

SIMULTANEOUS DISCLOSURE

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

BRAZIL

SANTA CATARINA LOGISTICS INFRASTRUCTURE PROGRAM

(BR-L1336)

LOAN PROPOSAL

This document was prepared by the project team consisting of: Paulo Carvalho, Project Team Leader (TSP/CBR); Alejandro Taddia, Rosana Brandao, Virginia Navas, and Caterina Vecco (INE/TSP); Carlos Lago (PDP/CBR); Mónica Merlo (CSC/CBR); Pablo García (INT/CUR) and Cristina Celeste Marzo (LEG/SGO).

This document is being released to the public and distributed to the Bank's Board of Executive Directors simultaneously. The Board may or may not approve the document, or may approve it with modifications. If the document is subsequently updated, the updated document will be made publicly available in accordance with the Bank's Access to Information Policy.

CONTENTS

PROJECT SUMMARY

I.	DESCRIPTION AND RESULTS MONITORING	1
A.	Background, problem, and rationale.....	1
B.	Objectives, components, and cost.....	7
C.	Key results indicators.....	10
II.	FINANCING STRUCTURE AND MAIN RISKS.....	10
A.	Financing instruments.....	10
B.	Environmental and social risks	10
C.	Fiduciary Risk	12
D.	Other special aspects and risks	12
III.	IMPLEMENTATION AND MANAGEMENT PLAN.....	15
A.	Execution mechanism	15
B.	Summary of monitoring and evaluation arrangements	16

ANNEXES	
Annex I	Summary Development Effectiveness Matrix (DEM)
Annex II	Results Matrix
Annex III	Fiduciary Agreements and Requirements
ELECTRONIC LINKS	
REQUIRED	
1.	Annual Work Plan http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=36739383
2.	Monitoring and Evaluation Arrangements http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=36739363
3.	Environmental and Social Management Report http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=36739154
4.	Procurement Plan http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=36739389
OPTIONAL	
1.	Maps http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=36709535
2.	State Highways Plan, Implementation Plan http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=36709545
3.	Santa Catarina Development Plan 2015 http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=36709551
4.	Logistics Infrastructure Projects in Santa Catarina http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=36709563
5.	Infrastructure and Development http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=36709570
6.	Conceptual Projects http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=36709574
7.	Economic Evaluation http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=36709591
8.	Road Maintenance Report http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=36709656
9.	Road Safety http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=36709660
10.	Environmental Hazards http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=36709674
11.	Environmental Preservation http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=36709689
12.	Hazardous Materials Transportation http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=36709701
13.	Institutional Capacity Analysis (ICAS) http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=36709724
14.	Financial Analysis of the State of Santa Catarina http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=36781498

ABBREVIATIONS

CONGE	Consultoria de Controle de Gestão [Management Control Office]
COPRE	Consultoria de Programas Especiais [Special Programs Office]
DEINFRA	Departamento Estadual de Infraestrutura [State Infrastructure Department]
ESMP	Environmental and Social Management Plan
ESMR	Environmental and Social Management Report
GEMAM	Gerência de Meio Ambiente [Environmental Management Section]
ICAS	Institutional Capacity Assessment System
ICB	International competitive bidding
IRR	Internal rate of return
LIB	Limited international bidding
LRF	Lei de Responsabilidade Fiscal [Fiscal Responsibility Law]
NCB	National competitive bidding
NPV	Net present value
QBS	Quality-based selection
QCBS	Quality- and cost-based selection
RSF	Resolução do Senado Federal [Federal Senate Resolution]
SEI	Secretaria de Estado da Infraestrutura [State Infrastructure Secretariat]
SIAFEM	Sistema de Administração Financeira de Estados e Municípios [State and Municipal Financial Administration System]

PROJECT SUMMARY
BRAZIL
SANTA CATARINA LOGISTICS INFRASTRUCTURE PROGRAM
BR-L1336

Financial Terms and Conditions				
Borrower: State of Santa Catarina Guarantor: Federative Republic of Brazil Executing Agency: State of Santa Catarina, through its State Infrastructure Department (DEINFRA)		Flexible Financing Facility*		
		Amortization period:	25 years	
		Original WAL:	15.25 years	
		Disbursement period:	5 years	
Source	Amount (US\$ million)	Grace period:	5 years	
IDB (OC)	250.00	Interest rate:	LIBOR-based	
Local	117.51	Inspection and supervision fee:	**	
Total	367.51	Credit fee:	**	
		Currency:	U.S. dollars from the Bank's Ordinary Capital (OC)	
Project at a Glance				
Objective: The general objective is to support the decentralized, balanced, and sustainable development of the state of Santa Catarina, through the construction, paving, and rehabilitation of state road infrastructure. The specific objectives are to: (i) enhance road infrastructure; (ii) improve road safety; (iii) improve environmental conditions; and (iv) strengthen institutional capacity for the management of logistics infrastructure. These objectives will be achieved through the extension, improvement, and maintenance of the state road network; the elimination of critical high-accident spots; the elimination of a series of critical environmental hazards in the state network; and support for the renewal of DEINFRA's workforce, training of its personnel, and the implementation of improved administrative systems. The program has the following main components: (i) engineering and administration; (ii) civil works and supervision; and (iii) institutional strengthening.				
Condition precedent to first disbursement: Signature and entry into force of an execution agreement between the State of Santa Catarina and DEINFRA, establishing the terms and conditions for the transfer and use of loan proceeds, which will have the Bank's no objection (paragraph 3.1). Special execution conditions: The following conditions were agreed upon: (i) no later than six months after signature of the contract, the borrower will submit evidence that the program management support system has been implemented, and that the training plan has been prepared (paragraph 2.9); (ii) prior to the start of each works project, the borrower will present to the Bank: (a) evidence that the environmental licensing required under state law has been obtained (paragraph 2.6); (b) evidence in the case of works that so require that the expropriation and resettlement plan has been fully implemented in accordance with Bank policy OP-710 (paragraph 2.7); and (c) evidence that supervision arrangements for the work are in place (paragraph 3.3).				
Exceptions to Bank policy: None.				
Project consistent with country strategy:			YES [X] NO []	
Project qualifies as:	SEQ <input type="checkbox"/>	PTI <input type="checkbox"/>	Sector <input type="checkbox"/>	Geographic <input type="checkbox"/> Headcount <input type="checkbox"/>

(*) Under the Flexible Financing Facility (document FN-655-1) the borrower has the option of requesting modifications to the amortization schedule, as well as to currency conversions and interest rates, subject in all cases to the final date of amortization and the original weighted average life (WAL). The Bank will consider these requests taking into account market conditions, as well as operational and risk management considerations.

(**) 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 relevant policies.

