

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

BRAZIL

**SUBNATIONAL ROAD INFRASTRUCTURE QUALITY IMPROVEMENT PROGRAM
- INFRARODOVIÁRIA CEARÁ**

(BR-L1589)

LOAN PROPOSAL

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ANNEXES	
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LINKS
REQUIRED
1. Multiyear execution plan /annual work plan
2. Monitoring and evaluation plan
3. Environmental and social review summary
4. Procurement plan
OPTIONAL
1. Economic analysis of the program
2. Climate change annex
3. Inclusion, diversity, and road safety annex
4. Gender annex
5. Logistics and production chain annex
6. Connectivity (smart roads) annex
7. Technical study on sample works
8. Operating Regulations annex

ABBREVIATIONS

EIRR	Economic internal rate of return
ENPV	Economic net present value
ESMF	Environmental and social management framework
FIEC	Federação das Indústrias do Estado do Ceará [Federation of Industries of the State of Ceará]
GVA	Gross value added
IoT	Internet of Things
iRAP	International Road Assessment Programme
PMU	Program management unit
RAIS	Relação Anual de Informações Sociais [Annual Social Information Report]
RMF	Fortaleza Metropolitan Region
SEDET	Secretaria de Desenvolvimento Econômico e Trabalho [Office of the Secretary for Economic Development and Labor]
SOP	Superintendência de Obras Públicas [Superintendency of Public Works]
TOR	Terms of reference

PROJECT SUMMARY

BRAZIL SUBNATIONAL ROAD INFRASTRUCTURE QUALITY IMPROVEMENT PROGRAM - INFRARODOVIÁRIA CEARÁ (BR-L1589)

Financial Terms and Conditions				
Guarantor:			Flexible Financing Facility ^(a)	
Federative Republic of Brazil			Amortization period:	25 years
Borrower:			Disbursement period:	5 years
State of Ceará			Grace period:	5.5 years ^(b)
Executing agency:			Interest rate:	SOFR-based
Superintendência de Obras Públicas [Superintendency of Public Works] (SOP)			Credit fee:	(c)
Source:	Amount (US\$)	%	Inspection and supervision fee:	(c)
IDB (Ordinary Capital):	150,000,000	80	Weighted average life:	15.25 years
Local:	37,500,000	20	Approval currency:	U.S. dollar
Total:	187,500,000	100		
Project at a Glance				
Project objective: The general objective of the program is to help increase the competitiveness of the State of Ceará, by increasing access for companies and residents to markets and social services by improving the quality of its road network. The specific objectives are to improve the quality of service of the infrastructure and road safety on the road network in the State of Ceará on the segments considered under the program.				
Special contractual conditions precedent to the first disbursement of the loan: The borrower will submit evidence, to the Bank's satisfaction that: (i) the program Operating Regulations have entered into force under the terms previously agreed upon with the Bank; (ii) an adequate legal instrument for cooperation between the borrower and the executing agency has been signed and entered into force, establishing the terms and conditions for the transfer and use of the loan proceeds, in terms agreed upon by the Bank; and (iii) the program management unit (PMU) has been established and its general coordinator, administrative-financial manager, and monitoring and control manager have been appointed pursuant to the requirements agreed upon with the Bank. See other socioenvironmental conditions in Annex B of the environmental and social review summary (required link 3) (paragraph 3.4).				
Special contractual conditions of execution: The borrower will have submitted evidence, to the Bank's satisfaction, of: (i) the contracting of the program management support company, within a term not to exceed six months after the date the loan contract was signed, which will include social and environmental specialists; (ii) before starting the first works under the program, the environmental and social management system; and (iii) the contracting of the respective supervision services, prior to the start of each works project, under the terms previously agreed upon with the Bank. See the socioenvironmental contractual conditions in Annex B of the environmental and social review summary (required link 3) (paragraph 3.5).				
Exceptions to Bank policy: None.				
Strategic Alignment				
Challenges: ^(d)	SI	<input checked="" type="checkbox"/>	PI	<input checked="" type="checkbox"/>
Crosscutting themes: ^(e)	GE	<input checked="" type="checkbox"/>	DI	<input checked="" type="checkbox"/>
	CC	<input checked="" type="checkbox"/>	ES	<input type="checkbox"/>
	IC	<input checked="" type="checkbox"/>		

^(a) Under the terms of the Flexible Financing Facility (document FN-655-1), the borrower has the option of requesting changes to the amortization schedule, as well as currency, interest rate, commodity, and catastrophe protection conversions. The Bank will take operational and risk management considerations into account when reviewing such requests.

^(b) Under the flexible repayment options of the Flexible Financing Facility, changes to the grace period are permitted provided that they do not entail any extension of the original weighted average life of the loan or the last payment date as documented in the loan contract.

^(c) The credit fee and inspection and supervision fee will be established periodically by the Board of Executive Directors as part of its review of the Bank's lending charges, in accordance with the applicable policies.

^(d) SI (Social Inclusion and Equality); PI (Productivity and Innovation); and EI (Economic Integration).

^(e) GE (Gender Equality) and DI (Diversity); CC (Climate Change) and ES (Environmental Sustainability); and IC (Institutional Capacity and Rule of Law).

I. DESCRIPTION AND RESULTS MONITORING

A. Background, problem addressed, and rationale

- 1.1 **Macroeconomic context.** COVID-19 has caused a significant loss of life in Brazil. In addition to the health problem, the pandemic interrupted the economic recovery process, causing a decline in gross domestic product (GDP) of 4.1% in 2020, due in part to the government's support for household income, companies, and subnational entities.¹ Although activity rebounded in 2021, the economy remains below prepandemic levels. Growth is estimated 4.9% in 2021 and 1% in 2022.² Over the long term, COVID-19 has amplified the structural bottlenecks impacting fiscal sustainability, productivity, and inequality in the country. Given the extreme budgetary rigidity and the low level of discretionary spending, federal government investment in 2021 will be the lowest since 2007.³
- 1.2 **Socioeconomic context.** The State of Ceará is located in the northeast of Brazil and has a population of 9,070,000 and a year-on-year growth rate of 0.7% over the last decade. The Fortaleza metropolitan region (RMF) is the primary hub of activities and concentrates 4,070,000 inhabitants, equivalent to 45% of the state's total population. The following significant urban centers form the Juazeiro do Norte conurbation: Crato, Sobral, Itapipoca, and Iguatu. Most of the population is located along the coast and in the eastern part of Ceará, which affects equal access to services in the rural, inland areas.
- 1.3 Before COVID-19, Ceará's economy had been recovering with a positive fiscal position (ability to pay [CAPAG] B).⁴ Although the recession caused by the pandemic adversely impacted tax revenues, which declined by 6.5% (in nominal terms) in 2020, Ceará maintained a stable fiscal position in 2021. The state currently has one of the best fiscal evaluations, which benefits its financing terms; nonetheless, the volatility of the current context requires constant monitoring for potential risks of deterioration. Ceará is also ranked 15th of 27 states in terms of the Human Development Index (0,735),⁵ with a per capita income at constant prices of US\$100, while Brazil's is US\$220,⁶ and per capita GDP is US\$3,150.⁷ There is an imbalance between Fortaleza (Ceará's capital city), with a per capita GDP of US\$4,646, and the inland municípios with US\$1,000 to US\$4,000,⁸ reinforcing the need for multisector public policies for balanced economic development.

¹ The support package is estimated to have reached about 8.5% of GDP.

² Central Bank of Brazil (24 September 2021).

³ [Coronavírus Brasil](#) (12 November 2021).

⁴ CAPAG is a risk classification used by Brazil's National Treasury to evaluate the fiscal position of subnational entities (states, federal district, and municípios). The evaluation is used to determine which federal entities can obtain loans with guarantees from the federal government. An overall rating of A or B is required for credit operations (National Treasury, 2017).

⁵ Compared to the levels of Paraguay, Suriname, and Bolivia (UNDP Brazil, 2021).

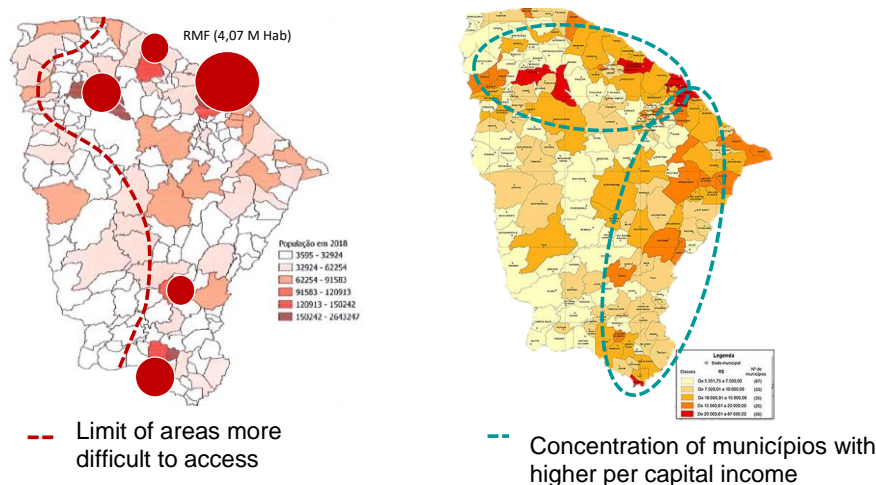
⁶ Ceará, 2050: Quantitative Diagnostic Assessment.

⁷ Half of the value for Brazil (US\$6,796) and at the levels of El Salvador, Guatemala, and Bolivia (Ceará Institute of Economic Research and Strategy (IPECE), World Bank, 2020).

⁸ Brazilian Institute of Geography and Statistics (IBGE) Cities, 2018.

- 1.4 The lower levels of development are concentrated in the mesoregions of the central western and southern parts of Ceará (Figures 1 and 2), where constraints on accessibility are greater and limit producers' access to inputs and to the market, demonstrating the need to deepen the development of multisector policies to help reduce these inequalities.

Figure 1. Geographic distribution in Ceará **Figure 2. Per capital GDP distribution in Ceará**



Source: Ceará Institute of Economic Research and Strategy (IPECE), 2020.

- 1.5 **Economic development of Ceará.** Starting in 2003, the state's per capita income began to grow at a faster rate than in the rest of Brazil. Between 2012 and 2019, Ceará posted growth of 52.5% in its GDP, while Brazil posted 26.7%.⁹ The services sector represents the highest share in the state economy, and the only sector that has increased its share over time, from 69% in 2012 to 77.8% in 2019. In addition, between these years, industrial production grew from 17.1% to 22.6%, while the agricultural sector rose from 5.1% to 5.8%.¹⁰ Despite its progressive transformation into a services economy, the combination of agricultural production and manufacturing in Ceará still represents 35% of the state's gross value added (GVA) and has high export potential.
- 1.6 The increase in Ceará's GDP is associated with public investments and the dynamism of its commerce, benefiting from its geographic location. Its exports grew by 76% between 2016 and 2019, with year-on-year increases of up to 7.2% in the state's northeast. In turn, its imports grew 113% in volume, but declined 21% in value.¹¹ These exports are based on manufactured goods and certain agricultural products in high demand abroad, with 92.5% of exports concentrated

⁹ IPECE, 2021.

¹⁰ The higher job growth in the services sector is associated with the behavior of production, and provides evidence of the relation of historical road investments in the state in creating productive jobs associated with this service (Relação Anual de Informações Sociais [Annual Social Information Report] (RAIS), 2021).

