Additionally, several cities are characterized by uniform low-density, high-value land concentrated in

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2 Infographics: Urbanisation and Urban Development in Brazil.

3 Between 2003 and 2014, the urban population in the largest Brazilian cities increased by 21.3%, while during the same period the automobile fleet increased by 116%. *Associação Nacional de Transportes Públicos*, 2016.

4 *Sistema de Estimativas de Emissões e Remoções de Gases de Efeito Estufa* (SEEG).

5 *Sistema de Registros Nacional de Emissões* (SIRENE).

6 São Paulo, Río de Janeiro, Salvador, Curitiba, Recife, and Fortaleza have published climate action plans.

downtown areas, poor accessibility, automobile dependence, and uncontrolled and noncontiguous land expansion. This spatial pattern negatively forces low-income residents to peripheries, while many urban centers remain with low-density levels. Consequently, as low-income residents commute from the edges to the city center, they spend more time traveling by public transport, leading to increased travel times and costs (e.g., traffic jams in São Paulo alone represent a BRL156.2 billion loss/year).

2.8 IDB studies on Latin American cities show unsustainable density levels in medium-sized Brazilian municipalities. State capitals, such as Palmas and Vitoria, have large, urbanized areas but low density - 3,671 inhabitants/km2 and 6,253 inhabitants/km2, respectively. Several empirical studies on the urban form have shown that higher density is generally associated with lower per capita transport GHG emissions. A comparison between Curitiba and Brasilia metropolitan areas found that despite Curitiba's higher degree of car ownership per capita, the more sprawled Brasilia has a much higher carbon footprint, with annual average CO2 emissions from its light vehicle fleet emitting 46% more than the Curitiba metropolitan area.

2.9 In terms of built infrastructure and energy use, municipalities have made progress in incorporating energy- and water-saving technologies in public buildings and housing projects. However, the lack of a systematic approach hinders the adoption of these new technologies. Adequate planning and incorporation of sustainability and low-carbon criteria at project design stages are critical to ensure widespread implementation.

2.10 **Gender, Diversity, and Climate Change:** "Women and girls experience the greatest impacts of climate change, which amplifies existing gender inequalities and poses unique threats to their livelihoods, health, and safety" (UN Women, 2022). Women usually face unique challenges related to climate change as they are mainly responsible for care burden, fetching water, and providing wood for cooking and heating (UN, 2021). Also, the effects of climate change in the Amazon, including deforestation and forest fragmentation, have affected indigenous and tribal communities by losing land and resources (UN, 2022).[7] A case study from Brazil[8] shows that even though women and other diverse groups made up more than 80% of the public in climate change dialogues, their participation in decision-making and high-level conversations related to climate change is still minimal. Also, climate change risk assessments in Brazil are usually not disaggregated by gender and other intersectional characteristics, which deserve more attention and action.

2.11 **Financing Gap.** Currently, inadequate infrastructure is one of the main barriers to Brazilian economic growth and development. According to Infrastructure in Latin America (InfraLatam, 2019), in the last decade, Brazil's average public investment in infrastructure was 0.75% of GDP, below its Latin American peers – Argentina, Brazil, Chile, Colombia Mexico, Peru, and Uruguay. Although the private sector filled this gap a certain way, it was not enough to compensate for the decline in public investments. The public and private sectors together accounted for 1.84% of GDP in the annual average of 2008-2018 (IPEA, 2020).

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7 United Nations. 2022. The effects of climate change on indigenous peoples. Department of Economic and Social Affairs Indigenous Peoples.

8 Garcia-Drigo et al. 2020. Gender in municipal climate change mitigation and adaptation plans: the case of the creation of the plan for Piracicaba, Brazil. IMAFLORA.

2.12 A study by IPEA entitled 'Brazil after Covid-19' highlights that the country already had a restricted fiscal scenario and, due to the pandemic, a substantial increase in public debt and an even more acute financial imbalance in states and municipalities happened. Although it showed signs of recovery at the beginning of 2020, in a few months, it changed from a reasonably promising scenario to the current context, in which forecasts indicate the possibility of a retraction of the Brazilian economy by up to 6%. In this context, it is essential to highlight that the worsening fiscal situation makes the increase in the capacity of investments in Brazil depend even more on the foreign investment's attraction.

2.13 **Justification.** A significant portion of Brazil's infrastructure investments does not incorporate sustainable infrastructure principles or climate change mitigation and adaptation measures. This situation happens mainly due to infrastructure investments' inherent complexities, which are long-term in nature, their interconnectedness, social impacts, externalities, and policy and institutional challenges. It is more severe at the city level, where institutional weaknesses play a more significant role.

