

**BRAZIL**

**ROADS PROGRAM FOR THE STATE OF CEARÁ–CEARÁ III**

**(BR-L1181)**

**LOAN PROPOSAL**

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## CONTENTS

### PROJECT SUMMARY

I.	DESCRIPTION AND MONITORING OF OUTCOMES.....	1
A.	Introduction .....	1
B.	Background, problem, and rationale.....	1
C.	Objective, components, and costs .....	3
1.	Objective .....	3
2.	Components .....	4
3.	Costs .....	6
D.	Results matrix and main indicators .....	7
II.	FINANCING STRUCTURE AND PRIMARY RISKS .....	7
A.	Financing instrument and contractual conditions .....	7
B.	Environmental and social risks and mitigation measures.....	7
C.	Financial risk.....	9
D.	Other issues and risks.....	11
III.	IMPLEMENTATION AND MANAGEMENT PLAN .....	12



ANNEXES	
Annex I	Development Effectiveness Matrix (DEM) Summary
Annex II	Results Framework / Matrix of Indicators
Annex III	Procurement Plan Table

ELECTRONIC LINKS	
<b>REQUIRED</b>	
1. Procurement Plan:	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=1622823">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=1622823</a>
2. Annual work plan:	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=1626614">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=1626614</a>
3. Monitoring and evaluation arrangements:	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=1626646">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=1626646</a>
4. Environmental and Social Management Report (ESMR):	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=1622533">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=1622533</a>
<b>OPTIONAL</b>	
4. Maps for Ceará Programs I, II, and III	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=1630456">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=1630456</a>
5. Human Development Index (HDI) of municípios in the State of Ceará	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=2050918">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=2050918</a>



## ABBREVIATIONS

CEGAF	Célula de Gestão Ambiental e Faixa de Domínio [Right-of-way and Environmental Management Unit]
CSI	Current spendable income
DER	Departamento de Edificações e Rodovias [Department of Buildings and Highways of the State of Ceará]
ESMR	Environmental and Social Management Report
HDM-4	Highway Design and Maintenance Standards Model
InfraFund	Infrastructure Project Preparation Fund
IRR	Internal rate of return
PI	Public investment
PMU	Program management unit
R\$	Brazilian reais
RLR	Reserves-to-loans ratio
RMMS	Road Maintenance Management System
SEMACE	Superintendência Estadual do Meio Ambiente [State Environmental Superintendency]



## PROJECT SUMMARY

### BRAZIL ROADS PROGRAM FOR THE STATE OF CEARÁ—CEARÁ III (BR-L1181)

Financial Terms and Conditions			
<b>Borrower:</b> Government of the State of Ceará		Amortization period:	25 years
<b>Guarantor:</b> Government of Brazil		Grace period:	5 years
<b>Executing agency:</b> Departamento de Edificações e Rodovias [Department of Buildings and Highways of the State of Ceará] (DER)		Disbursement period:	5 years
<b>Source</b>	<b>Amount</b>	Interest rate:	LIBOR
IDB (Ordinary Capital)	US\$158,620,000	Inspection and supervision fee:	*
Local	US\$ 95,735,000	Credit fee:	*
Total	US\$254,355,000	Currency:	U.S. dollars from the Single Currency Facility
Project at a glance			
<b>Program objective and description:</b> The objective of the program is to enhance physical traffic conditions and safety on state roads by promoting better physical integration of the state's regions; this would contribute to sustainable economic and social development in the State of Ceará. To this end, the program will include civil works to recondition and pave roads, as well as activities to strengthen the DER's institutional management.			
<b>Special Contractual Clauses:</b>  <b>Condition precedent to the first disbursement:</b> Entry into force of the execution agreement between the borrower and the executing agency under the terms agreed on with the Bank (paragraph 3.1).  <b>Special execution condition:</b> The initiation of any works will be subject to signature by the executing agency and the respective company of the corresponding services contract for supervising works and the entry into force of said contract (paragraph 2.7).  <b>Special contractual clause:</b> The term for the physical start of program works will be four years (paragraph 1.27).			
<b>Exceptions to Bank policies:</b> An exception is proposed to the policy on retroactive recognition of expenditures and advance contracting to allow for the recognition of expenses incurred by the borrower, against the counterpart contribution, on or after the date the project entered the Bank's pipeline—12 December 2007 (before the 18 months prior to approval of the project by the Board of Executive Directors) (paragraph 3.6).			
<b>Project consistent with country strategy:</b> Yes [ <input checked="" type="checkbox"/> ]      No [ <input type="checkbox"/> ]			
<b>Project qualifies as:</b> SEQ [ <input type="checkbox"/> ]      PTI [ <input checked="" type="checkbox"/> ]      Sector [ <input type="checkbox"/> ]      Geographic [ <input type="checkbox"/> ]      Headcount [ <input type="checkbox"/> ]			

\* 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 provisions of the Bank's policy on lending rate methodology for Ordinary Capital loans. In no case will the credit fee exceed 0.75% or the inspection and supervision fee exceed, in a given six-month period, the amount that would result from applying 1% to the loan amount divided by the number of six-month periods included in the original disbursement period.