¹¹ Secretariat of Foreign Trade (SECEX), 2021.

- in just 10 products, primarily metallurgical products (53%),¹² cashew nuts, fruits, and aquaculture (shrimp, tilapia).
- 1.7 **Production chains.** Ceará's economic and logistical structure is concentrated in three major families of products: agriculture and agrifood, electrical-metalworking manufacturing, and mass consumer goods. The first category includes: cashew nuts, fruits (passion fruit, melon, papaya, banana, and coconut), flowers, crustaceans, fish, plant-based waxes (carnauba), and fruit juices ([optional link 5](#)). In national production for local consumption, the following chains exist: cotton, maize, beans, rice, cattle, sheep, pigs, poultry, and primary exploitation of magnesium, granite and marble, ornamental stones, cements, limestone, and other non-metalliferous minerals. This production is relevant due to its potential focus on high-value products, which favors the internationalization of small businesses.¹³ However, these businesses have been impacted in the past by droughts.¹⁴
- 1.8 As part of its strategic productive planning,¹⁵ Ceará has prioritized the following sectors: (i) development groups: textile, furniture, electrical metalworking, non-metallic mineral (granite, quartz, and other ornamental stones for decoration, components for wind-power generators), and tourism chains; (ii) key sectors: construction, leather and footwear, creative economy, ocean economy, agriculture, and health chains; and (iii) crosscutting support areas for the chains: water, biotechnology, energy, logistics, environment, and information and communications technology.
- 1.9 **Export profiles and production areas.** Production and export of mass consumer goods segments are concentrated in footwear, furniture, and textile apparel. Footwear was the number two export product from Ceará in 2019, with a value of US\$236 million (10.4% of total exports). This industry is led by the RMF, Cariri, and Sobral, although production is distributed throughout the interior of the state, and they could increase their share of exports if they had adequate conditions of access.
- 1.10 Manufacturing production for export is concentrated along the state's coast, in the RMF, and in the Pecém port area, with industrial hubs in Sobral and Jaguaribe. The most successful agricultural exports (aquaculture, fruits, and cashew nuts) are also located along the coastline, while inland agriculture, rarely

¹² In electrical-metalworking exports, 60% are concentrated in industrial machinery, household appliances, and electrical equipment (generators, transformers, and electric motors), and their primary destination is Germany. The production of power generation components is an emerging sector, with Brazil being a pioneer in green energy since 1996, with the Prainha (10 MW) and Taíba (5 MW) wind farms, 79 projects currently in execution and a future potential for 10,000 km² for offshore turbines.

¹³ There is empirical evidence of the benefits of internationalization of small and medium-sized enterprises (SMEs) associated with improved performance with respect to other types of SMEs, higher quantity and quality of jobs created, higher productivity, sales volumes, and diversification of export offerings, and greater opportunities to drive growth and employment for other SMEs devoted to local employment and consumption, through an increase in demand for production inputs, human resources, and knowledge transfer (Inter-American Development Bank [IDB], 2014).

¹⁴ Ceará Highway Master Plan (State Highway Department [DER], 2013).

¹⁵ Strategic sector routes 2025 is an initiative of the system of the Federação das Indústrias do Estado do Ceará [Federation of Industries of the State of Ceará] (FIEC) approved in 2015.

for export,¹⁶ is located in the central and southwestern areas and in some municípios in the north ([optional link 5](#)) (Figures 3 and 4).

Figure 3. Agricultural GVA by município

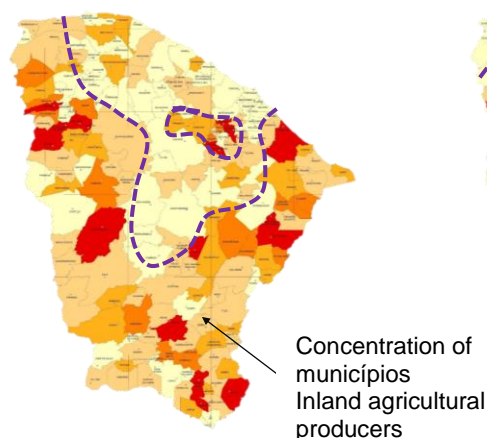


Figure 4. Industrial GVA by município

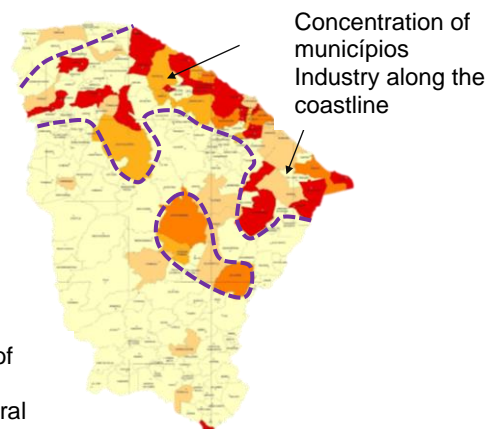
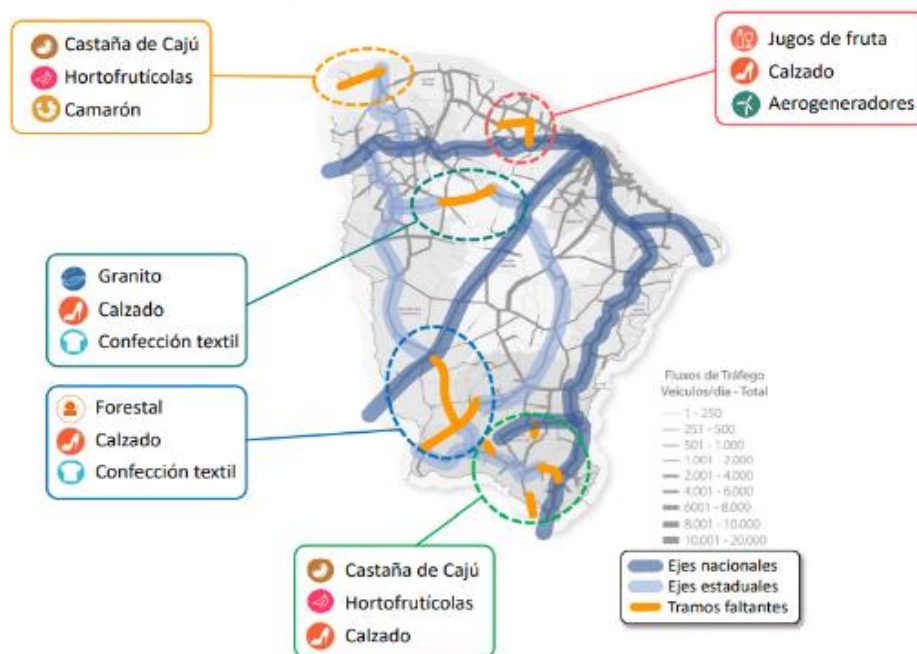


Figure 5. Agricultural and industrial production hubs and logistics corridors



Source: IPECE, 2018.

¹⁶ Provides evidence of the need to improve accessibility and reduce logistics and transportation costs for the industries located in the municípios in central and southwestern Ceará.

- 1.11 **Gaps in road connectivity.** Limitations on accessibility are hindering the potential development of industrial and agricultural segments in Ceará. Currently, the development structure is dependent on road connectivity, so the poorest municípios are completely dependent on the road network for the competitiveness of their production and for the population's access to social services and employment. The accessibility maps for the federal road network and timelines for access to the Pecém port (Figures 5 and 6) show the low connectivity of some productive areas, which can limit their exports and economic development. In addition, access to adequate, safe transportation to get to schools, independent of geographical distance, supports ensuring children's right to education. In rural areas with limited access to roads in good condition, students need to make longer trips to urban centers where the quality offering and larger number of schools are located,¹⁷ which may have an impact on their absenteeism,¹⁸ dropout rate, and social exclusion. In Fortaleza, the dropout rate is 0.5%, which contrasts with the rates in inland municípios like Itapipoca with 1.4% and Antonina do Norte with 0.9%.¹⁹

Figure 6. Access times to federal network

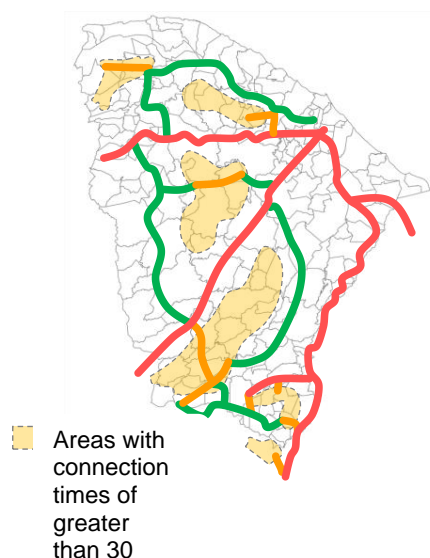
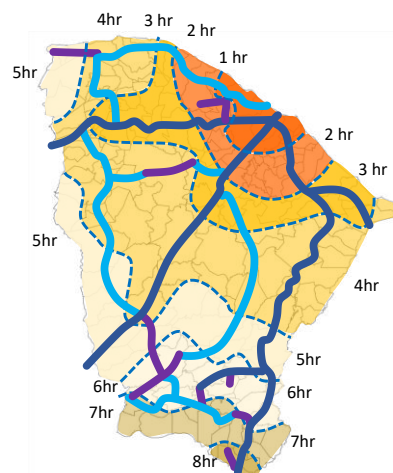


Figure 7. Access time lines to Pecém



Source: Prepared by the authors based on Ceará road network data.

- 1.12 **Characterization of road infrastructure.** Ceará has a state and federal road network covering 14,499.94 km, distributed in 11,942.14 km of state roads and 2,557.8 km of federal roads, in the following condition: 70.9% good, 18% fair,

¹⁷ Students from rural towns close to the targeted road segments, such as Macambira, Limatão, Sítio Barriguda, Monte Castelo, Cedro, and Santo Domingo, are more than an hour and a half away from Campos Sales and Assaré, where there is a greater offering of schools at the primary (0-5 years), secondary, vocational, and even university levels.

¹⁸ [World Bank, 2015.](#)

¹⁹ [Brazil's Ministry of Education, 2021.](#)

9.03% poor, and 2% extremely poor.²⁰ Paved state roads increased by 19% from 2012 to 2019; however, nearly one third of them (29%) are not paved and a significantly smaller percentage have two lanes traveling in each direction²¹ (3.6% of the total). The lack of paving and two-lane traffic on Ceará's state road network contributes to the connectivity problems around production areas, since functionally, the national network promotes the connection of industrial hubs, while the state network provides connectivity to the areas surrounding agricultural production ([optional link 5](#)). Comparing the condition of the Ceará road network to that of Brazil (38.2% good, 38.6% fair, 16.3% poor, and 6.9% extremely poor),²² it is clear that the Ceará roads are above national levels due, in part, to its infrastructure investment strategy over the last three decades. In turn, the state's technical-economic planning is solid, and according to its 2021-2030 Master Plan, which is updated periodically based on the condition of the network and road assets, this will contribute to the strategic vision of production chains reflected in the [Logistics Plan \(PLT\)](#).