I. DESCRIPTION AND RESULTS MONITORING

A. Background, problem, and rationale

- 1.1 **General context.** The state of Santa Catarina is located in the south of Brazil. It is bordered by the states of Paraná and Río Grande do Sul, the Atlantic Ocean, and the Republic of Argentina. It is one of the smallest states in Brazil, with a surface area of 95,346.2 km² (1.12% of the national total) and a population of 6.2 million (3.28% of the total). The capital, Florianópolis, is located 1,850 km from Buenos Aires, 705 km from São Paulo, and 1,144 km from Rio de Janeiro. In terms of development, the state's Human Development Index (HDI 2000) is the second highest in the country. It is the sixth richest state, accounting for 4% of national wealth, and per capita GDP is US\$11,300 (approximately 25% higher than the national average). It is the fifth largest state in terms of exports, accounting for 5.52% of the national total. The state's industrial sector is a national model: its manufacturing industry is the fifth largest in the country, with more than 43,000 firms and 476,000 workers in 2008. The food-processing industry is the largest employer, followed by the clothing and textile industries.
- 1.2 Development in Santa Catarina has evolved gradually, with greater intensity in recent decades. It has been driven mainly by the private sector, against a backdrop of regional and international integration and logistics. The agroindustrial sector (West) is a clear example of this integration, linking together production, distribution, processing, and transport to the final destination. Similar approaches are being implemented in the technology (Florianópolis, Joinville, and Blumenau); textiles (Itajaí River Valley); metallurgy (North); furniture and wood (highlands and mountains); glass, ceramics, and plastics (South); and tourism sectors, in areas with road access to bring in raw materials and ship out products to both regional markets and ports for export.
- 1.3 **Logistics and transport infrastructure.** Over 30 years ago, the state of Santa Catarina embarked upon a process to improve its logistics infrastructure, improve linkages of communities with major transportation corridors, and expand the road maintenance program, all with the objective of providing efficient infrastructure for the transportation of cargo and passengers. Over the last three decades, the private sector, through its economic production agreements, has taken the lead in the development of logistics. The state authorities have supported this process through improvements to basic infrastructure, thus eliminating bottlenecks to growth. The Bank has participated in this process, providing five loans in support of the state road network.
- 1.4 Investment in logistics infrastructure should be approached in a comprehensive and integrated manner. The Santa Catarina authorities have provided statewide support through an investment plan that is balanced in both geographical terms and over time, with no priority given to any specific value chain or area. The state government has prepared a Master Road Plan, the Santa Catarina Development Plan 2015, and a Program for Logistics Infrastructure. It also plans to draw up a Strategic Plan for Logistics and Transportation, aimed at deepening knowledge of

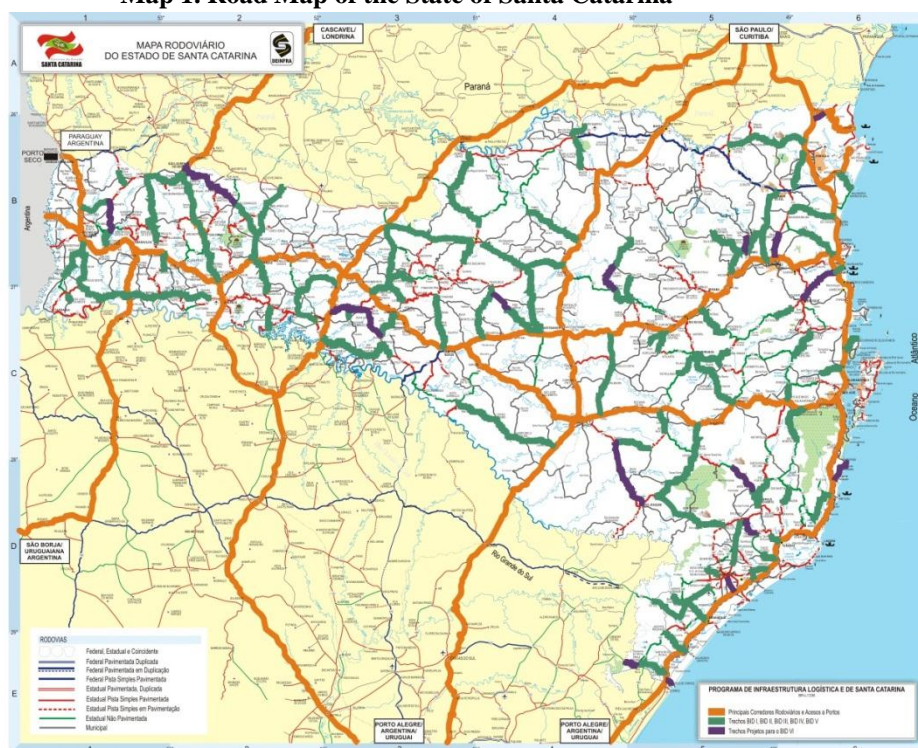
- the different transportation options and developing strategies to improve competitiveness through reduced transport costs, improved mobility, and export promotion.
- 1.5 **Master plan.** A report on “logistics infrastructure projects in Santa Catarina (2005) assesses the situation with respect to logistics infrastructure, the demand for cargo transportation, the most suitable economic alternatives for intervention, and the state’s economic potential. The study confirms that with average travel distances of approximately 350 km, roads represent the most suitable and competitive form of transportation. The strategies and proposals for support that have been developed place priority on the expansion, improvement, and maintenance of the state road network, as well as the creation of three logistics corridors for moving cargo to state ports. The objective is to provide Santa Catarina with an efficient road network that satisfies cargo transportation demand, reduces vehicle operating costs, ensures serviceability in all weather conditions, reduces transport distances between producers and consumers, improves the competitiveness of state production, enhances road safety, and strengthens tourism.
 - 1.6 **Development plan.** The Santa Catarina Development Plan 2015 draws on the Master Plan and the regional development plans of the 30 regional development departments, as well as the multi-year plans and the planning, budgeting, and management functions of the State of Santa Catarina. The development plan is based on a systematic long-term planning process that promotes the sustainable development of the state from the economic, environmental, social, technological, and public management points of view, developing regulatory scenarios and strategies for implementation. In the area of infrastructure, the main proposed activities seek to provide the state with a high-quality basic logistics system for the transportation of both cargo and passengers, through the enhancement of state logistics systems, an increase in cargo transportation capacity, the state roads projects identified in the Master Plan, improvements to road safety, and preparation of the Master Road Plan.
 - 1.7 **Master Road Plan.** The Santa Catarina Master Road Plan for 2008-2023 was developed with a view to improving the population’s standard of living, particularly with respect to the functioning of transportation systems, and to ensure continuity in state road transportation planning. The definition of intervention scenarios took into account the National Logistics and Transportation Plan, the Master Plan, and the Development Plan. The Government of the State of Santa Catarina is responsible for monitoring interventions, updating the information contained in the Master Road Plan, and analyzing the impact of interventions on the state road network. The proposed activities were based on the analysis of 35 origin-destination matrices for cargo and passenger transportation. They were prioritized according to their impact on territorial integration, expansion of the state road network, and acceleration of the economic development of Santa Catarina. The activities were grouped into two categories: (a) intra-regional road investments; and (b) regional or local road investments.