## **I. DESCRIPTION AND RESULTS MONITORING**

### **A. Introduction**

- 1.1 The State of Ceará is located in northeast Brazil and borders the Atlantic Ocean. It has a coastal area of great natural beauty that attracts a large number of tourists. Ceará has a population of 8.2 million people, a significant percentage (76%) of whom are concentrated in urban areas; the Fortaleza Metropolitan Region, which is the capital of the State of Ceará, is the main such area with a population of 3.4 million. With a GDP of 57 billion reais (R\$) (US\$24 billion) in 2007, the State of Ceará accounts for 2.0% of national GDP and ranks 12th among Brazil's 27 states.
- 1.2 Services and trade, primarily linked to tourism-related activities, constitute Ceará's most significant economic sector, accounting for 57% of the state's GDP, followed by the industrial sector, which accounts for 38%. Both sectors have been growing at rates slightly higher than Brazil's overall growth rate.<sup>1</sup> The agricultural sector is comparatively small (6% of the state's GDP), primarily due to the predominately semi-arid climate in rural Ceará, but plays a key role in the economy since it accounts for the second largest segment of the economically active population. On the whole, these sectors rely heavily on highway transportation.

### **B. Background, problem addressed, and rationale**

- 1.3 In recent years, the Government of the State of Ceará has continuously and systematically invested in road infrastructure to reflect improvements to the economy in the areas of competitiveness and productive capacity. In view thereof, the Government of the State of Ceará has implemented a roads policy focused on: (i) continually expanding the network of paved roads; (ii) improving technical specifications to respond to new demands; (iii) making the upkeep of the roads system a priority; (iv) emphasizing road safety; and (v) continually building the technical capacity of the Departamento de Edificações e Rodovias [Department of Buildings and Highways of the State of Ceará] (DER).
- 1.4 Ceará's has 51,712 kilometers of roads; of these, 5% are federal roads, 21% are state roads, and 74% are municipal roads. Only 16% of the network is paved, of which 70% are state roads, 26% are federal roads, and 4% are municipal roads. Since the early 1980s, the Government of the State of Ceará has been working to pave the primary state thoroughfares in an effort to consolidate the most significant development corridors and their areas of influence; 54% of the state roads network is paved. Development, maintenance, and operation of state roads fall to the DER. According to the DER's 2007 general report, 58% of the paved roads are in good condition, 28% are in fair condition, and only 14% are in poor condition. Such conditions are the result of the DER's road maintenance policy, which is based on three basic elements: (i) the Road Maintenance Management

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<sup>1</sup> Ceará, 6% and 6.5%; Brazil, 6.7% and 4.7%, respectively.



System (RMMS), in which the coordination and management of upkeep and maintenance activities come together; (ii) the work of the Engineering Coordination Office and of the 10 operational districts responsible for maintenance services; and (iii) having managed—via the implementation of traffic regulating tools—to keep large trucks and their heavy loads on federal highways. These good practices have been accompanied by increased investment in the operation and maintenance of the state roads system, which rose from R\$10.5 million in 2003 to R\$60.7 million in 2006.

	Paved (km)	Unpaved (km)	Total (km)
Federal	2,152	349	2,501
State	5,768	4,890	10,658
Municipal	373	38,180	38,553
TOTAL	8,293	43,419	51,712

- 1.5 The state transportation system also includes railroads, ports, and airports. The State of Ceará has 1,200 km of metric gauge railroads that link Fortaleza to the neighboring states of Piauí and Maranhão (main northern line) and Paraíba (main southern line), in addition to two smaller branch lines to the port of Mucuripe (Fortaleza) and the city of Crato. The railroad is operated by Companhia Ferroviária do Nordeste, which moves 1.7 million tons per year in Fortaleza alone.
- 1.6 The port system is made up of the ports of Mucuripe (Fortaleza) and Pecem (São Gonçalo do Amarante). The former moves three million tons and 70,000 containers per year, operating ships of up to 50,000 metric tons. Pecem is a deep-water port that has operated commercially since 2003, moving 2.2 million tons per year, of which two thirds are for export and the rest is coastal shipping. This port is expanding to substantially increase its capacity. The airport system consists of an international airport (Fortaleza), which receives more than three million passengers per year, eight regional airports (Juazeiro do Norte, Sobral, Iguatú, Camoçim, Aracati, Campos Sales, Quixadá, and Crateús), and 61 airfields.
- 1.7 **The Government of the State of Ceará's strategy and investment plan.** Ceará's roads strategy consists of gradually expanding the network of paved roads, while at the same time effectively maintaining the existing network (paved and unpaved) by implementing a rigorous policy of state road maintenance through planning, financing, management, and monitoring practices near the network's maximum requirements. Investment plans are sustained through thorough planning and the programming of activities that include the entire project cycle.
- 1.8 **Country strategy.** The program is consistent with the Bank's country strategy with Brazil (document GN-2327). That strategy lays out four areas of activity: (i) Productivity and infrastructure, assigning priority to public-private partnership models in new investments; (ii) poverty, equity, and human capital formation, with a focus on income distribution programs; (iii) living conditions and



efficiency in cities, integrating activities to fight urban poverty with improved habitability, efficiency, and environmental quality in cities; and (iv) institution-strengthening and modernization of the State, with emphasis on subnational governments.

- 1.9 The proposed program is consistent with the strategy because: (i) it will help develop a more efficient state transportation system based on road infrastructure that is in better condition and safer and that will facilitate the population's access to social services and ensure the transport of goods and products to and from consumer, production, and export hubs; (ii) the greater mobility of passengers and goods will make the state more competitive; and (iii) it will provide continuity to the DER's good road maintenance and management practices.
- 1.10 **Rationale for the Bank's involvement.** The strategic partnership between the DER and the IDB has been key to the development of these upkeep and maintenance practices as well as to the increased investment. Under the first roads program financed by the IDB–Ceará Highways Rehabilitation Program (loan 587/OC-BR)—1,900 km of roads were reconditioned (36% more than originally planned). The Second Roads Program for the State of Ceará (loan 1019/OC-BR), which concluded in 2004, paved and reconditioned nearly 2,100 km of state roads (18% more than planned). Both programs were able to exceed their physical targets (see electronic link #1630456) and made significant institutional gains, including implementation of the Road Maintenance Management System. Through the proposed program, the Government of the State of Ceará intends to continue this partnership, to maintain its investments in paving and reconditioning state roads and build its own roads management capabilities by strengthening the DER. Under the aforementioned strategic partnership to develop sustainable road upkeep and maintenance practices, in April 2009, the Bank approved a technical-cooperation operation with nonreimbursable resources from the InfraFund (ATN/OC-11568-BR) aimed at financing a pilot road maintenance project by levels of service, which would make it possible for the DER to compare different alternatives for contracting maintenance work and adopt the most efficient, sustainable option.

