

TC Document FORMAT AND CONTENT

I. Basic Information for TC

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|--|---|
| ▪ Country/Region: | DOMINICAN REPUBLIC |
| ▪ TC Name: | Mainstreaming climate resiliency and green solutions into Dominican recovery investments |
| ▪ TC Number: | DR-T1233 |
| ▪ Team Leader/Members: | Lefevre, Benoit Jean Marie (CCS/CDR) Team Leader; Baldivieso, Hector (INE/ENE); Casco, Mario A. (ITE/IPS); Encarnacion Encarnacion, Yonaida M. (CID/CDR); Jacquet, Bruno (CSD/RND); Juarez Olvera, Mariel (CSD/CCS); Kirkagacli, Romina Emanuela (VPC/FMP); Landazuri-Levey, Maria C. (LEG/SGO); Rodriguez Porcel, Manuel (INE/TSP); Salabie, Denise Ann (VPC/FMP); Schloeter, Luis (CSD/HUD) Encarnacion, Yonaida M. (CID/CDR); Jacquet, Bruno (CSD/RND); Juarez Olvera, Mariel (CSD/CCS); Kirkagacli, Romina Emanuela (VPC/FMP); Landazuri-Levey, Maria C. (LEG/SGO); Rodriguez Porcel, Manuel (INE/TSP); Salabie, Denise Ann (VPC/FMP); Schloeter, Luis (CSD/HUD) Encarnacion, Yonaida M. (CID/CDR); Jacquet, Bruno (CSD/RND); Juarez Olvera, Mariel (CSD/CCS); Kirkagacli, Romina Emanuela (VPC/FMP); Landazuri-Levey, Maria C. (LEG/SGO); Rodriguez Porcel, Manuel (INE/TSP); Salabie, Denise Ann (VPC/FMP); Schloeter, Luis (CSD/HUD) |
| ▪ Taxonomy: | Client Support |
| ▪ Operation Supported by the TC: | NA . |
| ▪ Date of TC Abstract authorization: | Nov-16-2021 |
| ▪ Beneficiary: | Ministerio de Economía Planificación y Desarrollo MEPyD |
| ▪ Executing Agency and contact name: | Inter-American Development Bank |
| ▪ Donors providing funding: | Strategic Climate Fund(SCX) |
| ▪ IDB Funding Requested: | US\$650,000.00 |
| ▪ Local counterpart funding, if any: | US\$0 |
| ▪ Disbursement period (which includes Execution period): | 24 months |
| ▪ Required start date: | January 2022 |
| ▪ Types of consultants: | Firms and individuals |
| ▪ Prepared by Unit: | CSD/CCS-Climate Change |
| ▪ Unit of Disbursement Responsibility: | CID/CDR-Country Off Dominican Republic |
| ▪ TC included in Country Strategy (y/n): | Si |
| ▪ TC included in CPD (y/n): | No |
| ▪ Alignment to the Update to the Institutional Strategy 2010-2020: | Productivity and innovation; Environmental sustainability |

II. Objectives and Justification of the TC

- 2.1 The main objective of the Technical Cooperation (TC) is to mainstream climate resilience into the Dominican Republic post-Covid 19 recovery investment effort. Specifically, the TC aims to unlock green local job generation, boost sustainable economic growth, and strengthen the resilience of local communities and the Dominican economy to multiple socio-economic and environmental shocks. The specific objectives are: (i) integrate

climate data in the historical rainfall database to develop prototypes of decision-making tool (DMDU) for identifying climate risk and prioritizing investments in targeted sectors; (ii) develop feasibility studies to integrate climate principles into urban infrastructure and housing investment programs; (iii) support the expansion of distributed energy generation and storage infrastructure that has significant potential for strengthening the resiliency of the country; (iv) support the elaboration of the draft regulation for road design that includes aspects of resilience and the inclusion of resiliency in the first electromobility pilot.