- 1.13 **Problem to be addressed.** Despite rapid growth, the economic development of Ceará is not balanced and displays development problems associated with: (i) economic activity that is not geographically balanced and focused along the coast-north-east corridor;²³ (ii) industrial chains in areas well connected to the national road network (north and east), and agricultural production and local consumption chains that are less connected to the state road network (center and south); (iii) higher transportation costs and times in chains with less connectivity, limiting the potential growth of their exports;²⁴ (iv) higher emissions with impact on climate change associated with the additional costs and times of moving people and cargo in production chains that are less connected and limited by the semiarid conditions of the territory²⁵ (paragraph 1.15); (v) accident rate on roads²⁶ (paragraph 1.14); and (vi) less access by the population to essential social services, favoring rural-urban migration, unbalanced territorial

²⁰ Continuous visual survey (Superintendency of Public Works [SOP], 2019).

²¹ Two lanes of traffic in each direction.

²² [Pesquisa CNT de Rodovias, 2021](#).

²³ Seventeen municípios are the source of 95% of exports, and nine municípios concentrate 96% of imports. This territorial distribution reflects a context of opportunities in the short and medium terms surrounding the impact of COVID-19 on public investment, opportunities for nearshoring given the combination of geographic position, agricultural development in Ceará, and the opportunities for changes in production, green energy, and digital logistics technologies.

²⁴ Based on an analysis of time lines in Ceará, it is clear that chains that are less connected take longer than 30 minutes to reach the closest logistics corridor on the national network, and the port of Pecém in between 2 and 5 hours, depending on the availability and quality of the road infrastructure. An analysis of the historical behavior between infrastructure, geographical advantage, transportation costs, and trade in more than 60 countries in Latin America and the Caribbean, Africa, Asia, and Europe found that a twofold increase in the cost of transportation can reduce the volume of trade by up to 45% (World Bank, 2019). A 10% decrease in transportation costs can increase exports and employment in exporting companies by 30% (IDB, 2018).

²⁵ This condition affects the footwear, textile, and food industries (regional production of cotton, maize, beans, and rice) (State Highway Department, 2013).

²⁶ Roads CE-187, CE-371, and CE-085, part of the program's representative sample, have posted sustained growth in traffic accidents, reaching up to 500 accidents/year in 2020.

development, and lower rural incomes.²⁷ Lastly, these problems create opportunities in a multisector environment for balanced territorial development to attract new investments, resilient development of road infrastructure, an inclusive, environmentally responsible approach with transparency, strengthening the management of road assets in production chains, and applied development of technology and telecommunications in infrastructure services.²⁸

- 1.14 **Road safety.** The rate of deaths caused by traffic accidents in Ceará is at the national average (19 per 100,000 inhabitants).²⁹ The problem of road safety has repercussions in Ceará's productive areas and in access to services. While between 2014 and 2020, there has been a cumulative decline of 6.8% in the number of accidents on state roads, with an absolute reduction of 31% in fatalities, and analyzing the number of fatalities per 10,000 vehicles, Ceará has achieved a reduction of 50% on its roads, meeting the United Nations target for the 10-year period.³⁰ Nonetheless, the state needs to continue investing in improving its roads, since more than 800 people per year are seriously injured or die in more than 4,000 road accidents, representing an aggregate economic cost of US\$31 million per year.³¹ Studies have shown that the application of countermeasures³² on two-lane roads, road improvements, and treatment of intersections can reduce accidents by 50%, while median barriers and traffic calming measures in urban areas with roads can reduce accidents by up to 80%³³ ([optional link 3](#)).
- 1.15 **Effects of climate change.** Brazil is a country highly vulnerable to the impacts of climate change, which represents a significant threat in terms of economic growth and social development.³⁴ Phenomena such as extreme temperatures, rising sea levels, significant water shortages, and intense rains put pressure on vulnerable groups, infrastructure, the economy, and unique ecosystems in the country. According to information from the Climate Observatory,³⁵ in 2019 the transportation sector represented about 47% of total carbon dioxide (CO₂) emissions in the energy category, which, in turn, represented 19% of the national

²⁷ When the rural population has access to quality road and energy infrastructure services, their incomes grow up to four times more than the population with access to only one of these services (ECLAC, IDB, 2008). The improvement of rural roads is associated with greater use of health and education services ([World Bank, 2000](#)).

²⁸ In line with the relevance of road interventions in state production chains and the multisector problem identified, the program has been prepared jointly between the Transport Division (TSP) and the Integration and Trade Sector (INT) of the IDB.

²⁹ 2019 data from the [WHO/Datasus](#).

³⁰ These results are due in part to the sustainable investments in state road infrastructure, programs for improving pavement markings and road signs, and the installation of speed control equipment (SOP, 2021).

³¹ SOP, 2021.

³² Such as: (i) conducting inspections on the roads to identify deficient infrastructure; (ii) defining an investment plan to apply the countermeasures necessary to prevent incidents; and (iii) maintaining basic road safety elements throughout the life of the works.

³³ [World Bank, 2020](#) and [Amundsen & Elvik, 2004](#).

³⁴ World Bank, 2021.

³⁵ Climate Observatory, 2019.

- total. Some 40% of transportation emissions correspond to freight transport, primarily generated by the burning of fossil fuels (gasoline and diesel). At the 26th United Nations Climate Change conference (COP26), Brazil announced the target of reducing carbon emissions by 43% by 2030.
- 1.16 In Ceará, climate disasters related to hydrometeorological fluctuations have caused millions of dollars in losses and damages to property, impacting crops, livestock, and infrastructure. A preliminary analysis of climate threats in the state identifies landslides, increased precipitation, temperature increases, and rising sea levels as risks generating significant exposure for its infrastructure. Particular attention should be paid to the design of road projects for greater climate resilience, considering the current and future effects of climate change ([optional link 2](#)).
- 1.17 **Gender gaps.** The workforce participation rate for Brazilian women between 15 and 24 (54.5%) is significantly lower than the rate for men (73.7%). In addition, data show a challenge of occupational segregation and under-representation of women in traditionally male sectors. For example, the Annual Social Information Report (RAIS) of the Ministry of Labor and Social Welfare indicates that women represent only 10% (219,000 jobs) of the total number of employees in the construction sector, working as construction assistants, carpenters, welders, security, and engineers. According to studies by the IDB, the main barriers to women's workforce inclusion in this sector are related to environmental conditions, training opportunities, and risks related to harassment and violence ([optional link 4](#)).
- 1.18 **Gaps for persons with disabilities.** In Brazil, 23.9% of the population is made up of persons with disabilities. According to the 2010 census by the Brazilian Institute of Geography and Statistics (IBGE), there are 45,606,048 people with some type of visual, auditory, motor, mental, or intellectual disability.³⁶ The exclusion of persons with disabilities from day-to-day life arises primarily because of physical or attitudinal barriers in the urban environment and in transportation.³⁷ According to a study conducted in Fortaleza, 31 segments of sidewalks in front of public buildings were analyzed and the most common problems found were a lack of access ramps, the poor quality of the surface, and the encroachment of vehicles onto the sidewalk to park; all of these were accounted for as barriers to accessibility.³⁸ With respect to employment, according to data published in the Ministry of Economy's RAIS, only 486,000 people with disabilities have jobs; that is, fewer than 1%.³⁹ The participation rate for disabled men between 35 and 39 is 81%, while for disabled women in the same age group, it is 66%.⁴⁰ Pursuant to national legislation,⁴¹ companies with more than 100 employees should reserve between 2% and 5% of jobs for persons with disabilities.

³⁶ [Ministry of Health, 2017](#).

³⁷ [IDB, 2021](#).

³⁸ [Opovo, 2019](#).

³⁹ [RAIS, 2021](#).

⁴⁰ [IBGE, 2012](#).

⁴¹ [Law 8,213 of 1991](#).

- 1.19 **Gaps in telecommunications connectivity.** Limitations on telecommunications services affect social and productive development, since better cellular telephone and mobile internet coverage on roads would contribute to improving the population's quality of life and economic growth. There are many mobile telecommunications applications on roads, from connectivity to report an emergency to the application of artificial intelligence and the Internet of Things (IoT)⁴² to prevent traffic accidents. Cellular telephone coverage on the roads in Ceará is limited and varies depending on the type of technology. On both federal and state paved roads, the technology with the best coverage is 3G, which covers 66% of the network, or about 7,230 km, while 2G technology covers 45%, and 4G covers 48%, leaving 30% (3,282 km) of the network without any coverage.
- 1.20 **Rationale.** The context and evidence presented above show that Ceará's economic activity is characterized by a territorial structure showing the targeting of agricultural and industrial production on nearly 15 hubs with higher growth and a presence of high-value products in the north and east, and lower growth in the center and south of the state. This reflects the low connectivity of certain areas, impacting their potential development and exports (paragraph 1.11), and the need and opportunities for short-term actions on accessibility in Ceará's interior, such as those planned under the program, prioritizing road segments to complete the road network's connectivity and capacity, facilitating more balanced territorial economic development. Along this line, Ceará recently implemented various policies and programs of incentives for agricultural and industrial production.⁴³ Even though the state of maintenance of the road network in Ceará is above the national average, the improvement in its quality reduces the time and cost of the population's access to social, education, and health services; as well as the municípios and production chains that depend on the road network, which are benefited by the program.⁴⁴ Ceará needs to increase the connectivity of its inland industrial and agricultural hubs with the primary national (document BR-222, BR-020, BR-116) and state (CE-364, CE-257, CE-187, CE-371, and CE-456) corridors, promoting the transport of regional products to consumption centers and ports for export, thus increasing competitiveness, income distribution, and the number of companies in the state's interior. In addition, the proposed works will improve the roads' resilience to climate change and will facilitate access to wind farms and airports. In turn, the program will contribute to closing gaps in

⁴² The adoption of IoT makes logistics more flexible to achieve lower costs, greater transparency and productivity, and allows the optimization of processes in real time ([IDB, 2020](#)).

⁴³ The Ceará 2050 initiative prioritizes 10 productive sectors and identifies specific actions and investments in these chains. At the same time, through the FIEC, the industrial sector has been promoting the 2025 Strategic Sector Routes initiative since 2015 with specific actions on 13 roadmaps, among which 5 have areas of action directly related to improving the quality of the state road network. Ceará is also executing five specific programs for industrial incentives (PROVIN), merchandise distribution (PCDM), renewable energy chains (PIER), attraction of startups (PROADE), and development of retail trade (FDCV).

⁴⁴ It is estimated that the five areas benefiting from the program will significantly reduce connection times to the national road network and for access to the Port of Pecém. In the central-north area, estimates range from a 16% to 39% reduction in time to access the national network and a reduction of 9% to 25% to Pecém, in the northwestern area the reduction is estimated at 10% and 5%, in the central area 7% and 17%, in the southwest 7% to 37%, and 12% to 30% in the southeast ([optional link 5](#)).

access to social services by improving the road infrastructure with road safety, helping to reduce travel times for students from communities near the intervention areas to educational institutions located in the main urban centers.⁴⁵ The program also considers the development of activities that promote gender equality and the inclusion of persons with disabilities, the use of technology for innovation, and support in the planning of road infrastructure.