- 1.8 **Road network.** Since 1980, Santa Catarina has extended the overall length of the state road network by 35% and the length of the paved network by a factor of five. In 2009, the level of maintenance of the network was classified as very good,¹ with approximately 60% of the paved network in good condition, 30% in fair condition, and 10% in poor condition. However, torrential rains since 2008 have caused a significant deterioration in the condition of the network, with approximately 20% of the paved network now in good condition, 30% in fair condition, and 50% in poor condition.

Table 1. Road network

Jurisdiction	Unpaved (km)		Paved (km)		Total (km)	
	1980	2010	1980	2010	1980	2010
Federal network	n/a	-	n/a	2,278	n/a	2,278
State network	3,778	1,643	937	4,711	4,715	6,354
Municipal network	n/a	52,977	n/a	915	n/a	53,892
Total network	n/a	54,620	n/a	7,904	n/a	62,524

Map 1. Road Map of the State of Santa Catarina



- 1.9 **Transportation integration and infrastructure.** Given the state's geographical location, ground transportation links with neighboring states and the countries of

¹ Annual maintenance report, State Infrastructure Department (DEINFRA), 2010.

Argentina, Chile, Paraguay, and Uruguay crisscross the state. Development in Santa Catarina has been based on gradual improvements to logistics and transportation infrastructure: (i) a national, state, and municipal road network that provides access to the state's regions and cities; four major north-south highways (Mercosur Highway BR-101, BR-116, BR-153, and BR-158/163); an east-west route, BR-282, which connects Florianópolis with Argentina; two major axes for international integration under the Initiative for the Integration of Regional Infrastructure in South America (IIRSA)—the Capricorn Axis (axis 4) and the Mercosur-Chile Axis (axis 7), which coincide with routes BR-101, BR-282 and BR-470; (ii) four railway lines: two north-south, one east-west connecting to the port of São Francisco do Sul, and one in the south of the state that connects the region of Criciúma to the port of Imbituba; (iii) the ports of São Francisco and Itapua in the north of the state, Navegantes and Itajaí at the mouth of the Itajaí-Açu river, which have considerable development potential owing to their deep waters, the fishing port of Laguna, and the Dionisio Cerqueira dry port on the border with the state of Paraná, Argentina, and Paraguay; and (iv) Florianópolis (international), Joinville, Navegantes, and Chapecó airports, as well as a number of aerodromes in the state's interior.

- 1.10 **Road safety.** The State Infrastructure Department (DEINFRA) and the Military Highway Police monitor accidents on the state road network using traffic accident records. In 2010, the number of accidents² on the state network was 10,829, with 6,243 injuries and 287 deaths. When accidents on the federal network, monitored by the Federal Highway Police, are included, the total number of accidents in 2010 rises to 30,244, with 17,450 injuries and 856 deaths. The death rate from road accidents in 2005-2010 was 14 per 100,000 inhabitants, a level similar to the average for Latin America and the Caribbean. The United Nations Decade of Action for Road Safety has set the target of a 50% reduction in the number of road deaths by 2020. This would mean a reduction of 77 in the number of deaths with respect to the 2010 level. The International Road Assessment Programme has developed a methodology for the calculation of the approximate economic costs of accidents, recommending that the average cost of a serious injury be set at 17 times per capita GDP, and a death at 70 times per capita GDP. On this basis, the average economic cost of accidents in Santa Catarina is calculated at US\$1.1 billion per year.
- 1.11 Based on this statistical information and the 2001 methodology developed by the National Transportation Department,³ a study⁴ financed under loan 1390/OC-BR identified 439 high-accident spots on the state road network. Works with a total budget of US\$18 million were proposed. Execution of the loan resulted in the elimination of 389 high-accident spots, as well as the implementation by DEINFRA of new standards for project preparation, the intensification of works supervision,

² Military Highway Police Statistical Report, 2010. State of Santa Catarina, Military Highway Police Battalion.

³ Manual for the Identification, Analysis, and Treatment of High-accident Spots.

⁴ State Road High-accident Spots in 2001.

- training for technical teams involved, and the institutional strengthening of the Military Highway Police.
- 1.12 In 2011, as part of the preparation for this program, DEINFRA carried out a new study of 125 high-accident spots on the state road network. It proposed 120 interventions with a budget of US\$25 million. Designs for the remaining 5 high-accident spots are currently being prepared. State authorities plan to use their own resources to address 103 critical areas, through the Safe Roads Program (41 in 2012-2013 and 62 in 2014-2015). The remaining 22 will be addressed through this operation.
- 1.13 **Road safety education.** As a complement to these activities, Santa Catarina invests in road safety education through its State Program for Traffic Education. This consists of the preparation and implementation of strategies to raise awareness among drivers and pedestrians, school presentations, special campaigns during holiday periods, interaction with drivers, etc. The state also has a training program for technical staff and schoolteachers and produces teaching resources with related activities for primary and middle schools.
- 1.14 **Critical environmental hazards.** As part of phase four of the program, a program was developed in 2005 to survey and assess environmental hazards along the paved road network. The aim of this program was to identify and classify environmental hazards, evaluate impacts caused by construction and operation, select critical cases on the basis of severity, and prepare an action plan for the remediation of existing hazards and prevention of potential events. An Environmental Hazard Remediation Plan was designed, with priorities set and financial resources provided for execution. The survey found a total of 2,016 environmental hazards, which were entered into a database for the purpose of identifying priority interventions to reduce the number and severity of hazards.
- 1.15 **Institutional framework.** The Department of Infrastructure (DEINFRA) of the State of Santa Catarina was established through Complementary Law 244 of 30 January 2003. Its function is to implement policy formulated by the state government through its Infrastructure Secretariat (SEI), including the administration, planning, design, construction, operation, maintenance, restoration, replacement, adaptation of capacity, and expansion of goods, works, and services under the purview of the state of Santa Catarina. It is also responsible for participating in loan negotiations with public, private, national, or international institutions, subject to SEI coordination.
- 1.16 **State strategy.** The relationship between integration, infrastructure, and logistics in Santa Catarina has been the subject of studies, the recommendations of which have been implemented (paragraphs 1.4 to 1.7). These studies have provided the state with: (i) an assessment of the current situation and analysis of possible trends; (ii) analysis of the supply of logistics infrastructure and demand for cargo transportation, identification of hindrances to the supply of road infrastructure, and identification and definition of the most suitable economic alternatives for