- 2.2 Being located in the so-called “Hurricane Corridor”, the Dominican Republic is highly vulnerable to climate change impacts. Between 1871 and 2018, more than 100 tropical cyclones have directly impacted the country. Due to its insular condition, the Dominican Republic is one of the most vulnerable countries to the impacts of climate change. The country suffers from recurring events such as floods due to extreme rains, tropical cyclones, and droughts, which negatively affect the environment, the national economy, the means of subsistence, and the opportunities for sustainable development of the Dominican people. Between 2014 and 2015, the Dominican Republic suffered one of the worst droughts in the last 20 years. This event, together with floods, temporarily displaced tens of thousands of people and caused serious damage to road infrastructure. Between April and March 2017, more than 20 road infrastructure components (bridges and main corridors) had to be rebuilt to maintain the transport network’s connectivity. During this period, reported damages amounted to more than US\$ 48 million, according to the Ministry of Public Works and Communications (MOPC).
- 2.3 In December 2020, the Dominican Republic presented its revised NDC to the UNFCCC in which the country increases its climate ambition committing to reduce GHG emissions by 27% concerning BAU (or business as usual) scenario by 2030. The government proposes to achieve, based on evaluated and proposed mitigation options, a reduction of 13,854 Gg CO₂eq, which represents 27.16% concerning the BAU 2030 scenario, estimated at 51 thousand Gg CO₂eq, with an estimated investment of USD\$ 8,917 million.
- 2.4 In the National Climate Change Adaptation Plan of the Dominican Republic 2015-2030 (PNACC RD), 7 cross-cutting strategic lines were established to reduce vulnerability to the impacts of climate change, through the strengthening of adaptive capacity and resilience. Among these strategic lines are the political-administrative management of the climate change issue to facilitate the integration of adaptation and mitigation into national policies, and inter-sectoral coordination through the creation of linkages between institutions, decision making, and the use of research for dissemination and policy formulation. In addition, the recently updated NDC includes, within its component 2 on climate change adaptation and resilience, the need to support institutional arrangements and the policy framework for the generation of a clear and strategic vision that promotes cross-sectoral resilience until 2030. Within this policy framework, the NDC aligns with the PNACC and its different strategic lines and axes to achieve the GHG reduction targets for 2030. Finally, the third strategic axis of the National Development Strategy 2030 (END) proposes a vision of a country-oriented towards environmental sustainability, where energy plays a very important role and the concept of development with resilience is key at the cross-sectoral level

to achieve the objectives set at the economic, social and environmental levels, within the framework of the country's sustainable development.

- 2.5 The Covid-19 pandemic imposes significant challenges to the Dominican Republic, including the loss of foreign exchange earnings due to the reduction of key activities such as tourism, the shutdown of a large part of economic activities with direct and indirect effects on employment and household income, and fiscal challenges, as the Government is implementing crisis relief measures at the same time as it sees the tax revenue fall. With more than 379,000¹ cases to date and over 500,000 employments lost in the formal sector in May 2020, the Dominican Republic has been particularly hit by the pandemic. The Dominican Republic experienced a 6.74% GDP decrease from COVID-19². In 2021, the Dominican Republic has shown one of the fastest economic recovery of the LAC, which allows the country's Central Bank to upgrade its growth projection for 2021 to a range between 9% and 10%³. In this context of rapid economic recovery, it is essential to ensure long-term economic consolidation and that it is resilient to the effects of climate change.
- 2.6 Essential in the post-pandemic plan of the Government to revitalize the economy is to “boost investment” in infrastructure. The TC will unlock clean energy potential and support integration of natural disaster risk and climate change impacts into planning, design, and execution of investment in key sectors: urban, energy, and transport.
- 2.7 The employed population presented a reduction of 5.8% at the end of 2020 (6.3% in the formal sector and 4% in the informal sector), significantly affecting productive sectors such as tourism and other services such as transportation, and the construction sector (-6%). Regarding poverty, the general rate increased 2.4 percentage points compared to 2019, going from 21% to 23.4% of the population; extreme poverty increased from 2.7% to 3.5%, being more accentuated in rural areas (4.1%).
- 2.8 In a recovery context, to promote measures aimed at maintaining employment and increasing the productivity of Dominican workers, the government is betting on 1) greater efficiency in public spending and 2) increased public capital investment. After the reopening, the economic effects of the pandemic will likely persist for a long period, therefore, the government will play a fundamental role in maintaining the level of economic activity and employment.
- 2.9 The TC approach is holistic, from 1) upstream planning: business cases, key data and operational tools to identify and prioritize and design cost-efficient investment; and 2) climate-friendly regulatory framework to mobilize private investment and create green jobs, to 3) downstream green and resilient design of investment that will have demonstrative effects and help to mobilize further private and public investment towards a rapid, green and resilient recovery. This holistic approach is then implemented into specific sectoral activities, according to the characteristics and needs of the key selected sectors. The TC programmatic implementation, and the selection of sectors and activities are based on a continuous dialogue between IDB, the Ministry of Finance, the Ministry of Economy, Planning, and Development (MEPYD), and the sectoral Ministries and relevant sectoral public authorities.