2.14 Given this context, the mobilization of resources for structuring low-carbon infrastructure interventions (financing feasibility assessments and technical, economic, environmental, and social pre-investment studies) can significantly push resource-strapped municipalities looking to improve sustainability and climate.

2.15 There are clear benefits when investments focus on sustainable, low-carbon infrastructure. Investments in sustainable infrastructure are a "win-win" for economies: they help increase production capacity and lift economic growth rates while strengthening a country's resilience to withstand and combat future climate risks (World Bank, 2019).

2.16 For cities, targeting the upstream level through urban and land use planning strategies can help incorporate sustainability and low-carbon criteria from the projects' conceptualization stage, which can be achieved by (i) developing a diagnostic of the city in terms of its GHG emissions, – by carrying out a GHG emissions inventory; (ii) establishing climate change mitigation goals, aligned with federal level mitigation commitments; and (iii) identifying opportunities and developing strategic action plans for low carbon urban development based on the preliminary analysis.

2.17 Sustainable, low-carbon and inclusive infrastructure contribute to broader environmental and social goals. Inclusive and sustainable infrastructure is essential for achieving a wide range of social and economic development outcomes to contribute to the Sustainable Development Goals. More opportunities in sustainable infrastructure can also increase women's participation in Science, Technology, Engineering, and Math (STEM) areas contributing to gender equity and addressing women's needs in infrastructure development.

2.18 **Strategic alignment.** This TC is aligned with the Second Update to the Institutional Strategy 2020-2023 (AB-3190-2) under the development challenge of Social Inclusion and Equality by (i) increasing resource mobilization by assisting the government; and (ii) building institutional capacity by supporting the government in planning and developing projects. It is also aligned with the following cross-cutting issues: (i) addressing Climate Change and Environmental Sustainability by supporting the shift to low carbon urban infrastructure, using IADB's Sustainable Infrastructure Framework as a foundation; and (ii) Institutional Capacity and the Rule of Law, as it will strengthen capacities at Municipal Government agencies with training activities.

2.19 It also contributes to Brazil's Country Strategy 2019-2022 (GN-2973) by addressing the cross-cutting issue of environmental sustainability and climate change. It will reduce inequality and improve public services (the third strategic area) by enhancing public spending efficiency, implementing effective policies, and increasing access to sustainable development infrastructure. Actions for better coordination between land-use and climate actions will be promoted, focusing on implementing sustainable infrastructure and supporting the primary sector's decarbonization that contributes to GHG emissions in cities.

2.20 The TC is also consistent with the Sector Framework Document of Urban Development and Housing (GN-2732-11) by promoting comprehensive urban infrastructure. The TC also aligns with the IDB's Infrastructure Strategy: Sustainable Infrastructure for Competitiveness and Inclusive Growth (GN-2710-5), with its periodic updates, and with the objectives and eligibility criteria of the United Kingdom's Sustainable Infrastructure Program, following the provisions of document GN-2903, and with the Arrangement Regarding the Establishment of the UK Sustainable Infrastructure Program, through the inclusion of sector prioritization exercises in urban infrastructure and response to the government’s priorities at municipal levels. This TC is aligned with the immediate opportunities defined by Vision 2025, particularly the one related to climate change and the increase in resilience, adaptation, and mitigation. This alignment will be achieved by reducing GHG emissions generated in cities through better-integrated planning based on mobility strategies and rational land use. Finally, the TC will contribute to the Corporate Results Framework 2020-2023 – CRF (GN-2727-12) with indicators 3.5 Climate finance in IDB Group operations (percentage of approved/committed amount) and 3.6 Projects supporting climate change mitigation and/or adaptation (% of new approvals/commitments).

2.21 The activities of this TC are eligible for classification as climate mitigation finance of the MDBs Joint Methodology for Tracking Climate Change Finance. The TC is aligned to activities 12.6 and 12.12 by financing the formulation of low-carbon urban development action plans, including GHG inventories and emission reduction goals (component 1) and by developing technical, economic, environmental, and social feasibility assessments and pre-investment studies for low carbon urban interventions (component 2). The training workshops for subnational government officials together with the guidelines, tools, and training materials planned in component 3 are aligned to the activity 12.13 of the methodology: Education, training, capacity building or awareness-raising focused on climate change mitigation.