- intervention; (iii) long-term planning, promoting sustainable development from the economic, environmental, social, technological, and public management points of view; (iv) investment strategies and intervention proposals, prioritizing interventions in the state road network and establishing three logistics corridors for the transportation of cargo to state ports; and (v) regulatory scenarios and strategies for implementation, through an increase in cargo transportation capacity and the interventions identified in the master plan for the state road network.
- 1.17 This sector knowledge has allowed Santa Catarina to develop a strategy that gives priority to: (i) improving the population's standard of living by facilitating access to social services; (ii) modernizing physical infrastructure by expanding the state road network; (iii) consolidating territorial integration; (iv) accelerating the sustainable economic development of the state; (v) reducing transportation costs and improving road safety conditions; and (vi) continuing the best practices that have been adopted in the areas of road maintenance and management. This strategy is consolidated in intra-regional, regional, and local road investments.
- 1.18 **Relationship with the Bank's country strategy with Brazil.** The Bank's country strategy with Brazil (document GN-2662-1) establishes improvements to infrastructure conditions as one of the main areas for action, with emphasis on subnational governments. It identifies improvements to the efficiency of road transportation as one of the pillars for action over the next two decades and identifies the following problems: (a) a high proportion of the road network in fair or poor condition; (ii) bottlenecks in export corridors; (iii) air pollution; and (iv) high traffic accident rates. The program supports this strategy in that it will help to: (a) improve transportation infrastructure in Santa Catarina; (b) improve export corridors for producers in the state; (c) deepen regional and international integration; (d) reduce the number and severity of road accidents and environmental hazards; and (e) strengthen institutional capacity for the administration of state infrastructure. The operation is consistent with the pillars set out in the Bank's new institutional strategy (AB-2764): (a) poverty reduction and equity enhancement, through lower transportation costs and improved access to employment opportunities, education, and social services; (b) regional integration, through improved access between production zones in Santa Catarina and ports for export, and improved connections with neighboring states and countries; and (c) environmental sustainability, as a result of road enhancements that will allow more uniform vehicle speeds, avoiding constant acceleration and braking, thus reducing fuel consumption, air pollution, and greenhouse gas emissions.⁵
- 1.19 **Project rationale.** Aggregate data for cargo transportation (70.8 million tons in 2005) show that 47% is shipped entirely within state borders, while 45% either originates or has its final destination in the state and 8% originates and has its final destination outside the state. These data underline the importance of efficient

⁵ Studies show that an increase in the average speed of a bus from 15 km per hour to 25 km per hour causes a 20% reduction in fuel consumption and greenhouse gas and particulate emissions.

infrastructure in good condition, as well as the significance of the state road network for integration, given that over 50% of cargo transported in Santa Catarina has its origin or destination outside the state. The program consolidates interventions in road infrastructure, regional integration with neighboring states (paragraph 1.9), and improvement of state economic competitiveness (paragraphs 1.2 to 1.4). The proposed program supports investment strategies and implementation of priority activities (paragraphs 1.16 and 1.17), contributing to: (i) the expansion, improvement, and maintenance of the state road network, reducing the overall cost of transportation; (ii) improvements in road safety (paragraphs 1.10 to 1.13) through the elimination of high-accident spots; (iii) improvements in environmental conditions (paragraph 1.14) through the elimination of critical environmental hazards throughout the state network; and (iv) institutional strengthening of DEINFRA (paragraph 1.15) through the renewal and training of its professional workforce and the implementation of improved administrative systems.

- 1.20 **Lessons learned.** Over the last 30 years, DEINFRA has been closely involved in five programs financed by the Bank.⁶ Among the lessons learned are the need for a management firm to support coordination (paragraph 1.23), ongoing support for institutional strengthening (paragraph 1.31), and the adoption of mechanisms to minimize the negative externalities of projects (paragraphs 1.28 and 1.29).

B. Objectives, components, and cost

- 1.21 **Objective.** The objective of the program is to support the decentralized, balanced, and sustainable development of the state of Santa Catarina, through the construction, paving, and rehabilitation of state road infrastructure. The specific objectives are to: (i) enhance road infrastructure, through better conditions on secondary roads, access to primary roads, markets, and ports, and greater access to employment opportunities and social and community services; (ii) improve road safety through the elimination of high-accident spots; (iii) continue to improve environmental conditions through the reduction of environmental hazards along state routes; and (iv) strengthen institutional capacity for the management of logistics infrastructure.
- 1.22 The program will help to reduce vehicle operating costs, travel times, environmental pollution, and the accident rate on the state road network, as well as to implement the State Highways Plan, the updating of planning tools, and training of DEINFRA technical staff.
- 1.23 **Component 1. Engineering and administration (US\$22.95 million).** The following subcomponents will be financed: (1) studies and projects: includes the preparation of technical, economic, socioenvironmental, and geotechnical studies,

⁶ (i) First Feeder Roads Program (380/OC-BR and 624/SF-BR); (ii) Second Feeder Roads Program (770/SF-BR and 157/IC-BR); (iii) Santa Catarina State Transport Corridors Program (719/OC-BR); (iv) Santa Catarina State Highway Program – Phase IV (1390/OC-BR); and (v) Santa Catarina State Highway Program – Phase V (2171/OC-BR).

and the preparation of engineering designs necessary for the execution of program works, including road safety audits (paragraph 1.11); (2) program administration: includes support and management activities for execution of the program; and (3) financial audits, evaluation, and monitoring: includes both independent external financial audits and technical, operational, environmental, and social monitoring and evaluation activities.

- 1.24 **Component 2. Civil works and supervision (US\$320.89 million).** The following subcomponents will be financed: (i) road construction; (ii) road paving; (iii) road rehabilitation; (iv) road safety; (v) environmental improvements; and (vi) technical and environmental supervision of works. All urban intersections targeted under the paving and rehabilitation projects have been designed according to tailored specifications for signage, pedestrian crossings, bus shelters, and sidewalks.
- 1.25 **Road construction.** This subcomponent includes the following projects: (i) SC-446: Criciúma – BR-101; and (ii) SC-417: BR-101 – Garuva.
- 1.26 **Road paving.** The following projects make up the representative sample for the subcomponent: (i) SC-90: Pedras Grandes – Orleans; and (ii) SC-467: Jaborá – Ouro.
- 1.27 **Road rehabilitation.** The following projects make up the representative sample for the subcomponent: (i) SC-480: São Lourenço do Oeste – São Domingos; (ii) SC-355: BR-153 – Jaborá; (iii) SC-427: Rio do Campo – Passo Manso; and (iv) AE-101M: BR-101 – Passo de Torres.
- 1.28 **Road safety.** The program will finance the remediation and management of improvements for the 125 identified high-accident spots (paragraph 1.12), based on the following classification: (i) 21 spots have been opened to bidding and are expected to be completed during 2013; (ii) 20 will be dealt with comprehensively with road maintenance contracts in 2013; (iii) 62 will be handled through state interventions financed with own resources; and (iv) 22 will be financed under the proposed program and already have preliminary proposals.
- 1.29 **Environmental hazards.** The program will finance the implementation and management of the Environmental Hazard Remediation Plan (paragraph 1.14), on the following basis: (i) the most easily solved hazards will be handled under private sector road maintenance contracts; (ii) those located in road segments targeted under the program will be addressed during execution of the respective rehabilitation works; and (iii) in the case of those hazards for which insufficient program funding exists, a plan will be developed for future remediation.
- 1.30 **Technical and environmental supervision of works.** This includes activities related to the inspection and supervision of larger and more complex road works by consulting firms hired to support DEINFRA.
- 1.31 **Component 3. Institutional strengthening (US\$7.07 million).** DEINFRA's institutional capacity has been weakened by the systematic retirement of its technical staff in various fields. During the initial years of program execution,