- 1.21 **Evidence of effectiveness in investments.** The increase in industrial exports has been driven by investment in the metalworking and steel sectors, favored by the increase in the road connectivity, capacity, and accessibility and by the successful operation of the Pecém port.⁴⁶ Investment in infrastructure is key for continuing on the path of economic recovery, due to its ability to drive demand, create jobs, and provide incentives for the development of productive factors. In addition to the relationship between investment in transportation infrastructure and the growth of national production,⁴⁷ studies have estimated that a 10% decline in transportation costs increases exports by 20% to 30%,⁴⁸ and for every US\$1 million invested in infrastructure in Latin America and the Caribbean, about 40,000 direct jobs can be created per year.⁴⁹ In, Brazil, there is also an inverse correlation between transportation costs and export levels: for every 1% that transportation costs are reduced *ad valorem* there is an increase of 5% in agricultural exports, 4% in manufacturing products, and 1% in mining products.⁵⁰
- 1.22 **The Bank's experience in the sector.** Since 1990, Ceará has undertaken five investment loans with the IDB in the transportation sector (Figure 7), investing about US\$934,000 in road expansion and restoration, as a result obtaining 1,555 km of paved roads and 5,232 km of restored roads. The Ceará I program (loan [587/OC-BR](#)) financed the rehabilitation of the structural road network that was in a critical state and the institutional restructuring of the State Highway Department, now the SOP, beginning road management based on investment planning. The Ceará II program (loan [1019/OC-BR](#)) had the objective of ensuring that all municipal seats in the state had paved access from the structural road network and financed the development of SIGMA, a system devoted to planning road conservation activities. The Ceará III program (loan [2169/OC-BR](#)) had the objective of paving the roads connecting the state's primary productive regions to the structural road network and financing the Master Road Plan. In turn, the Ceará IV-A program (loan [2964/OC-BR](#)) raised the technical standard and service level of the main roads in the state's structural network, by supporting paving, rehabilitation and comprehensive maintenance of the road network. Lastly, the Ceará IV-B program (loan [3395/OC-BR](#)) financed the State Logistics

⁴⁵ Ninety-three educational institutions have been identified in the centers of Antonina do Norte, Assaré, Barroquinha, Camocim, Campos Sales, Rio Timonha, Salitre, and Santa Quitéria.

⁴⁶ Since its concession, the port has posted year-on-year growth of close to 20%.

⁴⁷ Historically, the literature has associated investment in transportation extensively with production growth at the national and subnational levels (Aschauer M., 1990; Costa et al., 1995; D'emurger, 2000; Vásquez et al., 2006).

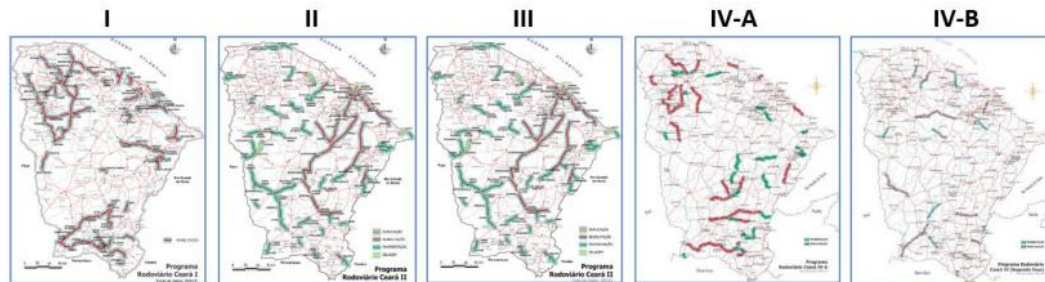
⁴⁸ [IDB, 2018.](#)

⁴⁹ DIA 2020 ([IDB, 2020](#)).

⁵⁰ [IDB, 2013.](#)

and Transportation Plan (PELT) strengthening factors including the state government's capacity for long-term logistics planning and dialogue with the private sector.

Figure 8. Works executed in prior programs



- 1.23 Lessons learned.** Prior programs have enabled the executing agency to evolve in aspects of value added, thus developing a more modern program in keeping with the current development scenario in Ceará. For example, this program will implement road asset management with emphasis on the operation, not only on the road works, establishing targets for improved access to social services, companies, and production chains served by the targeted roads, while also reinforcing the management of these assets with technological tools and a gender approach. The following lessons learned from prior programs have also been highlighted: (i) relevance of strengthening inspection, supervision, and efficiency mechanisms in execution; (ii) importance of promoting training in project design and management; (iii) ensuring sound engineering designs to mitigate delays and changes; (iv) supporting management for the proper administration of works, achieving greater efficiency in processes; (v) improvements in administration and execution with the use of georeferenced systems; (vi) development of a project management system based on transparency and participation by multidisciplinary teams in project review procedures; (vii) autonomy of the program coordinator in decision-making and periodic monitoring of the works, which has enabled the SOP to not only increase the physical targets of the programs, but also progress in terms of the complexity and sustainability of each program; and (viii) the importance of building the executing agency's procurement management capacity.
- 1.24 IDB Group strategy with the country.** The operation is aligned with the IDB Group Country Strategy with Brazil 2019-2022 (document GN-2973) in two priority areas: (i) improve the business climate and narrow gaps in sustainable infrastructure to enhance competitiveness; and (ii) integrate the less developed regions into its strategic objectives of improving the quality of infrastructure, the quality of logistics, and increasing the competitiveness of these regions based on a sustainable development model.
- 1.25 Strategic alignment.** The program is consistent with the Update to the Institutional Strategy (document AB-3190-2) and aligned with the development challenges of: (i) productivity and innovation, by reducing travel times with improvements in the road network, which increases productivity for the economy

as a whole; (ii) economic integration, by improving access for production chains with a sustainable approach; and (iii) social inclusion and equality, by promoting more balanced territorial economic development and the inclusion of universal design (paragraph 1.32). The project is also aligned with the crosscutting areas of: (i) gender equality, by promoting the inclusion of women in nontraditional jobs (paragraph 1.34) and diversity (paragraph 1.32), by including standards for universal design, which facilitate access, mobility, and pedestrian autonomy for users with reduced mobility; (ii) climate change and environmental sustainability, by incorporating concepts of climate change adaptation and mitigation into infrastructure construction (paragraph 1.35); and (iii) institutional capacity and rule of law, by building the executing agency's technical capacity with the update of the Master Plan and applications of technology in the program's works projects (paragraph 1.36). It will also contribute to the Corporate Results Framework (CRF) 2020-2023 (document GN-2727-12) for roads built or upgraded (km) (paragraph 1.28). In turn, it is consistent with: (i) the IDB Infrastructure Strategy: Sustainable Infrastructure for Competitiveness and Inclusive Growth (document GN-2710-5), by promoting balanced territorial development; and (ii) the following sector framework documents: (a) Transportation (document GN-2740-12);⁵¹ (b) Gender and Diversity (document GN-2800-8), by promoting the inclusion of women in nontraditional jobs; (c) Climate Change (document GN-2835-8), by incorporating concepts of adaptation to climate change; and (d) the Sector Strategy to Support Competitive Global and Regional Integration (document GN-2565-4), by developing infrastructure that promotes production chains. In all, 21.94% of the operation's resources are invested in climate change adaptation activities, according to the [joint methodology of the multilateral development banks on climate finance](#). These resources contribute to the IDB climate finance target of 30% of the volume of annual approvals.

- 1.26 **Contribution to Vision 2025.** This program considers Vision 2025, Reinvest in the Americas: A Decade of Opportunity, in the areas of: (i) gender (paragraph 1.34) and social inclusion (paragraph 1.32); (ii) climate change (paragraph 1.35); (iii) digitalization (paragraph 1.36), and (iv) regional integration (paragraph 1.29).
- 1.27 **The program's value added and Bank participation.** Through its experience and multisector nature, the Bank has supported the development of the following additionality to achieve a more efficient, comprehensive, and sustainable standard of intervention, which will be leveraged in future operations in Ceará and the rest of the country: (i) improved standards of road safety and inclusive accessibility in the design of the targeted roads, using the International Road Assessment Programme (iRAP) analyses for road safety on the entire state road network; (ii) design and implementation of programs and training in nontraditional sectors of road engineering for women, paid internships for women, and programs to raise awareness and combat gender-based violence;⁵²

⁵¹ In particular with: (i) promoting efficient, quality interurban mobility of passengers by improving access to road infrastructure; and (ii) improving logistics performance by reducing costs for Ceará's strategic production chains.

⁵² The program-financed supervision contracts will include a particular specification establishing that contractors will implement the paid internship program.

(iii) supplementing the road asset management system with the Pavimenta2 program, automating pavement quality analysis with artificial intelligence; (iv) a vision of sustainable infrastructure from the perspective of climate change adaptation and mitigation, with a rubberized asphalt pilot; (v) use of the information on the degree of digital connectivity of the road network as an input for the Master Plan; and (vi) a new support model for program management, with the objective of making it more efficient and reducing its costs. Moreover, in addition to the program actions, Ceará's SOP and the Office of the Secretary for Economic Development and Labor (SEDET) will make efforts to establish bilateral cooperation aimed at developing technical training courses for SMEs in order to increase, diversify, and add value to the products exported by the production chains prioritized under this project.⁵³

- 1.28 **Proposed interventions.** The program combines the paving of 56 km of roads, and the upgrading and widening of 11 segments of state roads covering 401 km, supplementing and modernizing segments targeted in prior programs under the Logistics Plan (PLT). The interventions will include widening of the roadbed, adding double lanes to certain segments, improvement of the layout and drainage works, allowing for the reduction of travel times and costs and providing better road safety. The interventions prioritize road segments that complete accessibility to relevant production chains in the state, facilitating more balanced territorial economic development, in addition to improving access to social services and the resilience of the network.

⁵³ The IDB's Integration and Trade Sector will work with SEDET to develop the aforementioned training programs; as well as to provide support with free digital tools such as ConnectAmericas to benefit the SMEs in the aforementioned production chains.

Figure 9. Program interventions and prior programs



Source: SOP, 2021.

- 1.29 **Improvement of production chains.** The reduction of travel times and costs by the program's interventions will reduce the transportation costs of inputs and the marketing of products from various production chains in Ceará, considering the high dependence on the quality of the road network. The program plans to address state road segments that will improve access to logistics corridors for 25 municípios distributed in five productive areas,⁵⁴ directly benefiting nine high-value product chains with export potential,⁵⁵ facilitating balanced territorial development through higher quality and more stable employment, and the reduction of social inequalities through better access and connectivity for the

⁵⁴ Northeast (Camocim, Barroquinha, improved connection with route CE-364), center-north (Itapipoca, Tururu, Tiari, Paraipaba, São Luís do Curu, via a connection with BR-222), central (Canidé, Santa Quitéria, through the improvement of CE-257), southwest (Tauá, Aereniroz, Perambó, Ajuaba, Antonina do Norte, Campos Sales, Assaré, Altaneira, through an improvement of the connection with CE-197, BR-020, and CE-456), and southeast (Granjeiro, Cariazu, Milagres, Abaira, Jardim, Missão Velha, Nova Olinda, through an improved connection with BE-230 and BR-116).

⁵⁵ These chains are: aquaculture (shrimp and others), fruit juices, granite, cashew nuts, fruits and vegetables, wind turbines, footwear, textile apparel, and furniture. The selection criteria for the chains were as follows: (i) they are leaders characterized by their continuity, historical consolidation, and relevance in the trade balance; (ii) the territorial productive structure coincides with the location of the municípios targeted under the program; and (iii) the functionality of the road network contributes to the chain's transportation dynamics for access to the port for export and consumer markets.