## **C. Objective, components, and costs**

### **1. Objective**

- 1.11 The objective of the program is to enhance physical traffic conditions and safety on state roads by promoting better physical integration of the state's regions; this would contribute to the sustainable economic and social development of the State of Ceará. To this end, the program will include civil works to recondition and pave roads, as well as activities to strengthen the DER's institutional management.
- 1.12 The activities planned under this program are expected to benefit the users of state roads (including all those who use them in one way or another such as pedestrians and motorized and non-motorized vehicles). Other beneficiaries will



include the people living in the communities served by the works since accessibility and the economic activity in those areas of influence will improve through greater access to suppliers, customers, and markets. The program qualifies as a poverty-targeted investment (PTI), applying the geographic criterion. Geographically speaking, it will extend to a large number of the state's municípios that, given the prevalence of rural poverty in northeastern Brazil, have Human Development Indices (HDI) below the state average (see electronic link #2050918) and the national average.

## **2. Components**

- 1.13 The program contains three main components: (i) engineering and management; (ii) civil works and their supervision; and (iii) institution-strengthening.
- 1.14 **Component 1. Engineering and management** (US\$13.3 million)
- 1.15 **Subcomponent 1.1. Studies and projects.** This subcomponent will finance the studies and designs necessary for effective, sustainable implementation of the DER's current investment program for reconditioning and paving highways. Activities to be financed include the technical engineering, economic, and socio-environmental studies.
- 1.16 **Subcomponent 1.2. Program management.** This subcomponent will finance the contracting of a management firm,<sup>2</sup> which will be responsible for supporting the DER in: (i) designing, implementing, and putting into operation the monitoring and evaluation plan; (ii) drafting the accompanying reports and analyses; (iii) providing support for contracting (developing terms of reference and other bidding documents); (iv) helping to oversee the works, projects, and other services (site visits to the works; orientation and review of final engineering projects; quality control); (v) conducting economic feasibility studies; (vi) overseeing the works and related environmental control measures (establishing camps and other areas of support; evaluating strategies to tackle the works; assisting with activities in coordination with the firms supervising the works; monitoring those issues that must still be resolved); and (vii) monitoring the outcome indicators.
- 1.17 **Subcomponent 1.3. Financial and accounting audits of the program.** This subcomponent includes resources for conducting semiannual and annual audits, in accordance with Bank policies.
- 1.18 **Component 2. Civil works and supervision** (US\$237.6 million)

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<sup>2</sup> The use of management firms for Bank-related projects in Brazil is widespread; this practice has made it possible to execute many projects in several states well. The firm provides flexibility and responsiveness in those aspects of program execution not related to fiduciary matters, generally with respect to specialized, technical factors that fall outside the scope of normal DER management activities. This also makes it possible to follow up on the relationship with the Bank.



- 1.19 This component will seek to improve the state road system for both those stretches that, because of increased demand, require changes to their technical standards, and those that, because they have reached the end of their useful life, must be reconditioned. Such activities will improve the system's connectivity, both within the state, and with federal and municipal roads. This component will likewise include the contracting of works supervision.
- 1.20 The program is scheduled to cover at least 48 highway sections. In preparing this operation, the DER identified 16 sections to be reconditioned or paved for which economic feasibility and environmental analyses were conducted and final engineering designs were drafted. The map included in the electronic links (see electronic link #1630456) shows the location of the projects executed under Ceará roads programs I and II as well as the sections proposed for this program.
- 1.21 **Subcomponent 2.1. Paving.** This subcomponent will finance the paving of 280 km of state roads, with a view to allowing for better land integration and socioeconomic development of poor rural areas of the state. The sections were selected based on the socioeconomic development potential identified by the various agencies of the Government of the State of Ceará. These sections were prioritized based on petitions presented by residents who took part in the Multiyear Participatory Plans.
- 1.22 **Subcomponent 2.2. Reconditioning.** This subcomponent will finance the reconditioning of 750 km of state roads that are nearing the end of their service life and whose inclusion in the program will make it possible to continue the DER's road upkeep policies. The road sections were prioritized based on continuous visual surveying by the Road Maintenance Management System and data from the operational districts.
- 1.23 **Subcomponent 2.3. Works supervision.** This subcomponent will hire supervising firms for the following tasks: (i) providing support for the works, ensuring that the technical and environmental specifications laid out in the studies are met; (ii) verifying the quality of the work done by the contractors; (iii) maintaining laboratories and other equipment that enable the necessary technological controls and tests to be conducted; (iv) measuring the services carried out by contractors; (v) providing advice to the DER regarding construction, including obtaining the environmental permits required for using natural resources and establishing support services for executing civil works; (vi) providing opinions about the need to modify the contract, suspend services, broaden the scope of the activities, and change the unit prices and price of new activities; and (vii) drafting monthly progress reports, including both works-related progress and headway in implementing environmental control measures, and the final report on the work.
- 1.24 **Component 3. Institution-strengthening** (US\$3.4 million).
- 1.25 This component will finance support for the DER's road planning and environmental management sectors: (i) development of the Master Road Plan and



a georeferenced inventory of the state roads system, consolidation of a database, and implementation of computer-based roads planning and management systems; and (ii) production of the Environmental Management System and implementation of its priority activities, including regulating right of use and transit by third parties with respect to the right-of-way and the corresponding charge.