¹ Retrieved from: <https://ourworldindata.org/coronavirus-data> [29/10/2021]

² Retrieved from: <https://www.bancomundial.org/es/country/dominicanrepublic/overview#1> [29/10/2021]

³ Retrieved from: <https://www.bancentral.gov.do/a/d/5148-bcrd-informa-que-la-economia-dominicana-crecio-133--en-el-primer-semester-del-ano-2021> [01/12/2021]

- 2.10 Designing specific infrastructures or networks resilient to climate change impacts, developing cities for the people and its economies, managing water resources, deploying economic activities, understanding potential stresses, hazards, vulnerabilities, and risks due to climate change impacts require the availability of historical rainfall and flow quality data, as well as future climate scenarios that account for climate change impacts. The provision of satellite data (and other techniques) to complement locally observed historical data and the downscaling of climate models to a different territorial level will support the current, albeit scattered, effort to consolidate hydrometeorological information and provide future scenarios to policymakers and public and private investment designers. Consolidation of historical and future data will be critical to carry out an economic assessment of fiscal risks due to the occurrence of natural disasters and climate change and to build business cases for adaptation measures. Due to the weakness of the Dominican hydrometeorological information system, where there is no well-structured system for measuring and recording historical and real-time data, investment planning, water resource management, infrastructure, the ability to design resilient infrastructure, and the country's preparedness for climate change impacts are put at risk. To attack this problem, (i) the CT will finance the integration of climate data by de-scaling global and regional climate models to the local level, (ii) support the development of one or more prototype decision-making tools (DMDU) to identify climate risk and prioritize targeted investments. And (iii) will build business cases for adaptation action through economic assessment of fiscal risks due to natural disasters and climate change.
- 2.11 The Dominican Republic has a significant and growing housing deficit that has been steadily increasing by 50,000 units per year since 2010. This deficit primarily affects low-income families that are unable to find affordable housing (e.g., lack of access to mortgage loans, lack of supply of affordable housing). This has affected the livelihoods of over 1 million families and negatively impacted the country's productivity. Furthermore, the Dominican Republic is one of the countries most vulnerable to the impacts of climate change. According to the report published in 2020 of the Global Climate Risk Index⁴, which indicates the level of exposure and vulnerability to extreme climate events, the Dominican Republic ranks 50th. Therefore, the country's cities are subjected to experience climate change impacts in the present and near future, which will increase the potential losses over urban infrastructure and housing. The IDB is working with the Ministry of Tourism on revitalizing the colonial center of Santo Domingo and with the Ministry of Housing Habitat and Urban Development to unlock new affordable housing programs at the national scale that can effectively reduce the national housing deficit and support economic recovery through private-sector investments in housing. The TC will support inclusion of resiliency consideration in affordable housing, public spaces, commercial real estate, and public transportation, in line with the country's Nationally Determined Contributions (NDCs). It will identify the particular vulnerabilities experienced by women and ensure that female-headed households benefit from affordable housing programs. The main focus will be on climate change adaptation, affordable and climate-friendly housing design and delivery, and flood management initiatives, for example, through nature-based solutions. Although on a smaller scale, but with significant potential to mobilize private investment, activities will focus on the

⁴ Global Climate Risk Index de Germanwatch <https://www.germanwatch.org/es/17307>.

integration of resilience in the process of deploying electric vehicle systems for the Historic Centre of Santo Domingo.