- population. These chains have the following features: (i) consistency with territorial structure for industrial specialization along the coast, and in municípios close to logistics corridors and centers of trade and export; (ii) agricultural specialization in the inland municípios farthest from the logistics corridors and points of commerce; (iii) development dependent on road accessibility; (iv) they combine leading chains (consolidated production and trade, good road connectivity) and emerging chains (unstable production and trade, limitations on connectivity); and (v) they demonstrate a relationship between low road connectivity, low per capita GDP, and a lower exportable offering with opportunities for nearshoring and employment.
- 1.30 The benefits of each segment addressed can be associated with one or more beneficiary chains, without it being possible to determine the effects on an isolated chain, but rather on high-value products with export potential, so the measurement of this benefit should integrate improvements in employment and exports for all municípios and not consider the RMF to avoid entries for areas subject to territorial dynamics different from those identified. Of the nine chains identified, four have emerged as the most relevant and stable leaders and exporters in the period between 2016 and 2021, offering greater opportunities to benefit directly from the program's interventions, given their effect on the competitiveness of exports and the development of startups in the state. These are: aquaculture (shrimp and others), fruit juices, footwear, and granite. The focus on exports is justified because the export firms are more competitive, pay higher salaries, create more jobs, and add more value to the products.⁵⁶
- 1.31 **Sustainable and regenerative highways.** The program will apply measures for regenerative highways,⁵⁷ a concept that proposes that road infrastructure should be intelligent and technological, safe, inclusive, and sustainable, in harmony with the surrounding environment. According to this concept, the program will implement actions to add value to the works, considering improvements in accessibility; safe, inclusive mobility; gender equity; innovation and technology; and climate change.
- 1.32 **Actions to improve accessibility to social services.** The program will help close gaps in access to social services by improving road infrastructure in Ceará, helping to reduce travel times to educational institutions located in the urban centers near the areas of intervention. Access to adequate, safe transportation to attend school, regardless of how far away it is, helps to ensure children's right to education. In rural areas, students have to travel long distances, which has an impact on grade repetition, dropout rates, and social exclusion. For example, in the areas of Influence of the roads in the program's sample, there are a total of 93 schools that will benefit from a reduction in travel times and costs.⁵⁸ A study in

⁵⁶ [IDB, 2014](#).

⁵⁷ Prepared by Allie Kelly, Executive Director of The Ray, a nonprofit organization with the objective of promoting a new concept in highways.

⁵⁸ Before the paving of CE-182, students from the town of Preá in Ceará, located 40 km from the closest school in the município of Cruz, needed 50 minutes to get to school. Therefore, many students decided not to travel to the município to study. ([SEDUC, 2018](#)).

China concluded that poor access to roads can reduce enrollment in secondary education by 9%.⁵⁹

- 1.33 **Actions for safe, inclusive mobility.** The program will implement activities to improve the safety of the targeted roads, taking into account the countermeasures suggested by the iRAP analyses.⁶⁰ In addition, the following actions are planned: (i) the application of inspections using the iRAP methodology on 4,000 km of paved roads for the creation of an investment plan to improve road safety on state roads, as an input for the Master Plan; and (ii) strengthening of the institutional capacity of the Superintendency of Public Works (SOP) for road safety management through training on the iRAP methodology ([optional link 3](#)). The program works will include universal design standards for paths, garage entrances, passing bays, public transportation shelters, and ramps at pedestrian crosswalks located in urban environments, to facilitate access, mobility, and pedestrian autonomy for all users with reduced mobility, such as persons with disabilities, the elderly, children, etc.
- 1.34 **Gender actions.** The program will help close women's workforce participation gaps through the design and implementation in one of the projects of a paid internship program to train women in nontraditional sectors, including training and workshops related to the supervision of technical design work or road construction and maintenance work (paragraph 1.41). A training program for contracting companies will also be implemented, considering awareness on gender-based violence and equality ([optional link 4](#)).
- 1.35 **Climate change actions.** In line with the results of the environmental studies on the sample projects, the main hydrometeorological threats that could be exacerbated by climate change have been identified, with threats caused by high temperatures, storm surges with rising sea levels, and the effects of seasonal rains such as floods, slope erosion, and landslides. In response to climate change, the design of the works will include components that contribute to climate change adaptation and the mitigation of its effects on the road network and its area of influence. Adaptation actions to be considered will be: (i) increasing the altitude of the roads; (ii) construction of new drainage; (iii) reconstruction of sewers and bridges; (iv) stone roadways replacing asphalt in urban crossings; (v) works to promote public transportation; and (vi) an environmental and social management plan. The particular case of the segment of route CE-257 between Santa Quitéria and Salitre is noteworthy; since it is not exposed to hydrometeorological threats, it acts as redundancy for other exposed segments, ensuring connectivity for production chains in Ceará's center and west with the RMF and the port of Pecém. The adaptation interventions total an investment of US\$14,500,000, representing 21.94% of the total investment in the

⁵⁹ [Zhao and Teng, 2019](#).

⁶⁰ Under loan 3395/OC-BR, the iRAP analysis is being implemented on 5,000 km of state roads, including the segments targeted under this program.

sample segments. The mitigation actions will be: (i) pavement recycling;⁶¹ (ii) rubberized asphalt pilot; and (iii) quarry reclamation ([optional link 2](#)).

- 1.36 **Institutional strengthening actions.** The activities to be undertaken are: (i) training of SOP technical staff on the use of the iRAP methodology for its integration into road asset management; (ii) support for the digitalization of works supervision processes, automated capture of state information and use of the road infrastructure,⁶² thus contributing in the areas of transparency and integrity risks in processes; and (iii) updating and development of the Master Plan, which is the primary planning tool for road investment in Ceará. The plan will consider aspects of value added provided by the Bank, including: (i) a diagnostic assessment of digital connectivity on the state road networks; (ii) considerations for climate change adaptation in road works; (iii) incorporation of production chain analysis for the plan's diagnostic assessment and value proposition; and (iv) road safety considerations.
- 1.37 **Technical support in program management.** Through the program management unit (PMU), the SOP will contract consulting services to support the program's management and execution. Based on the lessons learned from prior programs with the executing agency, the contracting of these services will be done under the implementation of a support model that will incorporate three payment modalities: (i) monthly, to address a minimum support structure needed throughout the life of the project; (ii) by output, which have already been identified with an established unit price; and (iii) for a package of specialized consulting hours for the various disciplines that may be required throughout the project's life. A coefficient will be applied to these payments reflecting the service level of the consulting assignment. This is expected to continue improving efficiency in the use of the economic, technical, and human resources available for the program with respect to traditional management services.
- 1.38 **Transparency in public works.** One of the problems hindering countries' socioeconomic development is corruption, with public procurement being one of the government activities most prone to the consequences of this phenomenon. Although corruption is a global phenomenon that does not depend on a country's net wealth or its geographic location, it has caused significant adverse impacts on certain regions of the planet, particularly Latin America and the Caribbean and Africa.⁶³ Ceará is promoting various strategies to manage these so-called integrity risks, which have been built in part by the lessons learned from prior programs, including, in particular, bidding on works and studies through a public-access web portal (procurement system), as well as having procurement manuals, public information on works execution, a record of companies' integrity

⁶¹ It is estimated that the use of pavement recycling for incorporation into the roadbed generates a cost reduction for the project of around 1% and helps avoid the generation of 7.7% of greenhouse gas emissions during the construction phase, with respect to the baseline scenario (road construction without recycling).

⁶² Ceará has an integrated road asset management system focused on the monitoring of routine maintenance activities. The use of that system will be supplemented with the tool [Pavimenta2](#), which automates the surveying and analysis of pavement conditions using artificial intelligence.

⁶³ Schuster, 2017.

and transparency, internal control for the monitoring of financial processes through a financial management system, etc. In addition, the participation in the bidding processes (six to eight proposals per process), the speed in addressing requests for clarifications, as well as timely response to challenges. The executing agency will manage the program following the best practices from the lessons learned from Bank-financed projects on transparency and integrity, which will be incorporated into the program Operating Regulations.

B. Objectives, components, and cost

- 1.39 **Objectives.** The general objective of the program is to help increase the competitiveness of the State of Ceará, by increasing access for companies and residents to markets and social services by improving the quality of its road network. The specific objectives are to improve the quality of service of the infrastructure and road safety on the road network in the State of Ceará on the segments considered under the program.
- 1.40 **Component 1. Studies and projects (US\$5.9 million).** This component will finance: (i) technical, economic, socioenvironmental, and geotechnical studies, and the preparation of engineering projects (considering elements of universal accessibility, when applicable), and other similar studies, for the program works and future road infrastructure programs; and (ii) implementation of the iRAP methodology on 4,000 km of the state road network and iRAP training for SOP technical staff.
- 1.41 **Component 2. Works and supervision (US\$175.2 million).** This component will finance: (i) the paving of approximately 60 km of the state road network, including the segment CE 187 – Entr. CE 284 (Barra) – Barão de Aquiraz; (ii) the quality improvement of approximately 400 km of the state road network, which may include widening the roadbed, creating double lanes on segments, improving the layout, drainage works, including the segments CE 085 – CE 362 (Camocim) – Divisa CE/PI; CE 371 – Cruzeta – Antonina do Norte; CE 371 Antonina do Norte – Carmelópolis – Campos Sales; and CE 257 Salitre – Entr. CE 176 (Santa Quitéria); (iii) implementation of iRAP measures on the program segments; (iv) implementation of climate change mitigation and adaptation measures planned in the engineering projects for the program works (paragraph 1.35); (v) development of training on inclusion of persons with disabilities and gender-based violence (paragraph 1.34); (vi) universal accessibility measures for persons with disabilities, as applicable; (vii) a pilot segment using rubberized asphalt for paving; (viii) environmental offsets necessary to ensure the execution of program works; and (ix) technical and environmental supervision of works. The works and supervision contracts will specify that contractors will implement paid internship and training programs for women (paragraph 1.34).

- 1.42 **Component 3. Institutional strengthening (US\$1 million).** This component will finance: (i) the institutional strengthening of the SOP, including the update of the Highway Master Plan; and (ii) support for the digitalization of works supervision processes with the application of artificial intelligence.⁶⁴
- 1.43 **Program management (US\$5.4 million).** This will finance: (i) administration, evaluation, and monitoring; and (ii) an external financial audit.

C. Key results indicators

- 1.44 **Expected outcomes.** The indicators related to the specific objectives are: (i) improvement in the quality of service of the infrastructure on the targeted segments, measured by the reduction in travel time and cost; and (ii) improvement in road safety on the targeted segments, measured by the rating of the roads using the iRAP methodology. The indicators related to the general objective are as follows: (i) the increase in economic activity in the beneficiary municípios, measured by the increase in employment; (ii) the development of foreign trade, measured by the increase in exports in the program's beneficiary municípios and production chains; and (iii) the improvement in accessibility to schools in the area of influence of the road, measured by the reduction in average access time. These outcomes and impacts are detailed in Annex II. The baseline is the benchmark for the program's evaluation, while the output and outcome indicators will be corroborated in the field through valid means of verification.
- 1.45 **Technical and economic viability.** An economic feasibility analysis was performed ([optional link 1](#)) for the projects making up the sample. This assessment is based on a comparison of costs and benefits, at economic prices, in situations with and without the project. The benefits were estimated using the consumer surplus methodology, frequently used in road projects of this type through the Highway Development and Management System (HDM-4) model, which calculates the return on the project considering: (i) investment costs; (ii) vehicle operation costs, including time; and (iii) annual maintenance costs, defined for the situations with and without the project. The benefits due to the reduction of accidents on certain segments are incorporated into the analysis, as applicable.
- 1.46 The findings of the economic analyses of the projects in the sample show an economic internal rate of return (EIRR) greater than the discount rate used (12%). The sensitivity analysis shows that these results are robust in response to unfavorable scenarios, including a 20% increase in investment costs,⁶⁵ a 10% reduction in benefits, and a combination of a 20% increase in investment costs and a simultaneous 10% reduction in benefits. Extrapolating the analysis of the representative sample to the entire program, the EIRR is estimated at 35.6% and the economic net present value (ENPV) is R\$460,480,000.