### 3. Costs

- 1.26 The program will cost a total of US\$254,355,000, of which US\$158,620,000 (62%) will come from Bank financing and the remaining US\$95,735,000 (38%) from the local counterpart. This will be a multiple-works program, with an estimated execution period of four and a half years.<sup>3</sup> A breakdown of the resources, by component and contribution, is presented below (in US\$000).

Categories*	Total	Bank	Local Contribution
<b>1. Engineering and management</b>	<b>13,300</b>	<b>5,100</b>	<b>8,200</b>
Studies and projects	6,900	0	6,900
Management	6,100	4,800	1,300
Financial audit	300	300	0
<b>2. Civil works and their supervision</b>	<b>237,655</b>	<b>151,000</b>	<b>86,655</b>
Paving (280 km)	78,790	50,100	28,690
Reconditioning (750 km)	136,865	83,080	53,785
Supervision of works	19,800	17,820	1,980
Expropriation	1,100	0	1,100
Socioenvironmental compensation	1,100	0	1,100
<b>3. Institution-strengthening</b>	<b>3,400</b>	<b>2,520</b>	<b>880</b>
Master Road Plan and updating of the RMMS	2,700	1,890	810
DER Environmental Management System	700	630	70
<b>TOTAL</b>	<b>254,355</b>	<b>158,620</b>	<b>95,735</b>

\* The interest and finance charges will be paid with the borrower's own resources, outside of the program.

<sup>3</sup> The term for the physical start of program works will be four years.



**D. Results matrix and main indicators** (follow up on the Project Performance Monitoring Report)

- 1.27 The main outcomes expected out of program execution are summarized below and spelled out in greater detail in the Results Matrix (Annex II).

Expected outcomes	Indicator
Lower vehicle operating costs	Specific to the type of work (reconditioning or paving), type of vehicle, and average value calculated based on studies conducted on projects from the sample.
Shorter travel times	Specific to the type of work (reconditioning or paving), type of vehicle, and average value calculated based on studies conducted on projects from the sample.
Better road planning and management	<ul style="list-style-type: none"> <li>• Expansion of paved roads</li> <li>• Integration of road planning systems; management of the DER's investment plan and maintenance</li> <li>• Improvements to the right-of-way management system</li> </ul>

## II. FINANCING STRUCTURE AND MAIN RISKS

**A. Financing instrument and contractual conditions**

- 2.1 The Roads Program for the State of Ceará-Ceará III is a multiple-works investment loan. The life of the loan will be 25 years, and it will be disbursed over a five-year period in accordance with the timetable listed below (values in US\$000).

	2009	2010	2011	2012	2013	TOTAL
IDB	32,608	40,375	37,990	25,097	22,550	158,620
State govt.	34,743	24,075	16,425	10,675	9,817	95,735
<b>TOTAL</b>	<b>67,351</b>	<b>64,450</b>	<b>54,415</b>	<b>35,772</b>	<b>32,367</b>	<b>254,355</b>

**B. Environmental and social risks and mitigation measures**

- 2.2 This program has been classified as Category B and, because of this, project preparation included: (i) a field visit to all the sections scheduled to be worked on under the program; (ii) environmental analyses of the 16 reconditioning and paving projects that make up the representative sample; and (iii) two public hearings, held on 12 and 13 June 2008, in two cities located in the program's area of influence. The program already has the Preliminary Environmental Permit,



issued on 24 September 2008 by the Superintendência Estadual do Meio Ambiente [State Environmental Superintendency] (SEMACE) and the Environmental Control Plan for the projects in the sample; this is a key document for processing the corresponding startup permit.

- 2.3 According to the studies conducted, the program's paving and reconditioning works are not expected to have a significant adverse impact since the physical works are small to medium scale and rather traditional as far as engineering is concerned. These works will be executed on existing rights-of-way and will therefore have no effect on either property or sensitive environmental areas.
- 2.4 The reconditioning and paving projects likewise include measures to enhance the road-user-environment relationship, *inter alia*: (i) the lateral widening of the road at bus stops for the construction of specific facilities, mainly next to health and education centers; (ii) paving of small sections of secondary access roads where they connect to the main road; (iii) special road safety measures near schools, hospitals, and intersections in urban areas; (iv) broadening of the road's shoulder on a 2 to 3 km stretch at communities' entrances and exits to include an additional 1.5 km paved, multiuse lane for pedestrians and cyclists; and (v) identification of critical environmental liabilities and inclusion of the corresponding remedial costs in the works' budgets.
- 2.5 The program will include a monitoring and oversight system for project execution that will consist of: (i) the control of licenses and permits for support facilities for the works, suppression of vegetation, etc.; (ii) the requirement that teams supervising the works include an environmental specialist; (iii) periodic environmental inspections conducted by DER environmental experts to ensure the effective implementation of environmental controls for the works; and (iv) environmental training provided by supervisors for teams of contractors.
- 2.6 The DER has a Célula de Gestão Ambiental e Faixa de Domínio [Right-of-way and Environmental Management Unit] (CEGAF), linked to the Engineering Coordination Office, which is responsible for the social and environmental management of roads projects and their corresponding rights-of-way. CEGAF has been efficiently working on environmental licensing for the DER's projects and has been overseeing and monitoring the environmental and social studies for the roads projects and doing the environmental monitoring and supervision for the works, including drafting oversight reports for those in charge of the civil works so that problems detected during visits can be corrected. The evaluation conducted during preparations for the operation (see the ESMR) concluded that CEGAF has the institutional and technical capacity to execute the program. Nonetheless, and in order to strengthen its capacity, the program includes resources to develop a complete Environmental Management System and implement priority actions.