DEINFRA is expected to use legal mechanisms to hire sufficient numbers of mid-level and senior technical specialists to meet its needs across the various sectors in which it is active. Until such time as these new technical staff are trained in their duties, a consulting firm will be hired to carry out these duties and, at the same time, train the new staff. The component will finance the following activities: (i) implementation of the State Highways Plan, preparation of which began under phase four of the program, and which envisions the placement of kilometer markers, upgrading of signage, a public awareness program, etc.; (ii) operation of DEINFRA's road planning system, including updating of the cadastral database, updating of the Master Road Plan based on socioeconomic data, and the collection of information on the status of road network maintenance and levels of demand; and (iii) support to the SEI and DEINFRA for training of current employees and new technical staff, with a view to enhancing the efficiency of institutional management.

- 1.32 **Cost.** The total cost of the program is US\$367.51 million, which will be financed in the following manner: (i) US\$250 million through an IDB multiple works loan; and (ii) US\$117.51 million in counterpart funding. The period for the physical start of works will be three years from signature of the contract.

Table 2. Costs (US\$ million)

	Categories	IDB	Counterpart	Total
1	Engineering and administration	19,100,000	3,850,000	22,950,000
1.1	Studies and projects	6,750,000	1,750,000	8,500,000
1.2	Program administration	12,150,000	2,100,000	14,250,000
1.3	Audits, evaluation, and monitoring	200,000	-	200,000
2	Civil works and supervision	228,050,000	92,840,000	320,890,000
2.1	Construction	58,940,000	25,265,000	84,205,000
2.2	Paving	61,850,000	38,970,000	100,820,000
2.3	Rehabilitation	83,630,000	20,935,000	104,565,000
2.4	Road safety	2,925,000	2,925,000	5,850,000
2.5	Environmental improvements	2,750,000	2,750,000	5,500,000
2.6	Works supervision	17,955,000	1,995,000	19,950,000
3	Institutional Strengthening	2,850,000	4,220,000	7,070,000
3.1	Implementation of the State Highways Plan	675,000	825,000	1,500,000
3.2	Operation of the Road Planning System	1,575,000	2,795,000	4,370,000
3.3	Support to DEINFRA	600,000	600,000	1,200,000
4	Associated costs	-	3,500,000	3,500,000
4.1	Expropriations	-	1,500,000	1,500,000
4.2	Environmental compensation	-	2,000,000	2,000,000
5	Finance charges	-	13,100,000	13,100,000
5.1	Interest	-	11,400,000	11,400,000
5.2	Credit fee	-	1,700,000	1,700,000
	TOTAL	250,000,000	117,510,000	367,510,000

C. Key results indicators

- 1.33 The proposed indicators and means of verification maximize the use of both available information and information to be obtained during program execution. The baseline for the projects in the representative sample will be completed during execution of the technical studies for the remaining projects and will serve as the benchmark for program evaluation. The indicators include: (i) impact: port cargo tonnage per km of paved roads); and (ii) outcomes: travel times, vehicle operating costs, greenhouse gas emissions, and road accident rates.
- 1.34 **Disbursement schedule.** Loan proceeds will be disbursed over a five-year period from the effective date of the loan contract, in accordance with Table 3 below:

Table 3. Disbursement schedule (US\$ million)

Source	2012	2013	2014	2015	2016	2017	TOTAL	%
IDB	-	57.46	57.46	57.45	51.43	26.20	250.00	68
Local	23.00	33.79	21.15	19.22	11.59	8.76	117.51	32
TOTAL	23.00	91.25	78.61	76.67	63.02	34.96	367.51	100
%	6.3%	24.8%	21.4%	20.9%	17.1%	9.5%	100%	-

II. FINANCING STRUCTURE AND MAIN RISKS

A. Financing instruments

- 2.1 The program has a total cost of US\$367.51 million, to be financed according to the breakdown shown in the table of costs (paragraph 1.32). Financing from the Bank will be provided through a multiple-works investment loan using Ordinary Capital resources from the Bank's Flexible Financing Facility. The execution period is projected to be five years.

B. Environmental and social risks

- 2.2 As part of preparation for this program, which is classified as a category "B" operation, the following environmental studies have been completed: (i) for the program: an Environmental Analysis and an Environmental and Social Management Plan (ESMP); (ii) for the works that make up the program's representative sample: (a) SC-446, Criciúma Express Highway-BR-101: a Simplified Environmental Study, a Basic Environmental Plan and an Environmental Project; (b) for the other works: a Prior Environmental Report and an Environmental Project. Public consultations were conducted for all projects.
- 2.3 The engineering designs for the construction works (subcomponent 2.1) were prepared in accordance with DEINFRA policies, making full use of existing highways and with studies of route alternatives in the case of new segments. The

express highway project, Criciúma-BR-10,⁷ was the only one that required a Simplified Environmental Study, as it is a four lane highway. The assessment of this work's service area and the associated projections concluded that the potential exists for an adverse environmental impact of very low magnitude. The potential for adverse environmental impacts will be reduced through implementation of the mitigation measures envisioned in the Simplified Environmental Study, the Basic Environmental Plan, and the ESMP. The Simplified Environmental Study for the project was reviewed and found to be in compliance with the Bank's policies and safeguards. The construction project for SC-417—the Garuva Beltway—makes use of the existing highway adjacent to the Municipality of Garuva's Area of Natural, Ecological, and Environmental Interest. A Simplified Environmental Study was not required as the road was deemed to be a protective barrier for the area.