- 2.12 Improving the reliability and resilience of power systems - particularly for critical services such as healthcare institutions and water supply - has become a priority. Extreme weather events not only affect communities' electricity infrastructures, but also other types of infrastructure that depend on the country's energy system and that, ideally and mandatorily, should remain uninterrupted to the public. A resilient power system can withstand disasters efficiently, with few service interruptions, maintaining essential services, and allowing for rapid recovery. This often requires the ability to activate different stages of a safe supply, including isolating a portion of the power system from the grid and remaining capable of operating independently during grid outages. New technologies, such as distributed energy resources (DER), can provide backup power during outages, serve critical customers and services, accelerate restoration efforts, and restore power systems more quickly. In addition, energy storage can provide ancillary services, such as primary frequency control, to power systems during sudden shortages, maintaining the balance between supply and demand. The need to identify cost-effective energy storage applications is essential, considering the increasing frequency and high impact of extreme natural events on the power supply. The TC will support the expansion of distributed generation infrastructure that has significant potential in the country, through i) conducting technical and economic analysis to build and strengthen the resilience of the electricity system, both at the customer (critical services) and grid level, considering risk assessment to facilitate decision making and investments, and ii) identifying the regulatory design for electricity system resilience and complementary operational procedures. As a result, it will provide an opportunity for private sector participation, stimulating a market for the supply of standard equipment for distributed generation and storage.
- 2.13 The adaptation of transport infrastructure to respond to the effects of climate change requires actions focused on the integration of extreme conditions in the planning and design phases, both at the asset and network levels. Since 2019, the Ministry of Public Works and Communications (MOPC) designed a vulnerability and criticality methodology (Blue Spot Analysis) to identify and prioritize investments that strengthen the resilience of the transportation network. It is necessary to support the effective application of this methodology in the MOPC and the approval of a new road design regulation that includes resilience parameters. The TC will support the elaboration of the draft regulation for road design that includes aspects of resilience and the execution of the first electromobility pilot for the institutional fleet in a public entity in the country. These activities will directly mobilize private and public investments in a resilient and clean transportation system and rapidly create local green jobs in the Dominican Republic.
- 2.14 This TC will complement existing investment loans and Policy Based Loans and add value by allowing the project team and the Government to further incorporate climate objectives into planned activities: DR-L1132 Program for Mobility, Land Transport and Road Safety in the Republic; DR-L1141 Rehabilitation and extension of the port of Manzanillo; DR-L1040 "Apoyo a la política de movilidad tramo 2"; DR-L1128, Program for the Expansion of Grids and Reduction of Technical Losses in the Distribution System; DR-L1146 Sustainability and Efficiency of the Electric Sector; DR-L1122, Implementation of the Energy Efficiency Program of the Dominican Republic; DR-L1084 "Ciudad colonial 2"; DR-L1134 Sustainable Agroforestry Program; DR-L1137 Agricultural Health and Innovation project.

- 2.15 This operation is consistent with the IDB Country Strategy with Dominican Republic (2017-2020) (GN-2908), as it links development actions that promote improvement of productive infrastructure by ensuring their resiliency to climate change effects, and environmental protection and adaptation to climate change, and innovation and use of Communication and Information Technologies (CIT) as the TC will help consolidate and facilitate the access to hydromet data and climate change scenarios. This operation is consistent with the Update to the Institutional Strategy 2020-2023 (AB-3190-2) and is aligned with the development challenge of productivity and innovation as it improves availability of and access to information, knowledge and efficient and resilient technologies. It is also aligned with the cross-cutting theme of climate change as it will foster sustainable, resilient and low-carbon infrastructure. It is aligned with the Climate Change Strategic Framework (GN-2835-3), as it improves the availability and access to information, knowledge, and efficient technologies and strengthens the consideration of climate change in sectoral actions in transport, infrastructure, energy, and urban planning. It is also aligned with the Housing and Urban Development Sector Framework Document (GN-2732-11), as it proposes actions to address excessive pollution and low levels of mitigation and resilience to climate change. In addition, it is aligned with the cross-cutting issue of climate change, as it will promote sustainable, efficient, and low-carbon public transportation. Likewise, the operation is aligned with the Transportation Sectoral Framework Document (SFD) (GN-2740-12) and its focus on “sustainable urban transportation” and the “institutional development in the transportation sector”, as well as with the Climate Change SFD as it will contribute to “make climate change considerations more central to sector actions” and drives the technological transformation of the transport sector. The TC aligns with the Environment and Biodiversity Sector Framework Document 2018 (CSD/RND), as it encourages open access to information, and addresses environmental challenges transversally by increasing resilience in different sectors. Finally, the CT is aligned with the Energy Sector Framework Document 2018 (INE/ENE), as it promotes the improvement of the reliability of the country's energy system, energy security, and increased resilience to climate change.