**C. Fiduciary risk**

- 2.7 Given the satisfactory track record of the executing agency in previous Bank programs, no institutional or fiduciary problems are expected. The DER is a competent executing agency as evidenced by the condition and length of the road system for which it is responsible as well as because of its long history of contracting works. The DER has an effective organizational structure and will be supported by a management firm for execution of the program and by specialized firms for monitoring the works. The institutional-strengthening actions taken will strengthen its organizational structure and boost its management capacity. At a technical level, the works to be executed are not particularly difficult; there is also a large market of supervision and construction firms trained for the type of works to be financed. In order to ensure that the program is executed well, the beginning of any works will be contingent on the signing by the executing agency and the respective company of the corresponding services contract for works supervision and the entry into force of said contract.
- 2.8 Analyses of the Government of the State of Ceará's financial capacity indicate compliance with the limits established under Brazil's Fiscal Accountability Act. The State of Ceará has reached the agreed targets and collection and debt projections are positive; the operation falls within the limit agreed on with the federal government for external credit operations. The targets are therefore expected to be met:



Category	Concluded (millions of R\$)				Targets (millions of R\$)	
	2004	2005	2006	2007	2008	2009
<b>Target 1: Public debt and how it's related to real liquid receipts</b> Establishes a course for reducing the debt/collection ratio to 1.0 (the target ratios are upper limits). In 2006, a value of 0.80 was recorded, and there is a downward trend.						
<b>Debt balance</b>	4,213	3,885	4,305	4,313	3,810	<b>4,531</b>
<b>Reserves-to-loans ratio (RLR)</b>	4,081	4,664	5,411	5,650	6,923	<b>6,694</b>
<b>Debt/RLR</b>	1.03	0.83	0.80	0.76	0.55	<b>0.68</b>
<b>Target 2: Primary surplus</b> Requires the difference between income and nonfinancial expenditures to be positive. The State of Ceará's recent performance record indicates that it will have no difficulties in achieving the agreed targets.						
<b>Own resources</b>	4,727	5,348	6,219	6,534	-11,208	<b>7,773</b>
<b>Primary expenditures</b>	4,351	4,750	6,000	6,267	9,827	<b>7,573</b>
<b>Primary surplus</b>	376	598	219	247	1,380	<b>200</b>
<b>Target 3: Personnel expenditures</b> Establishes a ceiling of 60% on the payroll for active and inactive employees as a percentage of real annual net collection based on current spendable income (CSI).						
<b>Expenditure</b>	2,309	2,545	2,836	3,254	3,011	<b>3,884</b>
<b>CSI</b>	4,652	5,337	6,116	6,511	7,887	<b>7,724</b>
<b>Expenditure/CSI (%)</b>	49.65	47.69	46.37	49.97	38.18	<b>50.28</b>
<b>Target 4: The state's own resources</b> Aims to boost the real collection capacity.						
<b>Own resources</b>	3,346	3,446	4,154	4,246	5,315	<b>4,888</b>
<b>Target 5: Public Investment (PI)</b> Limits investments and other capital expenditures. Should the amount expected not be collected, the State has committed to adjusting its investments and ensuring that target 2 is reached.						
<b>Investment</b>	503	407	1051	855	1,189	<b>1,283</b>
<b>PI/RLR (%)</b>	12.32	8.73	19.42	15.13	17.17	<b>19.16</b>

All amounts are expressed in billions of R\$.

- 2.9 With respect to the ability to provide the counterpart contribution, the DER has highly satisfactory prior experience as the executing agency for loans 587/OC-BR and 1019/OC-BR, which were similar to the present loan; therefore, no difficulties of this kind are expected. Its budget has been relatively stable (with the exception of a short-term reduction in 2007), and it is expected to have a qualitative increase based on the state government's decision to increase investments in roads and the incorporation of resources from this operation. The



following table illustrates the evolution of revenues and expenditures for the 2003-2008 period and projections for the 2009-2011 period (annual averages, in thousands of current R\$):

Category	2003	2004	2005	2006	2007	2008	2009-2011*
<b>Current income</b>	<b>59,110</b>	<b>88,548</b>	<b>42,896</b>	<b>39,957</b>	<b>49,366</b>	<b>-64,309</b>	<b>174,456</b>
State of Ceará transfers	52,680	74,264	25,698	38,886	37,333	-53,498	167,984
Other current income	6,430	14,283	17,198	1,071	12,033	-10,812	6,472
<b>Capital income</b>	<b>85,472</b>	<b>54,023</b>	<b>101,022</b>	<b>148,649</b>	<b>86,448</b>	<b>-82,733</b>	<b>206,881</b>
State of Ceará transfers	83,986	50,796	99,223	148,583	85,247	-82,733	206,881
Brazilian government transfers	815	3,208	1,800	66	1,201		
Other capital income	671	19					
<b>Total revenues</b>	<b>144,581</b>	<b>142,571</b>	<b>143,919</b>	<b>188,605</b>	<b>135,814</b>	<b>147,042</b>	<b>381,338</b>
<b>Current expenditures</b>	<b>26,938</b>	<b>28,458</b>	<b>30,346</b>	<b>42,849</b>	<b>45,321</b>	<b>47,755</b>	<b>55,118</b>
Personnel	17,817	18,185	19,892	32,005	33,667	-35,061	39,219
Other	9,121	10,273	10,454	10,844	11,654	12,695	15,899
<b>Capital expenditures</b>	<b>117,643</b>	<b>114,113</b>	<b>113,573</b>	<b>145,756</b>	<b>90,493</b>	<b>-99,287</b>	<b>326,220</b>
Investment in roads	109,591	109,493	113,563	135,367	88,710	-89,770	320,128
Roads program						-61,596	225,390
Ceará program, stage III						-28,175	94,738
Other facilities	8,052	4,620	10	10,389	1,783	9,517	6,092
<b>Total expenditures</b>	<b>144,581</b>	<b>142,571</b>	<b>143,919</b>	<b>188,605</b>	<b>135,814</b>	<b>147,042</b>	<b>381,338</b>