- 2.4 In relation to the paving of existing roads and the rehabilitation of paved roads, the studies carried out showed that the potential adverse environmental impacts related to these works are not significant, as long as the Environmental Project and the other environmental procedures set out in DEINFRA's Environmental Management System for the execution of works are respected. The program will also support the remediation of critical environmental hazards and the correction of high-accident spots along the highways.
- 2.5 The Environmental Projects set out the environmental protection and mitigation measures for the works, the costs of which are included in the budgets in the budgets of the works. DEINFRA's Environmental Management System plans and provides training for contractors and supervisory firms on social and environmental issues. The Environmental and Social Management Report (ESMR) contains greater detail in relation to the projects, their impact, and the scope of the required management plans. No potential risks were identified.
- 2.6 DEINFRA has an Environmental Management Section (GEMAM) that was strengthened under previous programs. It is attached to the Projects Directorate and is responsible for the environmental and social management of road projects. GEMAM runs its projects efficiently and follows the procedures established in environmental legislation for the environmental licensing of each program segment. As a special execution condition, prior to the start of each works project, the borrower will submit evidence to the Bank that the requisite environmental licenses have been obtained in accordance with relevant state legislation. Environmental supervision of the works will be carried out by environmental experts employed by the program management support firm. The firms responsible for supervising the works will also have an environmental expert available. Environmental inspection of the works will be handled by GEMAM technical staff, who will be responsible for environmental reports and certification of compliance.

⁷ This main objective of this project is to divert a large part of the traffic that currently uses the SC-444 Criciúma – Içara – BR-101 segment (which has reached capacity), as well as that using the Luiz Rosso highway, which is the access road from the center of Criciúma to route BR-101.

- 2.7 With the exception of a number of geometric corrections, there will be no major alterations to routes. Designs have been prepared in such a way to avoid any impact on vulnerable populations. No impact on these groups is expected under the program's other projects. As a special execution condition, prior to the start of each works project, the borrower will present evidence to the Bank that, in the case of works that so require, the expropriation and resettlement plan has been fully implemented in accordance with Bank policy OP-710. No impact was identified in relation to indigenous groups.

C. Fiduciary Risk

- 2.8 Institutional capacity was evaluated using the Institutional Capacity Assessment System tool, which yielded the following results: level of development, satisfactory; level of risk, low. DEINFRA has sufficient capacity for program execution but will need strengthening for the development of: (i) tools for the management, recording, control, and preparation of reports concerning program activities and funds; and (ii) a training plan for the coordination, administration, and execution of the program. Training in procurement procedures has been provided and will be expanded during the project launch workshop to include the application of Bank policies and operational procedures.
- 2.9 The structure of positions and salaries in the human resources management system is out of date, while a failure to conduct competitive recruitment necessary to replace retiring staff has led to insufficient levels of staffing. This situation could lead to inefficiencies and ineffectiveness in program execution. DEINFRA will therefore accelerate the recruitment process. A special execution condition stipulates that no later than six months after signature of the contract, the borrower will submit evidence that the program management support system has been implemented, and that the training plan has been prepared.

D. Other special aspects and risks

- 2.10 **Road eligibility criteria.** The segments to be included in the construction, paving, and rehabilitation subcomponents must comply with the following eligibility criteria: (i) be part of the state road network inventory; (ii) have been identified and given priority status by the planning and management systems; (iii) have a rate of return of 12% or more; (iv) have completed engineering, economic feasibility, and environmental studies; (v) where necessary, have received environmental authorization; and (vi) have final engineering designs. Prior to their inclusion, the Bank must give its no objection to the technical, economic, and socioenvironmental studies, as well as the environmental licenses.
- 2.11 **Execution risks.** There is a risk of cost overruns during the execution of works related primarily to cost increases in the construction industry and in building materials, as well as fluctuations in foreign currency exchange rates. To mitigate this inherent risk, final engineering designs will be available before the works are opened to bidding, reducing uncertainty regarding quantities and costs. A management firm will also be hired, and supervision will be conducted for each

project to assess cost overrun risks and identify solutions early. In the event that the cost estimates in the final designs exceed available funds, the following options may be pursued: (i) reduce the technical complexity of interventions while maintaining minimum standards for safety, capacity, and sustainability; (ii) reduce the length of the targeted segments; and (iii) find additional financing, through a larger counterpart contribution or financing from other donors.

- 2.12 **Analysis of state financial capacity.** In the 2007-2011 period, Santa Catarina was in compliance with the limits established under Brazil's Fiscal Responsibility Law, with the exception of debt interest payments in 2009.

Table 4. Limits under Brazil's Fiscal Responsibility Law

Limit and Legal Provision*	Legal Limit	Limit Jan/Dec 2007	Limit Jan/Dec 2008	Limit Jan/Dec 2009	Limit Jan/Dec 2010	Limit Jan/Dec 2011
1. Wage payments/net current receipts (Article 19, LRF)	60.00%	48.42%	45.23%	46.73%	51.14%	51.22%
2. Total borrowing/net current receipts (Art. 7, Section I, RSF 43/01)	16.00%	0.83%	1.87%	0.58%	0.50%	0.69%
3. Debt service/net current receipts (Art. 7, Section II, RSF 43/01)	11.50%	11.45%	10.76%	12.14%	10.48%	10.88%
4. Total net debt (Art. 7, Section III, RSF 43/01; Art. 3, RSF 40/01)	120%	90.34%	77.40%	60.80%	62.95%	45.67%

* LRF: Fiscal Responsibility Law; RSF: Federal Senate Resolution

- 2.13 State revenues and expenditures over the 2007-2011 period were consistent with the generation of a positive primary balance at 2011 prices. The primary balance was R\$1,483.17 million in 2007 and R\$1,231.41 million in 2011. Projections for revenues and expenditures over the next 10 years indicate that, including execution of this program, the state will not experience a deficit, and that the primary surplus will remain sufficient to make the service payments on this loan.
- 2.14 **Economic evaluation.** An economic evaluation was performed for each of the projects in the representative sample. Electronic link 7 provides details of the evaluation methodology for the projects and the criteria for the calculation of costs and benefits. For each project analyzed, the economic evaluation calculated the cost of the investments and the resulting benefits over the projected useful life of these investments. Economic rates of return were calculated based on a discount rate of 12%, including the cost-benefit ratio, the net present value (NPV), and the internal rate of return (IRR). In the case of new works and paving projects, a 20-year period was analyzed, while in the case of rehabilitation works, the period was 10 years. In all cases, it was estimated that the works would be completed in 2015.
- 2.15 The economic evaluation was based on the HDM-4 (Highway Development and Management) Model, with a comparison of economic costs and benefits from savings in travel times, a reduction in vehicle operating costs, and changes in the cost of road maintenance. Data on traffic volumes were obtained from the

simulation model developed by the Santa Catarina State Road Transportation Management Plan. Simulations were carried out for each project in isolation within the state road network. The HDM-4 model calculates annual costs based on internal models that simulate pavement deterioration as a function of cargo loads and road maintenance policies. In all cases, maintenance policies considered routine maintenance and the activities necessary to keep the road free of potholes. The economic analyses for each of the projects were complemented by a sensitivity analysis to verify their robustness. The following scenarios were evaluated: (i) an increase of 25% in the cost of works; (ii) a reduction of 10% in benefits; and (iii) the previous two scenarios combined.