III. Description of activities/components and budget

- 3.1 **Component 1. Engagement preparation - diagnostic – Communication (US\$60,000).** Within component 1, the TC will finance four different diagnostics of the current situation concerning; (i) historical hydrometeorological data and climate change scenarios aligned with IPCC AR6, their governance and information use, (ii) Nature-Based-Solutions NBS potential for resilient infrastructure and urban development, (iii) market assessment of distributed generation and storage technologies and alternatives in the country, and (iv) the potential for electrification of the institutional fleet. This should be done by diagnosing the current state of play, including through engagement with private sector stakeholders and public authorities, analysis of the political landscape, assessment of opportunities, identification of stakeholders and their responsibilities and capabilities, assessment of funding and financing situation, assessment of existing technology alternatives, barriers to adoption of NBS, and draft strategy for next steps.
- 3.2 Finally, the TC will finance communication strategies to promote, disseminate and expand the results of the project.
- 3.3 **Component 2. Mainstreaming climate resiliency and green solutions (US\$590,000).** This includes the following specific activities:
- 3.4 **Sub-Component 2.1. Data and decision-making tools for resilient action and infrastructure.** Based on consolidated and open hydrometeorological data, this

component is intended to support the development of decision-making tools prototypes for identifying climate risks and prioritizing investments in targeted sectors. Its goal entails building business cases for adaptation action through economic assessment of fiscal risks due to natural disasters and climate change.

- 3.5 Deliverables for this sub-component include: (i) General Circulation Models (GCM) downscaling according to historical rainfall conditions and distribution in the Dominican Republic, both in time and space; (ii) prototype of the web-based open database with downscaled methodologies and georeferenced data, as well as capacity building for data analysis and usage; (iii) a prototype of decision-making tools (DMDU) for identifying climate risk and prioritizing investment in targeted sectors; and (v) an economic assessment of fiscal risks due to natural disasters and climate change, business cases for adaptation action.
- 3.6 **Sub-component 2.2. Urban development.** This component will develop feasibility studies to integrate climate principles into urban infrastructure and housing investment programs. The primary focus will be on climate change adaptation, designing and delivering climate-friendly affordable housing, and flood management initiatives, e.g., through nature-based solutions. In addition, this component will also support the development of national sustainable building construction regulations, including resilience, energy efficiency, water use reduction, amongst others.
- 3.7 Deliverables for this sub-component include: (i) feasibility study for inclusion of adaptation measures in urban revitalization investment; (ii) case studies and feasibility study for climate-ready affordable housing program; (iii) integration of resilience in the process of deploying electric vehicle systems for the Historic Centre of Santo Domingo; and (iv) draft of the national regulation for sustainable green building.
- 3.8 **Sub-component 2.3. Distributed energy and storage for resilient, reliable, and clean electricity services.** This component will support the expansion of distributed generation and storage infrastructure that has significant potential in the country, through: (i) performing technical and economic analysis to build and strengthen power system resilience, both at the customer level (critical services) and grid level, considering risk assessment to facilitate decision making and investments; and (ii) identifying regulatory design for power system resilience and complementary operative procedures.
- 3.9 The deliverables for this sub-component include: (i) technical and economic assessment for power system resilience; and (ii) regulatory design for power system resilience.
- 3.10 **Sub-component 2.4. Resilient transport network.** This component will support the elaboration of the draft regulation for road design that includes aspects of resilience and the inclusion of resiliency consideration into the structuration and the execution of electromobility projects: (i) institutional fleet in public entities; (ii) integrated public transport system (SITP) corridors, from a legal, institutional and technical perspective. This component will also support rural roads evaluation, the prioritization of investments, and institutional capacities strengthening (MOPC, MEPyD) taking into consideration the Blue Spot Analysis methodology
- 3.11 The total estimated cost of the TC is US\$650,000 as shown below in the indicative budget table.