\*Annual average

## D. Other issues and risks

- 2.10 *Road eligibility criteria.* The program will cover those roads for which there is the greatest relative demand and that have a pressing need for intervention, identified based on the socioeconomic development potential of the regions they serve and the findings of the Road Maintenance Management System, with a view to maintaining the roads system. Moreover, all of the roads must have an economic internal rate of return higher than 12% and a positive net present value (paragraph 2.12).
- 2.11 The inclusion of any roads project in the financing will be contingent on: (i) the Bank's no objection to the corresponding technical, economic, and socioenvironmental studies; (ii) submittal of the required environmental licenses and other permits required by law; and (iii) compliance with Bank policies and safeguards. There are no plans to finance projects to build new stretches of road or to recondition and pave existing stretches in environmentally protected or highly vulnerable areas. Nonetheless, if such a need were to be identified, and at the request of the DER, they would only be eligible for financing once the



corresponding environmental impact studies were presented for the Bank's no objection.

- 2.12 *Economic feasibility.* Each section to be worked on has been subject to an economic evaluation based on specific traffic volume counts or, if it was evaluated when the DER recently implemented its planning system, those are counts are being used. Moreover, specific demand increase indices are assigned to each section and type of vehicle. The HDM-4 (Highway Design and Maintenance Standards Model) will be the evaluation tool. This model is used to determine the main economic indicators (internal rate of return (IRR)) for each project. Subsequently, a sensitivity analysis will be conducted: a 20% increase in costs and a similar decrease in profits. The baseline for this evaluation is set individually for each of the program's works. The sections must exceed the required 12% IRR. These analyses constitute part of the aforementioned project profiles. No major risks are expected in this regard.
- 2.13 *Execution risks.* On a technical level, the works are not excessively difficult and there is a large market, at both a national and international level, of supervising and construction firms trained for the types of works that will be financed. With respect to technical and operational sustainability, the DER has made the upkeep of the roads system for which it is responsible a priority. With respect to the environment, the works will not have a significant indirect impact, and the direct impact resulting from execution of the works, will be effectively controlled and mitigated during execution.

### III. IMPLEMENTATION AND MANAGEMENT PLAN

- 3.1 **Borrower, executing agency, and guarantor.** The State of Ceará will be the borrower while the executing agency will be the Departamento de Edificações e Rodovias [Department of Buildings and Highways of the State of Ceará] (DER). The Republic of Brazil will be the guarantor for the financial obligations of the loan to be signed between the borrower and the Bank. The Government of the State of Ceará and the DER will sign an execution agreement; the signing and entry into force of that agreement, in the terms agreed with the Bank, will be a special condition precedent to the first disbursement.
- 3.2 **Execution plan.** Responsibility for program execution will fall to the DER, which is tied to the State of Ceará's Infrastructure Department and has legal status under public law, with administrative, operational, financial, asset-related, and legal autonomy. The program will be implemented through the program management unit (PMU), which is linked to the Superintendency of the DER. The PMU has already been established,<sup>4</sup> is operating, and has the staff it needs.

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<sup>4</sup> The PMU was created by Resolution (*Portaria*) 948/2008 of the Superintendent of the DER, from 23 July 2008; its staff was appointed under Resolution 949/2008 of the same date.



- 3.3 The PMU's responsibilities include: (i) promoting fulfillment of the conditions established under the loan contract; (ii) representing the DER before the Bank; and (iii) maintaining the program's technical, financial, and administrative information systems. In order to carry out these tasks, the PMU will receive support from the different technical areas within the DER that are responsible for implementing the activities associated with program execution. The PMU will also centralize accountability to the Bank and other state institutions. Its specific functions include: (i) planning execution of the program and development of annual work plans; (ii) preparing and updating procurement plans; (iii) reviewing the bidding processes for the contracting of consulting services, works, and goods, and ensuring that they are consistent with the Bank's procurement and contracting policies; (iv) tracking and monitoring progress with respect to consulting, works, and goods procurement contracts; (v) preparing project profiles; (vi) processing the corresponding payments; (vii) preparing financial statements and disbursement requests; and (viii) monitoring and evaluating program execution. The PMU will be assisted by a management firm and will receive specific technical support, both of which will be contracted using program resources.
- 3.4 The DER will be accountable to the Bank for: (i) opening separate and specific bank accounts for managing loan resources; (ii) having effective systems for: (a) internal control and keeping accounting and financing records of the sources and uses of program resources, in accordance with the provisions of general clause 7.01 of the loan agreement; and (b) filing support documents for eligible expenditures for verification by the Bank and external auditors; (iii) preparing and submitting: (a) semiannual reports on the revolving fund; and (b) disbursement requests and the respective expenditure receipts; and (iv) preparing any other reports the Bank may require.
- 3.5 **Procurement.** Program-related procurement will fall to the Comissão Central de Concorrências [Central Competitive Bidding Commission], which is tied to the Office of the Public Prosecutor of the State of Ceará. It is responsible for all of the state's procurement and has a special bidding committee for procurement and contracting financed by multilateral banks. The DER takes part in the bidding committees for the roads projects for which it is responsible.<sup>5</sup> Program-related goods will be procured and works and services will be contracted in accordance with Bank policies set out in documents GN-2349-7 and GN-2350-7, approved in July 2006, in accordance with Annex III–Procurement Plan. Procurement of goods and works and the contracting of consulting services using program resources will be reviewed ex ante, until such time as the Bank authorizes a change to ex post review, in accordance with the aforementioned policies.
- 3.6 The program includes advance contracting. For this reason, expenditures of up to US\$21 million covered by the local counterpart contribution and of up to