- 2.16 Economic indicators under both the baseline scenarios and the sensitivity analyses confirm the viability and robustness of the projects, given that under even the worst scenario the indicators remain favorable.

Table 5. Economic indicators for the baseline scenario and sensitivity analyses

Road	Baseline scenario		25% cost increase and 10% reduction in benefits	
	NPV (US\$m)	IRR (%)	NPV (US\$m)	IRR (%)
Criciúma – BR-101	75.4	34.4	56.2	26.3
Pedras Grandes – Orleans	26.6	49.9	21.6	38.3
Garuva Beltway	12.7	23.4	7.8	18.1
Jaborá – Capinzal	81.8	44.3	65.4	34.1
São Lorenzo do Oeste – São Domingos	48.9	51.5	39.2	40.1
BR-101 – Passo de Torres	5.0	63.4	4.2	50.2
BR-153 – Jaborá	21.6	37.4	15.9	28.8
Rio do Campo – Passo Manso	2.4	21.0	0.5	13.7

- 2.17 **Maintenance risk.** Maintenance of paved roads in the Santa Catarina State Road System is the responsibility of DEINFRA. Maintenance activities are outsourced to private contractors, which are supervised by regional superintendencies under the coordination of the Maintenance and Operations Directorate. The maintenance of unpaved roads is carried out by Santa Catarina's Regional Development Secretariats. DEINFRA's 2010 annual maintenance report indicates that from 1990 to 2008 the paved network was in very good repair, with 60% in good condition, 30% in fair condition, and 10% in poor condition. However, heavy rains since the end of 2008 have caused a significant deterioration in the condition of the network (paragraph 1.8). Table 6 shows expenditures on road works and maintenance between 2008 and 2011, with budgeted amounts for 2012, in millions of dollars, which financed by the State of Santa Catarina. The high level of expenditure in 2009 and 2010 was due to works that were needed to repair infrastructure after floods in 2008 and 2009. These amounts confirm that the deterioration in the condition of the road network is mainly the result of rains and flooding, rather than lack of resources.

Table 6. Expenditure on road maintenance and works between 2008 and 2011, and budgeted for 2012

Category	2008 Actual	2009 Actual	2010 Actual	2011 Actual	2012 Budget
Wages, maintenance, operations, and road safety	25.5	48.2	59.3	64.5	60.7
Emergency works	0	111.7	27.4	1.3	3.6
Total	25.5	159.9	86.7	65.8	64.3

III. IMPLEMENTATION AND MANAGEMENT PLAN

A. Execution mechanism

- 3.1 The borrower will be the State of Santa Catarina. The Federative Republic of Brazil will guarantee the financial obligations derived from the loan contract signed between the borrower and the Bank. The executing agency will be the State of Santa Catarina through its State Infrastructure Department (DEINFRA), an autonomous government agency under Brazilian public law that is attached to the State Infrastructure Secretariat (SEI) but has administrative, operational, financial, and legal autonomy and its own assets. The organizational structure and authority of DEINFRA were established by state law (Supplemental Law 382 of May 2007). **A condition precedent to first disbursement will be the signature and entry into force of an execution agreement between the State of Santa Catarina and DEINFRA, establishing the terms and conditions for the transfer and use of loan proceeds, which will have the Bank's no objection.**
- 3.2 DEINFRA will be accountable to the Bank for: (i) opening separate and specific bank accounts for managing the loan and local counterpart funds; (ii) keeping an adequate system for: (a) internal control and financial and accounting records relating to the use of program funds; and (b) keeping supporting documentation for eligible expenditures, for verification by the Bank and external auditors; (iii) preparing and delivering: (a) semiannual progress reports, and (b) disbursement requests and the respective expense vouchers; and (iv) preparing other reports as the Bank may require.
- 3.3 For the purpose of coordinating program execution activities, DEINFRA will be supported by an execution unit that will coordinate with the various technical areas responsible for the activities associated with program implementation. The execution unit is supported by a management firm hired during phase V. This firm will also support coordination of the current operation, financed with program resources. The functions of the execution unit and the management firm are described in the "Monitoring and Evaluation Arrangements" link. As a special execution condition, supervision arrangements will be in place prior to the start of the respective work.
- 3.4 **Procurement of works, goods, and services.** Bank-financed works, goods, and consulting services will be procured in accordance with Bank policies for the

procurement of works and goods financed by the IDB (document GN-2349-9) and policies for the selection and contracting of consultants financed by the IDB (document GN-2350-9), both of 2011. International bidding will be subject to ex ante review.

- 3.5 **Disbursements.** Advances of funds will be used to disburse program resources, in accordance with the actual liquidity needs of the project. The frequency of advances will be determined as a function of the program's financial programming. The executing agency will update its financial plan periodically, estimating the loan proceeds necessary for program execution based on the budget, the work plan, and acquired commitments. The Bank may make a new advance of funds once at least 80% of previous fund advances have been justified. Supervision will be conducted ex ante until such time as the borrower and the Bank agree to conduct reviews ex post.
- 3.6 **Recognition of local counterpart expenditures.** DEINFRA conducted the first bidding process for consulting assignments and works at the national level in 2011, and these contracts are already underway. Further bidding processes are expected to commence over the coming months. These contracts are financed by local counterpart resources under the program. Accordingly, expenditures of up to US\$23 million incurred on or after 8 February 2012, for a period not to exceed the 18 months prior to the loan approval date, will be recognized against the local counterpart contribution.

B. Summary of monitoring and evaluation arrangements

- 3.7 The monitoring and evaluation program will support program execution, including proposed activities and the physical and financial implementation of outputs, by monitoring: (i) administration and control; (ii) activities and outputs; and (iii) outcomes. Consideration will be given to the targets and progress indicators agreed upon with the executing agency and included in the results matrix. The Bank will monitor program implementation through inspection visits and administrative missions. These activities are described in greater detail in the required electronic link "Monitoring and Evaluation Arrangements."
- 3.8 The monitoring and evaluation process for the program will be coordinated by the executing agency, which has adequate systems for gathering periodic data on physical and financial execution, and for keeping information on the execution of program activities and funding accessible and up-to-date.