⁶⁴ The digitalization of processes will contribute to the strengthening of the SOP in terms of transparency and integrity risk mitigation.

⁶⁵ Equivalent to 25% of capital.

Table 1. EIRR and ENPV for the projects in the sample⁶⁶

Sensitivity scenarios	Lot 1 CE-187		Lot 2 CE-085		Lot 3 CE-371		Lots 4-5 CE-371		Lot 6 CE-257	
	EIRR	ENPV	EIRR	ENPV	EIRR	ENPV	EIRR	ENPV	EIRR	ENPV
Base	47.9%	154.93	37.5%	105.47	30.6%	41.95	21.9%	50.93	39.8%	107.22
Capital +25%	42.2%	144.24	30.5%	89.72	24.9%	33.92	17.8%	33.70	32.2%	91.93
Benefits -10%	45.3%	135.59	34.1%	88.64	27.8%	34.55	19.9%	39.01	36.0%	90.48
Capital +25% /Benefits -10%	39.6%	124.90	27.5%	72.90	22.5%	26.53	15.9%	21.78	28.9%	75.19

- 1.47 **Beneficiaries.** The direct beneficiaries will be 784,000 residents and the 3,517 enterprises in the 25 municípios where the interventions will be executed, improving the quality of life for the population in Ceará's interior. The program will also benefit the students of the 93 schools who use the targeted road segments, improving their access to these educational institutions.

II. FINANCING STRUCTURE AND MAIN RISKS

A. Financing instruments

- 2.1 **Modality.** The program has been designed as an investment loan using the multiple works modality, which considers the financing of physically similar but independent works, which will meet the eligibility criteria established in line with the representative sample.
- 2.2 **Cost.** The total cost of the program is US\$187.5 million, of which US\$150 million will be financed from the Bank's Ordinary Capital, with the remaining US\$37.5 million from the local counterpart. The disbursement period for this project will be five years.

Table 2. Estimated program costs (US\$ millions)⁶⁷

Components/items	IDB	Local	Total	%
1. Studies and projects	0.0	5.9	5.9	3.2
1.1. Studies and projects	0.0	5.9	5.9	3.2
2. Works and supervision	144.6	30.6	175.2	93.4
2.1. Paving of roads	16.5	4.0	20.5	11.0
2.2. Rehabilitation of roads	119.3	25.6	144.9	77.3
2.3. Supervision of works	8.8	0.0	8.8	4.7
2.4. Environmental offset	0.0	1.0	1.0	0.5
3. Institutional strengthening	1.0	0.0	1.0	0.5
Program management	4.4	1.0	5.4	2.9
1. Program management	4.0	1.0	5.0	2.7
2. Audit, monitoring, and evaluation	0.4	0.0	0.4	0.2
Total	150.0	37.5	187.5	100.0

⁶⁶ The assessment will be updated before bidding on the segments, as needed.

⁶⁷ The amounts provided for each component/item in Table 2 are indicative.

- 2.3 **Program sample and viability analysis.** Due diligence was undertaken for the program's representative sample presented by the SOP, representing 32.5% of the total amount of the program (US\$60,957,472.10, comprising 35.64 km of paving and 187.2 km of improvements planned under the program), in order to verify its technical, economic, and socioenvironmental feasibility. The summaries of the engineering studies on the sample projects are available in [optional link 7](#).
- 2.4 **Eligibility criteria.** The works financed with program resources will have the Bank's no objection and meet the following eligibility criteria: (i) facilitate access to essential public services of health, education, exports, or employment in productive sectors; (ii) facilitate access to road segments that are relevant for logistics at the state or national level, for production chains whose current or potential relevance in exports or employment in Ceará is warranted; (iii) be part of the state road network; (iv) not be classified as category A operations under Bank policies; and (v) have an EIRR that demonstrates the economic viability of the project.
- 2.5 **Term for physical start of the works.** The term for the physical start of the program's works will be three and one half years as of the effective date of the loan contract.

Table 3. Estimated program costs by year (US\$ millions and %)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
IDB amount	2.1	41.3	43.8	24.8	29.2	8.8	150.0
Local amount	3.1	3.2	12.5	15.4	2.3	1.1	37.5
TOTAL	5.2	44.5	56.2	40.2	31.6	9.9	187.5
% IDB	1.1%	22.0%	23.3%	13.2%	15.6%	4.7%	80.0%
% local	1.6%	1.7%	6.6%	8.2%	1.2%	0.6%	20.0%

B. Environmental and social risks

- 2.6 According to the Bank's Environmental and Social Policy Framework (ESPF), and based on the evaluations done during the due diligence process, this operation has been classified as a category "B" operation, since the activities to be undertaken will generate moderate, localized, and short-term negative environmental and social impacts. During the construction phase, impacts have been identified on air quality, noise, and vibration caused by passing vehicles and construction machinery, a reduction of plant coverage, community dissent due to temporary road closures, blocked access to homes and/or businesses, and an increased risk of work-related and traffic accidents.
- 2.7 Since this is a multiple works operation, during the due diligence process, a sample of projects was evaluated paying particular attention to cases of interventions near environmental protection areas (Chapada do Araripe). In order to address the requirements established in the ESPF and in the 10 Environmental and Social Performance Standards (ESPS), the borrower: (i) will adjust its Environmental and Social Management System (ESMS) as indicated in ESPS 1; and (ii) will comply with the Environmental and Social Action Plan.

- 2.8 The public consultation process took place on 18 February 2022 using a virtual format due to the pandemic restrictions. The environmental and social assessment documents and the environmental and social management framework were drawn up based on the [consultation report](#) that was published prior to the OPC. The consultation process included the participation of 24 individuals and the documents made available by the SOP had more than 70 views. No socioenvironmental issues of concern arose among the participants in the consultation.

C. Other key issues and risks

- 2.9 A medium-high risk was identified as the potential impact that the definition of the terms of reference (TOR) for contracting the management support company could impact the quality of the outputs delivered, and consequently affect program execution. The following mitigation measures were identified: (i) analyze the TOR in collaboration with the Bank team to adapt them to the reality of the program; and (ii) hold meetings with interested enterprises to clarify the type of contracting involved.
- 2.10 A medium-high risk was identified relating to the potential lack of local counterpart resources for the execution of program activities. The execution of outputs planned for financing with these resources could be delayed, impacting program progress and giving rise to an imbalance in the use of resources (*pari passu*). The mitigation measure identified is to hold periodic meetings with the superintendent of the SOP with the objective of communicating program progress and the potential need to contribute counterpart resources.

III. IMPLEMENTATION AND MANAGEMENT PLAN

A. Summary of implementation arrangements

- 3.1 **Borrower and guarantor.** The borrower will be the State of Ceará. The Federative Republic of Brazil will be the guarantor of the borrower's financial obligations stemming from the loan contract.
- 3.2 **Executing agency.** The operation's execution will be the responsibility of the SOP, an institution with full legal capacity and administrative, operational, and financial autonomy.⁶⁸ The SOP will execute the operation through a PMU, which will be responsible for managing and implementing all program activities pursuant to the loan contract. The functions of the PMU will include: (i) preparing the execution plan, annual work plans (AWPs), and procurement plans; (ii) reviewing bidding documentation for the procurement of the program's services, goods, and works; (iii) preparing the projects' technical files; (iv) requesting disbursements from the Bank, maintaining the program's accounting and financial records, and submitting supporting documentation for expenditures; (v) submitting the program's audited financial statements to the Bank; and (vi) performing the monitoring, support, and evaluation of program

⁶⁸ The SOP was created by Law 16,880 of 23 May 2019. The SOP is currently executing loan 3395/OC-BR.

execution. The PMU will have the support of a company for program management, to be contracted with program resources.

- 3.3 Considering the SOP's high level of experience in executing programs with the Bank (paragraph 1.22), and the results of the Institutional Capacity Assessment Platform (ICAP) analysis, the high level of experience in program and project execution can be confirmed. This experience in execution will be supported by the Operating Regulations ([optional link 8](#)).
- 3.4 **As special contractual conditions precedent to the first disbursement, the borrower will submit evidence, to the Bank's satisfaction, that: (i) the program Operating Regulations have entered into force under the terms previously agreed upon with the Bank;** this is necessary since the Operating Regulations will specify the operational considerations for execution and will harmonize procedures to be followed by the executing agency; **(ii) an adequate legal instrument for cooperation between the borrower and the executing agency has been signed and entered into force, establishing the terms and conditions for the transfer and use of the loan proceeds, in terms agreed upon by the Bank;** this is necessary to formalize the attributions and responsibilities of the SOP and to ensure the transfer of the loan proceeds and their proper administration and execution pursuant to the loan contract and the Bank's policies and procedures; **and (iii) the program management unit (PMU) has been established and its general coordinator, administrative-financial manager, and monitoring and control manager have been appointed pursuant to the requirements agreed upon with the Bank;** this is necessary to ensure that the SOP will be prepared with an appropriate team to begin and carry out program execution.
- 3.5 As special contractual conditions of execution, the borrower will have submitted evidence, to the Bank's satisfaction, of: (i) the contracting of the program management support company, within a term not to exceed six months after the date the loan contract was signed, which will include environmental and social specialists; (ii) before starting the first works under the program, the environmental and social management system; and (iii) the contracting of the respective supervision services, prior to the start of each works project, under the terms previously agreed upon with the Bank. These conditions will help ensure that the SOP has the necessary support for program management and works supervision.
- 3.6 **Sustainability of the investments.** The works financed by the program will be included in the SOP's annual maintenance plan; there is also a five-year warranty provided by the contractor. The borrower, through the SOP, will submit to the Bank, during the original disbursement period or any extension thereof, and within the first quarter of each calendar year, a report on the status of the works and equipment included in the program and the annual maintenance plan. The State of Ceará has been doing a good job of maintaining the state road network (paragraph 1.2).
- 3.7 **Procurement of works, goods, and services.** Procurement and contracting will be undertaken pursuant to the Policies for the Procurement of Goods and Works Financed by the Bank (document GN-2349-15) and the Policies for the Selection and Contracting of Consultants Financed by the Bank (document GN-2350-15).

Consideration will be given to the principles and criteria set forth in the Financial Management Guidelines for IDB-financed Projects (document OP-273-12) and relevant Brazilian legislation and the provisions of the loan contract and the procurement plan ([required link 4](#)). Procurement will be subject to ex ante or ex post supervision, as established in the procurement plan. Ex post review visits will take place every 12 months, and their reports will include at least one physical inspection visit selected from among the processes reviewed.