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<sup>5</sup> Annex II, the Procurement Plan, describes the legal powers of these committees.



US\$25 million covered by Bank financing for the contracting of works and consulting studies conducted after the project officially entered the Bank's pipeline on 12 December 2007 (before the 18 months prior to approval of the project by the Board of Executive Directors).

- 3.7 **Monitoring and evaluation.** The PMU must submit to the Bank semiannual status reports indicating the progress made in each of the components and overall program performance based on the indicators agreed under the Results Matrix. The reports must also include: (i) a description of the activities carried out; (ii) updated timelines for physical execution and disbursements; (iii) the degree to which the agreed execution indicators have been fulfilled; (iv) a schedule of activities for the coming six-month period; (v) a summary of the status of financial execution of the program and the flow of resources scheduled for the next six-month period; and (vi) a section identifying possible developments or events that could jeopardize program execution. In addition, 90 days prior to the last disbursement, a final evaluation of the program will be conducted and will include, at a minimum: (i) financial execution results for each component; (ii) information on whether the targets established under the agreed outcome indicators have been met; and (iii) fulfillment of contractual commitments.
- 3.8 **Opening a special account.** The state's Finance Department will open a special account to manage funds from the Bank loan.
- 3.9 **Revolving fund.** In accordance with Bank procedures, a revolving fund equal to 5% of the total loan amount will be established for program disbursements. The PMU will control use of the fund, prepare disbursement requests on behalf of the borrower, and submit reports to the Bank regarding the status of its use within 60 days after the close of each six-month period.
- 3.10 **External audit.** Throughout program execution, the borrower will submit to the Bank, through the PMU, the program's annual consolidated financial statements within 120 days following the close of each fiscal year. In order to do this, it must commission an external audit to be conducted by an independent auditing firm acceptable to the Bank or by the State Audit Office, if and when it is accredited by the Bank, and in keeping with Bank requirements, based on the guidelines established under the terms of reference for the external audit of projects financed by the IDB (AF-400). When selecting and contracting the firm, the procedures established in the Bank's bidding procedures for auditing firms (AF-200) will be used. The costs of the audits are included in the program costs. Semiannual audits of disbursements will also be conducted; these should include the opinions of the external auditors. Such reports must be submitted within 60 days following the conclusion of the respective six-month period.
- 3.11 The DER has auditing procedures that include the following: (i) internal audits conducted by the Internal Auditing Management Office, linked to the Superintendency; and (ii) external auditing conducted by the Department of the Comptroller, which is attached to the state government.



**BRAZIL**  
**CEARÁ STATE HIGHWAY PROGRAM - CEARÁ III**  
**BR-L1181**

**Summary of Development Effectiveness Matrix (DEM)**

**Confidential Annex**



## ROADS PROGRAM FOR THE STATE OF CEARÁ – CEARÁ III (BR-L1181)

### RESULTS FRAMEWORK / MATRIX OF INDICATORS

<b>Program objective</b>	The <b>goal</b> of the program is to contribute to the sustainable economic and social development of the State of Ceará by improving the physical integration of its different regions. The <b>purpose</b> is to provide sustainable conditions for the circulation of individuals and goods with lower operating costs and increased safety on the highways included under the program.			
<b>Outcome Indicator</b>	<b>Baseline</b>	<b>Target</b>		
<b>Lower operating costs from paving: Reduce transportation costs for users of the highways paved under the program</b>				
Automobile	US\$ 0.42/km	US\$ 0.32 /km	(-25%)	When the program concludes, economic operating costs (US\$/vehicle-km, measured applying the Highway Design and Maintenance Standards Model (HDM-4)) will be lower than they were before the program began thanks to paving.
Bus	US\$ 1.24/km	US\$ 0.93 /km	(-25%)	
Truck	US\$ 1.17/km	US\$ 0.88 /km	(-25%)	
<b>Lower operating costs from reconditioning: Reduce transportation costs for users of highways reconditioned under the program</b>				
Automobile	US\$ 0.32/km	US\$ 0.27/km	(-15%)	When the program concludes, economic operating costs (US\$/vehicle-km, measured using HDM-4) will be lower than they were before the program began thanks to reconditioning.
Bus	US\$ 1.00/km	US\$ 0.85/km	(-15%)	
Truck	US\$ 1.46/km	US\$ 1.24/km	(-15%)	
<b>Outcome Indicator</b>	<b>Baseline</b>	<b>Target</b>		
<b>Shorter travel times on paved roads: Reduce the average travel time<sup>1</sup> for users of the highways paved under the program</b>				
Automobile	2m 4s/km	1m 2s/km	(-50%)	When the program concludes, average travel times will be shorter than they were before the program began.
Bus	2m 5s/km	1m 2s/km	(-50%)	
Average truck	2m 5s/km	1m 2s/km	(-50%)	

<sup>1</sup> Time expressed in minutes (m) and seconds (s) per kilometer (km).