III. Description of Activities/Components and Budget

3.1 **Component 1. Development of Low Carbon Strategies for Urban Development in Brazilian Cities[9] (US$130,000).** This component will finance consultancies for developing low-carbon urban development strategic action plans that include gender

[9] The criteria to select any municipalities that may benefit from the TC are the following: (i) municipalities which present above 100,000 habitants; (ii) municipalities with *planos diretores* adopted and climate change or GHG reductions plans; (iii) municipalities that have urban development and urban infrastructures projects or initiatives under design that are aligned with the objectives of this TC; and (iv) municipalities that present the corresponding request communication and non-objection communication from the Banks official liaison entity in Brazil. In case of resource availability, additional municipalities in Brazil besides the initial municipalities may be selected based on the criteria described herein.

and diversity perspectives[10] for selected Brazilian municipalities, including GHG inventories,[11] emissions reduction goals, and opportunity areas.[12] The action plans will consist of intervention proposals in sectors such as (i) sustainable urban mobility interventions and micro-mobility; (ii) land use planning for low carbon development; (iii) waste management and circular economy; (iv) city-level energy decarbonization; (v) nature-based solutions – such as green infrastructure for climate vulnerability resilience and disaster risk management; and (vi) other relevant strategies for climate change mitigation, such as Deep Decarbonization Pathways.

3.2 **Component 2. Designing Low Carbon Interventions in Brazilian Cities (US$380,000).** This component will finance consultancies for developing technical, economic, environmental, and social feasibility assessments and pre-investment studies for select interventions identified in strategic action plans for low carbon development in Brazilian cities.[13] This component will also include the design of financing mechanisms for intervention strategies and the structuring of pilot interventions to test low-carbon strategy instruments and projects' financial and economic structuring.[14] The main activities may include the following (i) assessment of urban and sectorial infrastructure requirements, costs, and institutional and governance capacity of selected municipalities; (ii) estimated budget for civil works and soft interventions; (iii) identification of beneficiaries and technical/urban feasibility studies to develop the pilots; (iv) engineering and urban preliminary studies when necessary;[15] (v) environmental and social safeguards assessments as needed; (vi) socio-economic studies to formulate policy interventions and define investments that can produce social and economic development in the targeted areas; and (vii) other similar activities.[16]

3.3 This component will also include financing consultancies to design financing instruments for intervention strategies and the structuring of pilot interventions.[17] Finally, the financial and economic structuring of projects will identify options for the participation of the private sector.

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10 Each strategic action plan will incorporate the different perceptions, needs, strategies, and solutions of women, and diverse groups such as people with disabilities, afrodescendants, indigenous peoples, and LGBTQ+ people.

11 For (a) cities without a GHG inventory, and (b) cities with outdated GHG inventories, the TC could support the development or update of said inventory, using GPC Protocol.

12 A benchmarking exercise can be used for the identification of opportunities – such as the one provided by ICLEI's Urban LEDS methodology.

13 Disaggregated by gender and intersectional characteristics.

14 The social feasibility assessments will include the prioritization and participation of women's and civil society groups from diverse populations on how climate variability and change, especially extreme events, negatively impact their economic growth, water security, human health, and proposals.

15 The interventions will include: more control on speed limits, implementation of bicycle lanes to replace car use.

16 This component could develop resilience and low-carbon accelerator labs with the selected municipalities. The Labs will develop participatory workshops with the city to co-create in two main phases: first, the understanding of the existing conditions, challenges and opportunities of the city and secondly, the creation of a road map with strategies and actions to accelerate the transition. Inspired by the Resilience accelerator from Columbia University, the Labs aims to bridge the gap between research and practice, bringing consultancy from global experts to local professionals to plan and design to help communities and ecosystems to adapt to climate change.

17 Financial, economic, and institutional assessments, mechanisms and instruments to finance investments through reduced public participation (i.e. Land value capture and other mechanism), including the development of a plan to incentive investment opportunities.

3.4 **Component 3. Capacity Building on Low Carbon Urban Planning (US$90,000).** This component will focus on capacity development for subnational government officials in low-carbon development and urban planning, including a gender and vulnerable groups perspective. This capacity building will be achieved by financing: (i) low-carbon urban development guidelines, tools, and training materials for incorporating climate change mitigation considerations in urban planning and project preparation, including printed and digital materials; and (ii) training workshops for subnational government officials that incentivize and promote women participation in low carbon urban planning. This component also will support knowledge and best practices dissemination activities (blogs, videos, and monographs).