- 3.8 **Disbursements.** The loan will be disbursed primarily by advances of funds. Their frequency will be determined by the project's financial programming, pursuant to the Guidelines set forth in IDB document OP-273-12, described in Annex III. The Bank may provide a new advance of funds once at least 80% of all funds disbursed as advances have been justified.
- 3.9 **Recognition of expenditures.** The Bank may recognize, with a charge to the local contribution for up to the amount of US\$37.5 million (100% of the estimated amount of the local contribution), eligible expenditures incurred by the borrower prior to the approval date of the loan for works and technical studies, provided that requirements substantially similar to those established in the loan contract have been met. Such expenditures will have been incurred on or after 20 December 2021 (the project profile approval date), but in no case will they include expenditures incurred more than 18 months prior to the loan approval date.
- 3.10 **Audits.** External audits for the program will be performed by the Ceará State Audit Office or an independent firm eligible to audit Bank-financed operations, selected and contracted according to the procedures, TOR, and model contract previously agreed upon with the IDB. The SOP will submit audited financial reports to the Bank within 120 days following the closing date of each fiscal year of the program, and the expiration date of the original disbursement period or any extensions thereof.

B. Summary of arrangements for monitoring results

- 3.11 **Monitoring.** Monitoring will be performed using semiannual progress reports, which will be submitted by the SOP within 60 days following the end of each six-month period ([required link 2](#)). The reports will be based on the reporting commitments included in the results matrix for each intervention, as well as compliance with the eligibility criteria set out in the loan contract.
- 3.12 **Midterm evaluation.** If the Bank considers it necessary, the midterm evaluation will be submitted to the Bank within 90 days following the date on which 50% of the loan proceeds have been disbursed. This evaluation will be prepared by the SOP ([required link 2](#)). This evaluation may be replaced by a midterm mission.
- 3.13 **Final evaluation.** The final evaluation will be submitted to the Bank within 90 days following the date of the last disbursement of project resources ([required link 2](#)).
- 3.14 **Information for program monitoring and evaluation.** The SOP will be responsible for maintaining data collection and monitoring systems. The SOP will agree to maintain a system for monitoring and evaluation of all components, which it will use to prepare the reports and data delivered to the Bank. For

purposes of the evaluation, the SOP will compile, store, and safeguard all of the information, indicators, and parameters necessary to prepare the project completion report, including annual plans and the final evaluation.

Development Effectiveness Matrix		
Summary		
I. Corporate and Country Priorities		
Section 1. IDB Group Strategic Priorities and CRF Indicators		
Development Challenges & Cross-cutting Issues	-Social Inclusion and Equality -Productivity and Innovation -Economic Integration -Gender Equality and Diversity -Climate Change -Institutional Capacity and the Rule of Law	
CRF Level 2 Indicators: IDB Group Contributions to Development Results	-Roads built or upgraded (km)	
2. Country Development Objectives		
Country Strategy Results Matrix	GN-2973	The program is aligned to two strategic objectives: promote greater economic competitiveness, under the priority of improving the business climate and narrow gaps in sustainable infrastructure for enhanced competitiveness; and (ii) integrate the less developed regions, under the priority of promoting national and international integration to boost productive capacity.
Country Program Results Matrix	GN-3087	The intervention is included in the 2022 Operational Program
Relevance of this project to country development challenges (If not aligned to country strategy or country program)		
II. Development Outcomes - Evaluability		
		Evaluable
3. Evidence-based Assessment & Solution		
		8.5
3.1 Program Diagnosis		2.5
3.2 Proposed Interventions or Solutions		3.2
3.3 Results Matrix Quality		2.8
4. Ex ante Economic Analysis		
		10.0
4.1 Program has an ERR/NPV, or key outcomes identified for CEA		1.5
4.2 Identified and Quantified Benefits and Costs		3.0
4.3 Reasonable Assumptions		2.5
4.4 Sensitivity Analysis		2.0
4.5 Consistency with results matrix		1.0
5. Monitoring and Evaluation		
		9.5
5.1 Monitoring Mechanisms		4.0
5.2 Evaluation Plan		5.5
III. Risks & Mitigation Monitoring Matrix		
Overall risks rate = magnitude of risks*likelihood	Medium Low	
Environmental & social risk classification	B	
IV. IDB's Role - Additionality		
The project relies on the use of country systems		
Fiduciary (VPC/FMP Criteria)	Yes	Financial Management: Budget, Accounting and Reporting, External Control. Procurement: Information System.
Non-Fiduciary		
The IDB's involvement promotes additional improvements of the intended beneficiaries and/or public sector entity in the following dimensions:		
Additional (to project preparation) technical assistance was provided to the public sector entity prior to approval to increase the likelihood of success of the project	Yes	Cooperation for connectivity studies and vulnerability analysis to natural and climate change dangers for the State of Ceará's highway network.

Evaluability Assessment Note:

The PROGRAMA DE MEJORA DE CALIDAD DE LA INFRAESTRUCTURA VIAL SUBNACIONAL - INFRARODOVIÁRIA CEARÁ consists of a multiple works project encompassing road interventions with a total budget equivalent to US\$ 187 million (US\$ 150 million from IDB). The loan proposal's general objective (GO) is to contribute to an increase in the competitiveness of Ceará State, expanding the access of its firms and inhabitants to markets and social services by improving the road network's quality. It sets two specific objectives (SOs): (i) to improve the quality of Ceará's road infrastructure in the intervened roadways; and (ii) to improve the road safety in the intervened roadways.

The project's diagnosis is clear. The interventions will focus on municipalities with poor connectivity (dependent on unpaved or low-quality roads) to the existing federal highway network – areas where the time to reach federal highways is above 30 minutes. The loan proposal also shows these regions are less developed (measured by a lower GDP per capita) than other areas in Ceará, where transport connectivity is better. The project proposes credible solutions to improve the connectivity and road safety in these regions, by committing to improve the quality of more than 400 kilometers of local roads. The Results Matrix includes indicators associated both with the GO and with the SOs, and their targets are reasonable and supported by evidence.

The economic analysis is adequate, with reasonable and standard assumptions and sensitivity analyses. The estimated net present value of the program is R\$ 391,780,000, and the internal rate of return is 34%. All the works included in the representative sample of the project are economically viable, using the standard discount rate of 12%.

The evaluation plan is appropriate. It proposes to carry out a before-and-after analysis of the indicators of the specific and general objectives, and an ex-post economic analysis. This exercise will not allow the empirical attribution of the results obtained.

RESULTS MATRIX

Project objective:	The general objective of the program is to help increase the competitiveness of the State of Ceará, by increasing access for companies and residents to markets and social services by improving the quality of its road network. The specific objectives are to improve the quality of service of the infrastructure and road safety on the road network in the State of Ceará on the segments considered under the program.
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GENERAL DEVELOPMENT OBJECTIVE

Indicator	Unit of measure	Baseline value	Baseline year	Expected year achieved	Target	Means of verification	Comments
General objective: to help increase the competitiveness of the State of Ceará, by increasing access for companies and residents to markets and social services by improving the quality of its road network.							
Formal employees in beneficiary municípios ¹	Index	100 ²	2020	2027	103	Database of the Annual Social Information Report (RAIS) of the Ministry of Labor and Welfare	See details in the monitoring and evaluation plan
Total exports of prioritized chains ³ in the beneficiary municípios ¹	Index	100 ⁴	2019	2027	100.3	COMEXSTAT data from the Ministry of Development, Industry, and Foreign Trade	See details in the monitoring and evaluation plan
Average travel time for students using the segments in the sample to reach the schools in the main urban centers ⁵	Index	100	2022	2027	95	Travel surveys of students in the baseline year and in the first year of program operation	See details in the monitoring and evaluation plan

¹ The 25 potential municípios are listed in the monitoring and evaluation plan. However, since this is a multiple works program, the works in some municípios may only become operational in the last year of the program. For those cases, it will be impossible to measure the effectiveness on the completion date of the PCR. Therefore, this indicator will be calculated only for municípios that have works completed and operational for at least one year by 2027.

² The baseline value is 100 considering that the 25 potential beneficiary municípios had 65,593 formal employees. However, that baseline will be recalculated in the municípios with works completed at least one year prior to 2027.

³ The prioritized chains are aquaculture, granite, fruit juices, and footwear.

⁴ The baseline value is 100 considering that the 25 potential beneficiary municípios had US\$68,801,640 in exports (FOB values). However, that baseline will be recalculated depending on the municípios with works completed at least one year prior to 2027.

⁵ The schools are located in Santa Quitéria, Salitre, Campos Sales, Antonina do Norte, Barroquinha, Rio Timonha, Camocim, and Assaré.

SPECIFIC DEVELOPMENT OBJECTIVES

Indicator	Unit of measure	Baseline value	Baseline year	End of project	Means of verification	Comments
Specific development objective 1: improve the quality of service of the infrastructure in the State of Ceará on the segments considered under the program.						
Average cost of operation per vehicle-km on the segments paved by the program	Index	100 ⁶	2022	85	Traffic and pavement studies to determine the measurement of operating costs	The projected HDM4 values will be compared to the onsite measurements in year 1 of operation. See details in the monitoring and evaluation plan.
Average cost of operation per vehicle-km on the segments rehabilitated by the program	Index	100 ⁷	2022	90	Traffic and pavement studies to determine the measurement of operating costs	The projected HDM4 values will be compared to the onsite measurements in year 1 of operation. See details in the monitoring and evaluation plan.
Average travel time per vehicle on the total length of the segments paved by the program	Index	100 ⁸	2022	80	Traffic studies to determine the travel time measurement.	The projected HDM4 values will be compared to the onsite measurements in year 1 of operation. See details in the monitoring and evaluation plan.
Average travel time per vehicle on the total length of the segments rehabilitated by the program	Index	100 ⁹	2022	95	Traffic studies to determine the travel time measurement.	The projected HDM4 values will be compared to the onsite measurements in year 1 of operation. See details in the monitoring and evaluation plan.
Specific development objective 2: improve road safety on the road network in the State of Ceará on the segments considered under the program.						
Percentage of paved segments rehabilitated by the program with an average rating of at least three stars for four-wheel vehicles using the iRAP methodology ¹⁰	%	0 ¹¹	2022	100	iRAP evaluation on targeted routes at the end of the program	See details in the monitoring and evaluation plan

⁶ The baseline value of 100 was US\$57.33 and the target is US\$48.73 for the projects in the sample.

⁷ The baseline value of 100 was US\$55.39 and the target is US\$49.00 for the projects in the sample.

⁸ The baseline value of 100 was 38 minutes and the target is 30 minutes for the projects in the sample.

⁹ The baseline value of 100 was 58 minutes and the target is 55 minutes for the projects in the sample.

¹⁰ iRAP does not allow for evaluating baselines on an unpaved road, so paving works are left out of the analysis.

¹¹ The rating of a segment is equivalent to the average of the ratings of all continuous 100-meter sections making up the segment. Currently, no segment in the sample has a rating of three stars or higher. This baseline will be validated during the startup plan when the iRAP baseline study is completed. The target is to improve all paved segments to be rehabilitated to three stars or higher.