Outcome Indicator	Baseline	Target		
Shorter travel time on reconditioned roads: Reduce the average travel time <sup>2</sup> for users of the highways reconditioned under the program.				
Automobile	1m 10s /km	56s/km	(-20%)	When the program concludes, average travel times will be shorter than they were before the program began.
Bus	1m 11s/km	56s/km	(-20%)	
Truck	1m 16s/km	61s/km	(-20%)	

	Base	Year 1	Year 2	Year 3	Year 4	Year 5	Target
<b>Component: Civil works and supervision</b>							
- Highway paving	0 km	36 km	86 km	80 km	50 km	28 km	280 km
- Highway reconditioning	0 km	150 km	200 km	200 km	120 km	80 km	750 km
<b>Component: Institution-strengthening, support for DER's roads planning</b>							
Georeferenced inventory	0 km	6,000 km	0	0	0	0	6,000 km
Master Road Plan	0%	30%	70%	0	0	0	0
DER Environmental Management System	0%	20%	70%	10%			
Right-of-way Management System	0%	70%	30%				
<b>Results of roads upkeep management for paved state highways</b>							
Condition of the system	Good	3,336 km	3,328 km	3,394 km	3,402 km	3,480 km	3,542 km
	Fair	1,636 km	1,644 km	1,841 km	1,967 km	1,880 km	1,887 km
	Poor	796 km	796 km	570 km	473 km	525 km	485 km
TOTAL		5,768 km	5,768 km	5,805 km	5,842 km	5,885 km	5,914 km

<sup>2</sup> Time expressed in minutes (m) and seconds (s) per kilometer (km).



**ROADS PROGRAM FOR THE STATE OF CEARÁ – CEARÁ III  
(BR-L1181)**

**PROCUREMENT PLAN TABLE  
MAY 2009**

Description	Estimated cost (US\$)	Procurement method	Review	Source of financing		Prequalification (yes/no)	Estimated dates	Status
				IDB %	Local %		Publication of specific procurement notice	
1. GOODS								
The program will not finance the purchase of goods.								

Description	Estimated cost (US\$)	Procurement method	Review	Source of financing		Prequalification (yes/no)	Estimated dates	Status
				IDB %	Local %		Publication of specific procurement notice	
2. WORKS								
1. Paving works (Group 1)	27,868,814	ICB	Ex ante	64%	36%	No	September 2008	Completed
2. Reconditioning works (Group 1)	74,491,093	ICB	Ex ante	61%	39%	No	September 2008	Completed
3. Paving works (Group 2)	43,406,489	ICB	Ex ante	64%	36%	No	April 2009	In execution
4. Reconditioning works (Group 2)	13,580,948	ICB	Ex ante	61%	39%	No	January 2009	Completed



Description	Estimated cost (US\$)	Procurement method	Review	Source of financing		Prequalification (yes/no)	Estimated dates	Status
				IDB %	Local %		Publication of specific procurement notice	
5. Paving works (Group 3)	17,000,000	ICB	Ex ante	64%	36%	No	September 2009	Pending
6. Reconditioning works (Group 3)	24,358,665	ICB	Ex ante	61%	39%	No	April 2009	In execution
7. Reconditioning works (Group 4)	46,080,000	ICB	Ex ante	61%	39%	No	September 2009	Pending

Description	Estimated cost (US\$)	Procurement method	Review	Source of financing		Prequalification (yes/no)	Estimated dates	Status
				IDB %	Local %		Publication of specific procurement notice	
3. CONSULTING SERVICES								
1. Management company to support the program management unit (PMU)	7,000,000	QBS	Ex ante	90%	10%	No	May 2008	Completed
2. Accounting audit of the program	300,000	QCBS	Ex ante	100%	0%	No	November 2009	Pending
3. Engineering studies (Group 2)	4,369,697	QCBS	Ex ante	0%	100%	No	September 2008	Completed
4. Supervision of works	17,900,000	QCBS	Ex ante	90%	10%	No	May 2008	Completed
5. Development of Master Road Plan for the State of Ceará	2,000,000	QBS	Ex ante	63%	37%	No	January 2010	Pending



Description	Estimated cost (US\$)	Procurement method	Review	Source of financing		Prequalification (yes/no)	Estimated dates	Status
				IDB %	Local %		Publication of specific procurement notice	
6. Updating and expanding the DER/State of Ceará's Maintenance Management System	700,000	QBS	Ex ante	90%	10%	No	January 2010	Pending
7. Development of the DER/State of Ceará's Environmental Management System	700,000	QBS	Ex ante	90%	10%	No	January 2010	Pending

ICB: International competitive bidding; LIB: Limited international bidding; NCB: National competitive bidding; PC: Price comparison; DC: Direct contracting; FA: Force account; PSA: Procurement through specialized agencies; PA: Procurement agents; IA: Inspection agents; PLFI: Procurement in loans to financial intermediaries; BOO/BOT/BOOT: Build-own-operate/ Build-operate-transference/Build-own-operate-transfer; PBP: Performance-based procurement; PLGB: Procurement under loans guaranteed by the Bank; CPP: Community participation procurement; QCBS: Quality- and cost-based selection; QBS: Quality-based selection; SBFB: Selection based on fixed budget; LCS: Least-cost selection; CQS: Selection based on the consultants' qualifications; SSS: Single-source selection,