Indicative Budget

| Activity/Component | Description | IDB/Fund Funding |
|--------------------|-------------|------------------|
|--------------------|-------------|------------------|

| | | |
|---|---|----------------|
| I. Engagement preparation – Diagnostic - Communication | Diagnosis of the current situation, engagement with private and public stakeholders, market assessment, communication | 60,000 |
| II. Mainstreaming climate resiliency and green solutions | | |
| II.1 Data and decision-making tools | Climate models downscaling, web-based open database with downscaled methodologies and georeferenced data, a prototype of decision-making tools (DMDU), economic assessment of fiscal risks, business cases for adaptation actions, capacity building. | 230,000 |
| II.2 Urban development | Case studies and feasibility studies to integrate climate principles into urban infrastructure and housing investment programs | 140,000 |
| II.3 Distributed energy | Technical and economic assessment, regulatory design, and identification of complementary operative procedures for power system resilience | 140,000 |
| II.4 Resilient transport network | Draft regulation for resilient road asset design, the inclusion of Blue Spot methodologies analysis methodology to assess road network and prioritize investments, and the inclusion of resiliency in electromobility projects. | 80,000 |
| Total | | 650,000 |

IV. Executing agency and execution structure

- 4.1 At the request of the Beneficiary, the Bank through the Climate Change Division (CCS), will contract the consultant services financed with this TC. This is justified as this TC is multi-sector and will work with various sectoral authorities to mainstream climate change, and as a mean to reduce the risk of delay in the execution due to the COVID-19 context. The Bank has substantial experience in this area particularly in NDC implementation, urban transport, resilient energy sector, climate-friendly urban infrastructure, resilient housing program, Nature-Based solutions, and low-carbon technology. This TC will mobilize expertise from different IDB and IDB Invest divisions.
- 4.2 The Bank will be contracting the consultancies in close dialogue with the MEPyD and the sectoral entities. In consultation with respective national institutions, the Bank will: (i) identify the necessary studies and technical work; (ii) select consultants to provide the necessary services; and (iii) manage the execution, delivery and validation of consulting services. Relevant national institutions will be the MEPyD, the Ministry of Environment and Natural Resources (MARENA) and the Nacional council for Climate Change (CNCCMDL) for sub-component 2.1, the Ministry of Housing Habitat and Buildings (MIVHED) for sub-component 2.2, the Ministry of Energy and Mines (MEM) for sub-component 2.3, Nacional Institute of Transit and Land Transport (INTRANT) for sub-component 2.4. Already established focal points in each of those sectoral entities will be used for the execution of the TC.
- 4.3 The Bank will hire consultants following Bank Policies: The Policy for the Selection and Hiring of Consulting Firms for Operational Work executed by the Bank (GN-2765-4), the Complementary Policy of the Workforce (AM-650), and the Policy on Institutional Procurement (GN-2303-28).

V. Major issues

- 5.1 Strengthening the resilience of local communities and the Dominican economy to multiple socio-economic and environmental shocks requires coordination between public administrations and dialogue between private actors and public agencies. Through components I and II, the TC will give particular attention to developing the necessary institutional capacity and supporting the sectoral dialogue. Building on recent experience of tele-working, remote working-meetings and virtual workshops, special attention will be given in the planning, contracting and implementation phases of each activity of the TC to mitigating the risk of delay in the execution of the TC due to the COVID-19 context.

VI. Environmental and Social Strategy

- 6.1 Given the nature of this TC, negative environmental and social impacts are not foreseen. Given its focus, it is rather expected to have a positive impact on sustainable and low-carbon development as well as on social inclusion and be classified as Climate. Consequently, it is expected that this TC will be classified as Category “C” according to the Environment and Safeguards Compliance Policy (OP-703).

Required Annexes:

[Request from the Client - DR-T1233](#)

[Results Matrix - DR-T1233](#)

[Terms of Reference - DR-T1233](#)

[Procurement Plan - DR-T1233](#)