OUTPUTS

Indicator	Unit of measure	Baseline value	2023	2024	2025	2026	2027	Baseline year	End of project	Means of verification	Comments
Component 1: Studies and projects											
Kilometers evaluated using the iRAP methodology in the state	km	0 ¹²	4,000	0	0	0	0	2022	4,000	Execution reports	The iRAP methodology will be used
Kilometers of engineering studies for program works	km	0	200	0	0	0	0	2022	200	Execution reports	
Technical study for pilot using sustainable materials for works, rubberized asphalt	unit	0	1	0	0	0	0	2022	1	Execution report	A technical study will be undertaken related to a pilot on the use of sustainable materials in the works
Improved roads that reuse existing asphalt roadbed materials for the granular base of the road	km	0	350	0	0	0	0	2022	350	Execution reports	The state has been implementing this practice of reusing construction materials
Component 2: Works and supervision											
Roads improved by the program	km	0	20	50	100	150	80	2022	400 ¹³	Execution reports	
Training on gender-based violence for contracting companies	unit	0	3	3	2	2	0	2022	10	Execution reports	

¹² The Ceará IV program will complete 5,000 km of evaluation using iRAP prior to this program.

¹³ Approximate total kilometers projected to be improved with the program.

Indicator	Unit of measure	Baseline value	2023	2024	2025	2026	2027	Baseline year	End of project	Means of verification	Comments
Training on inclusion of persons with disabilities for contracting companies	unit	0	3	3	2	2	0	2022	10	Execution reports	
Program works that include universal accessibility measures ¹⁴	unit	0	2	0	1	1	1	2022	5	Execution reports	
Paid gender internship program	unit	0	0	1	0	0	0	2022	1	Execution reports	Paid gender internship program implemented
Works supervision program	unit	0	1	0	0	0	0	2022	1	Execution reports	Supervision program implemented, ensuring supervision of all program works
Component 3: Institutional strengthening											
Development of a Master Plan for Ceará's road infrastructure	unit	0	0	1	0	0	0	2022	1	Execution reports	Master Plan developed during execution

¹⁴ The universal accessibility measures correspond to the implementation of inclusive designs on paths, garage entrances, passing bays, public transportation shelters, and ramps at pedestrian crosswalks located in urban environments, facilitating access, mobility, and pedestrian autonomy for all types of users.

Country: Brazil

Division: TSP

Operation: BR-L1589

Year: 1/21/2022

Fiduciary Agreements and Requirements

Executing agency: Superintendency of Public Works of the State of Ceará (SOP)

Operation name: Subnational Road Infrastructure Quality Improvement Program - InfraRodoviária Ceará

I. Fiduciary Context of the Executing Agency

1. Use of country system in the operation (any system or subsystem that is subsequently approved may be applicable to the operation, in accordance with the terms of validation by the Bank).

<input checked="" type="checkbox"/> Budget	<input type="checkbox"/> Reports	<input checked="" type="checkbox"/> Information system	<input type="checkbox"/> National competitive bidding (NCB)
<input checked="" type="checkbox"/> Treasury	<input type="checkbox"/> Internal audit	<input checked="" type="checkbox"/> Shopping	<input type="checkbox"/> Other
<input checked="" type="checkbox"/> Accounting	<input checked="" type="checkbox"/> External control	<input type="checkbox"/> Individual consultants	<input type="checkbox"/> Other

2. Fiduciary execution mechanism

<input checked="" type="checkbox"/>	Specific features of fiduciary execution	The SOP will execute the program through a program management unit (PMU), which will report directly to the Superintendency's senior authority. The PMU will be responsible for program management, including the functions of planning, monitoring, financial management, procurement, evaluation, and audits. The PMU will consist of the following core team dedicated exclusively to the program: general coordinator; assistant coordinator; administrative and financial manager; monitoring and evaluation manager, all permanent SOP staff. These functions will be supported by a company to be contracted with program resources.
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3. Fiduciary capacity

Fiduciary capacity of the executing agency	The results of the Institutional Capacity Assessment (ICAP) indicated that the SOP has a robust structure, functional regulations and systems, and low staff turnover in the areas of institutional financial management and procurement. However, considering the workload stemming from the execution of past projects (Roads Programs for Integration and Logistics - Ceará IV-A (BR-L1326) and Ceará IV-B (BR-L1363)), the SOP was supported by a management company. For this operation, there are plans to optimize this mechanism by incorporating an output-based contract.
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4. Policies and guidelines applicable to the operation: documents GN-2349-15 and GN-2350-15

5. Exceptions to policies and guidelines: Not applicable

II. Considerations for the Special Provisions of the Loan Contract

During program execution, audited financial statements will be delivered annually within 120 days after the close of each fiscal year. The program's external audit will be performed by an external firm acceptable to the Bank or by the Ceará State Audit Office (TCE-CE). The program's final audited financial statements will be delivered within 120 days after the date of the last disbursement.
The exchange rate agreed upon with the executing agency to be used in accounting for advances of funds from the loan will be the internalization rate. To determine the equivalence of expenditures to be reimbursed against the loan, as well as the equivalence of expenditures incurred in local currency as a charge against the local counterpart, the agreed exchange rate will be the "buy" rate set by the Central Bank of Brazil on the day prior to the effective date of submission of the reimbursement request or justification of expenditures to the Bank.

III. Agreements and Requirements for Procurement Execution

<input checked="" type="checkbox"/>	Bidding documents	For procurement of works, goods, and nonconsulting services conducted in accordance with the procurement policies (document GN-2349-15), subject to international competitive bidding (ICB), the Bank's standard bidding documents or those agreed upon between the executing agency and the Bank for the specific procurement process will be used. The selection and contracting of consulting services will be conducted in accordance with the Policies for the Selection and Contracting of Consultants (document GN-2350-15), and the standard request for proposals issued by the Bank or agreed upon between the executing agency and the Bank will be used for the specific selection process. The project sector specialist will be responsible for reviewing the technical specifications and terms of reference of procurement processes during the preparation of selection processes. This technical review may be done on an ex ante basis and is independent of the procurement review method.
<input checked="" type="checkbox"/>	Use of country systems	The Pregão Eletrônico (e-reverse auction) system will be used for the procurement of common goods and services that do not exceed US\$5 million, in accordance with the approval of the Bank's Board of Executive Directors. The procurement plan for the operation will list the procurement processes to be conducted using the country system within the approved scope. If the scope of Board approval for use of the country system is expanded, it will be applicable to the operation.
<input checked="" type="checkbox"/>	Procurement supervision	Supervision will be done on an ex post basis, except in cases where ex ante supervision is warranted. For procurement executed using the country system, supervision will be conducted using the country supervision system. The supervision method ((i) ex ante, (ii) ex post, or (iii) country system) will be determined for each selection process. Ex post reviews will be conducted every 12 months in accordance with the project supervision plan, subject to changes during execution. The ex post review reports will include at least one physical inspection visit (the inspection verifies the existence of the procurement, leaving verification of quality and compliance with specifications to the sector specialist), selected from the procurement processes subject to ex post review (10% of contracts reviewed physically). The thresholds for ex post review are as follows:

			Works	Goods/services	Consulting services
			US\$25 million	US\$5 million	US\$1 million (firms)
<input checked="" type="checkbox"/>	Records and files	The PMU will be responsible for the documentation process and the safeguarding of files for supervision and audit purposes.			

Main procurement items

Procurement description	Selection method	New procedures/tools	Estimated date	Estimated amount (US\$ thousands)
Works				
Redevelopment	ICB	N/A	Between 2022 and 2025	US\$101,000
Paving of roads	ICB	N/A	March 2023	US\$10,500
Nonconsulting services				
Firms				
Supervision of works	QCBS	N/A	May 2022	US\$8,800
Updating of Master Plan	QCBS	N/A	May 2022	US\$1,000
Support for management	QCBS	N/A	May 2022	US\$5,000

To access the [procurement plan \(required link 4\)](#)

IV. Financial Management Agreements and Requirements

<input checked="" type="checkbox"/>	Programming and budget	The Secretariat of Planning and Management (SEPLAG), in coordination with the Secretariat of Finance (SEFAZ) of the State of Ceará, will prepare the budget for the Government of the State of Ceará (GEC). The preparation of the annual programming and the program budget will be done by the PMU in coordination with the SEPLAG. The proposed annual budget for the program will be included in the state's annual budget law, which will allocate the necessary funds for timely execution of the loan proceeds and local counterpart resources.
<input checked="" type="checkbox"/>	Treasury and disbursement management	Disbursements will be made in United States dollars, primarily using the advance of funds modality. Reimbursement of payments to the executing agency may also be used, in agreement with the Bank. The amount of funds advanced will be determined by a projection of financial execution for up to 180 days. After the first advance, it will be necessary to account for at least 80% of the cumulative balance of advances pending justification. The loan proceeds disbursed by the Bank will be deposited into a dollar-denominated bank account, which will be opened by the SOP and used exclusively to receive and manage the loan proceeds. The SOP will also open a bank account in reais, also for the exclusive use of the loan proceeds, where the funds received in dollars will be converted into local currency as needed for the program's cash flow, in order to minimize the loss caused by the exchange rate differential. The exchange rate to be

		used will be the one in effect on the date when the approval currency is converted into local currency.
<input checked="" type="checkbox"/>	Accounting, information systems, and reporting	<p>Since 2012, the Ceará state government has been using an integrated records system, the Results-based Governmental Accounting Management System (S2GPR), for budget commitments, financial reserves for procurement, payment authorizations, and accounting records. However, the system does not have the functionalities need to issue the financial statements required by the Bank for program supervision. For program execution, the SOP has plans to receive support from a specialized firm that will provide a system for comprehensive project management, supplementing the state systems.</p> <p>The SOP, on its own or through the PMU, will demonstrate to the Bank that the financial information system, provided by the contracted specialized firm, is adequate for financial management and allows the issuance of the necessary financial reports aligned with the Bank's requirements.</p>
<input checked="" type="checkbox"/>	Internal control and internal audit	During execution, the program may be subject to an internal audit by the Internal Audit Coordination Office of the Office of the State Comptroller General (CGE), the body responsible for heading and implementing the internal control system for the Government of the State of Ceará.
<input checked="" type="checkbox"/>	External control and financial reports	The external audit of the program will be conducted by an external firm acceptable to the Bank or by the Ceará State Audit Office (TCE-CE). The fiscal year of the project will run from 1 January to 31 December of each year. During execution of the program, audited financial statements will be submitted annually with a cutoff date of 31 December of each year, no later than 120 days after the close of the fiscal year. The program's final audited financial statements will be delivered within 120 days after the date of the last disbursement (or any extensions thereof).
<input checked="" type="checkbox"/>	Financial supervision of the operation	The operation requires ex post financial supervision of disbursements, which will be based primarily on the audited financial statements. Ongoing desk reviews will also take place, under the responsibility of the financial specialist, through the analysis of the executing agency's disbursement requests. Onsite or virtual fiduciary supervision visits will also take place annually.

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-___/21

Brazil. Loan ____/OC-BR to the State of Ceará. Subnational Road Infrastructure
Quality Improvement Program - InfraRodoviária Ceará

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the State of Ceará, as borrower, and with the Federative Republic of Brazil, as guarantor, for the purpose of granting the former a financing aimed at cooperating in the execution of the Subnational Road Infrastructure Quality Improvement Program - InfraRodoviária Ceará. Such financing will be for the amount of up to US\$150,000,000 from the resources of the Bank's Ordinary Capital, and will be subject to the Financial Terms and Conditions and the Special Contractual Conditions of the Project Summary of the Loan Proposal.

(Adopted on ____ 2021)