IV. Budget[18]

Indicative Budget (US$)

Activity/Component	IDB	Total Financing
1. Development of Low Carbon Strategies for Urban Development in Brazilian Cities	$130,000	$130,000
2. Designing Low Carbon Interventions in Brazilian Cities	$380,000	$380,000
3. Capacity Building on Low Carbon Urban Planning	$90,000	$90,000
TOTAL	**$600,000**	**$600,000**

V. Executing Agency and Execution Structure

5.1 At the request of the beneficiaries and Appendix 10 of the Procedures for the Processing of for Technical Cooperation Operations and Related Matters (OP-619-4), the Bank will be the Executing Agency (EO) of the TC due to its experience in the preparation and development of the operational and technical instruments proposed for this type of TC and its knowledge of the scope of work. In addition, some of the products are transversal, which would make the accounting process complex.

5.2 The activities financed with the TC will be executed by the Bank in coordination with the beneficiaries and the public entities designated by the beneficiaries. The Housing and Urban Development Division of the Bank in Brazil (HUD/CBR) will be the technical responsible unit. The Bank will be responsible for: (i) identifying the studies and technical work necessary for the structuring of the TC; (ii) selecting and hiring consultants to provide the necessary services; and (iii) managing the execution and delivery of the consulting services. The IDB's Brazil Country Office (CSC/CBR) will be the Unit of Disbursement Responsibility. They will be in charge of the TC's procurement and disbursement, ensuring that the relevant processes are carried out within the TC framework and foreseen in the execution time. There will be no other institutions involved in the execution structure of this TC.

5.3 The activities to be executed under this TC have been included in the Procurement Plan (Annex IV) and will be implemented by the Bank's policies, namely: (a) Procurement of individual consultants, as established under AM-650; (b) Procurement of consulting firms for services of an intellectual nature under GN-2765-4 and its associated operational guidelines (OP-1155-4); and (c) Procurement of logistical and other non-consulting services, following policy GN-2303-28. The beneficiaries may provide technical inputs to the terms of reference

[18] The total cost of the TC is US$600,000, financed with resources from the UK Sustainable Infrastructure Program. No counterpart resources are envisaged.

and consultants' reports. The Bank will review and approve such documents and act as the EA of the TC. This dynamic will facilitate a better articulation between the different actors in the framework of the technical dialogue of this TC. Bank staff is expected to provide expertise in component activities, and missions[19] are foreseen to ensure timely dialogue and coordination of implementation between the Bank and the beneficiaries.

5.4 In addition to the above components, it is expected that IDB staff will provide specialized knowledge and technical quality in the activities that will be implemented. In that sense, missions are planned as part of the annual supervision plan to support the implementation of the proposed activities.[20] These activities are essential for the proper execution of the TC and ensure coordination.

VI. Major Risks

6.1 The risks of the project are medium. These risks relate mainly to the upcoming elections in 2022 and potential changes to government priorities regarding sustainable and low-carbon infrastructure. In addition, there may be a lower risk of lack of data and information to develop the analysis and studies. Low risk is associated with potential governmental measures to fight the pandemic that could shift the priority from this TC, although one of the most recommended paths to overcome the crisis is investing in sustainable infrastructure (or in policies and tools that may reduce the challenges for investments in the sector). In addition, there may be other risks in implementing innovative financing mechanisms in cities with insufficient technical capacities.

6.2 Political risks on government priorities will be mitigated through close engagement with technical and high-level government officials and closely monitored by the IDB's specialists leading the project. As the IDB will be the executing agency of this TC, for which it will procure the services of consultancy firms and individual consultants, the risks of delays and miscoordination are low. The consultants and consultancy firms will use broad public information and databases available at the national and municipal levels to mitigate the lack of data. Also, periodic meetings with the beneficiary municipalities will be carried out to resolve the information requested by the consultants. The Bank's coordination will ensure all activities are aligned and converging to reach the TC's planned objectives and outcomes.

6.3 The Bank shall own the intellectual property of all works developed within the scope of this TC and may be made available to the public under a creative commons license. However, the Bank may grant permissions to one or more beneficiaries through specific contractual commitments prepared with LEG at the beneficiary's request.

VII. Exceptions to Bank Policies

7.1 There are no exceptions to the Bank's policies.

VIII. Environmental Safeguards

8.1 According to the Environmental and Safeguards Compliance Policy (OP-703), this TC has been classified as Category "C." The latter ratifies a negative minimum or inexistent environmental, social, and cultural impact; therefore, no environmental

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19 Missions conducted by the Bank staff within the scope of this TC will not be funded with TC resources.

20 TC resources will not finance IDB staff missions.

assessment studies or consultations are required for Category "C" operations. (see the "Safeguard Screening Form" and the "Safeguard Policy Filter Report").

Required Annexes:

Request from the Client - BR-T1502

Results Matrix - BR-T1502

Terms of Reference - BR-T1502

Procurement Plan - BR-T1502