Development Effectiveness Matrix			
Summary			
I. Strategic Alignment			
1. IDB Strategic Development Objectives		Aligned	
Lending Program		The intervention contributes to the lending to support regional cooperation and integration in the area of Infrastructure.	
Regional Development Goals		The intervention contributes to the regional development goal of Infrastructure for competitiveness and social welfare though Paved road coverage (Km/Km²).	
Bank Output Contribution (as defined in Results Framework of IDB-9)		The intervention contributes to Infrastructure for competitiveness and social welfare providing Km of inter-urban roads build or maintained/upgraded.	
2. Country Strategy Development Objectives		Aligned	
Country Strategy Results Matrix	GN-2662-1	The program contributes to: a) improve the transport infrastructure of the State of Santa Catarina and the accessibility to its ports b) improve the productivity and export conditions , c) reduce the number and severity of road accidents; and d) improve the institutional capacity responsible of the administration of public infrastructure	
Country Program Results Matrix	GN-2661-4	To be presented after respective CS approval (In preparation).	
Relevance of this project to country development challenges (If not aligned to country strategy or country program)			
II. Development Outcomes - Evaluability		Highly Evaluable	Weight
		9.1	10
3. Evidence-based Assessment & Solution		8.4	25%
4. Ex ante Economic Analysis		10.0	25%
5. Monitoring and Evaluation		8.0	25%
6. Risks & Mitigation Monitoring Matrix		10.0	25%
Overall risks rate = magnitude of risks*likelihood		Low	
Environmental & social risk classification		B	
III. IDB´s Role - Additionality			
The project relies on the use of country systems (VPC/PDP criteria)		Yes	Financial Management: Budget, Accounting and Reporting, External Control and Internal Audit.
The project uses another country system different from the ones above for implementing the program			
The IDB's involvement promotes improvements of the intended beneficiaries and/or public sector entity in the following dimensions:			
Gender Equality			
Labor			
Environment	Yes	The program will contribute to reduce air pollution and emissions of greenhouse gases by improving roads and reducing fuel consumption in vehicles, which can maintain a more uniform speed without constant acceleration and braking.	
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	LO 1390/OC-BR, LO 380/OC-BR, LO 624/SF-BR,LO 770/SF-BR y LO 157/IC-BR LO 719/OC-BR, LO 1390/OC-BR, LO 2171/OC-BR.
The ex-post impact evaluation of the project will produce evidence to close knowledge gaps in the sector that were identified in the project document and/or in the evaluation plan.		Yes	The monitoring and evaluation Plan is based on an ex-post cost-benefit and a before-after comparison that should help identify and quantify the impact that the project has on improving the conditions of movement of vehicles, the travel time of users and air quality.

The intervention is aligned with one dimension of the lending program: lending to support regional cooperation and integration in the area of Infrastructure. It is also aligned to the regional development goal of Infrastructure for competitiveness and social welfare. The intervention contributes to the Bank's output of Km of inter-urban roads build or maintained/upgraded. The project is aligned with the Country Strategy.

The main objective of the program is to contribute to the decentralized, balanced and sustainable development of the Santa Catarina State through the construction, pavement and rehabilitation of the road infrastructure at state level. The specific objectives are 1) Improve the road infrastructure; 2) Improve road safety; 3) Improve environmental conditions; and 4) Improve the institutional capacity to manage the logistic infrastructure.

The results matrix presents the impact, outcome and product indicators related to the objectives and components of the program. Indicators presented in the matrix are SMART. The program includes an economic analysis. The monitoring and evaluation plan is supported on an ex-post cost benefit analysis, and a before and after comparison, to identify and quantify the project impacts on the network conditions, congestion levels and air quality.

The risks currently identified in the risk matrix are reasonable and they include mitigation measure and related metric to track their implementation.

RESULTS FRAMEWORK / MATRIX OF INDICATORS

Program Objective	The general objective is to support the decentralized, balanced, and sustainable development of the state of Santa Catarina, through the construction, paving, and rehabilitation of state road infrastructure. The specific objectives are to: (i) enhance road infrastructure; (ii) improve road safety; (iii) improve environmental conditions; and (iv) strengthen institutional capacity for the management of logistics infrastructure.				
Impact Indicator		Baseline	Target	Comments	
Cargo passing through Santa Catarina ports, per km of paved road network.		3,250 ton/km (2011)	4,250 ton/km (2017)	This indicator reflects both economic growth in Santa Catarina and efficacy in use of the road network. Source: Port statistics (ANTAQ) and reports	
Outcome indicators		Baseline	Target		Comments
Road interventions: The data correspond to the projects in the representative sample. Baseline: 2011; Target: 2015.					
New road construction					
Vehicle operating costs:					Improvements from reduced congestion and travel distances.
Cars	US\$0.48 / Km	US\$0.38 / Km	21%		
Buses	US\$1.70 / Km	US\$1.25 / Km	26%		
Trucks	US\$1.71 / Km	US\$1.48 / Km	14%		
Weighted average	US\$0.72 / Km	US\$0.59 / Km	18%		
Travel times:					
Cars	15.4 min	7.7 min	50%		
Buses	12.8 min	6.7 min	47%		
Trucks	18.6 min	8.7 min	53%		
Weighted average	16.0 min	7.9 min	51%		
Paving works					
Vehicle operating costs:					Improvements from reduced congestion and travel distances.
Cars	US\$0.64 / Km	US\$0.40 / Km	38%		
Buses	US\$2.22 / Km	US\$1.43 / Km	39%		
Trucks	US\$2.17 / Km	US\$1.50 / Km	31%		
Weighted average	US\$1.18 / Km	US\$0.71 / Km	39%		
Travel times:					
Cars	25.2 min	9.6 min	62%		
Buses	27.2 min	7.8 min	71%		
Trucks	28.3 min	9.5 min	66%		
Weighted average	26.2 min	9.5 min	63%		

Outcome indicators	Baseline	Target		Comments
Rehabilitation works				
Vehicle operating costs:				
Cars	US\$0.47 / Km	US\$0.39 / Km	17%	Improvements from reduced congestion and travel distances.
Buses	US\$1.79 / Km	US\$1.39 / Km	22%	
Trucks	US\$1.99 / Km	US\$1.68 / Km	16%	
Weighted average	US\$0.93 / Km	US\$0.78 / Km	17%	
Travel times:				
Cars	13.0 min	9.4 min	28%	
Buses	20.0 min	15.4 min	23%	
Trucks	19.1 min	14.9 min	22%	
Weighted average	14.6 min	10.8 min	26%	
Maintenance and environmental improvements: The data correspond to the projects in the representative sample. Baseline: 2011; Target: 2015.				
Greenhouse gases	2011	2015 (without project)	2015 (with project)	Improvements from reduced congestion and travel distances.
New roads	575,000 tons CO2 eq.	622,000 tons CO2 eq.	588,000 tons CO2 eq.	
Paving	2,856,000 tons CO2 eq.	3,201,000 tons CO2 eq.	3,149,000 tons CO2 eq.	
Rehabilitation	144,000 tons CO2 eq.	163,000 tons CO2 eq.	163,000 tons CO2 eq.	
Road safety: The data correspond to direct intervention at 22 high-accident spots.				
Number of deaths on the state road network per 100,000 inhabitants	4.6 (287 deaths on the network)	4.2 (259 deaths on the network)	10%	28 deaths at the 22 targeted high-accident spots.
Institutional strengthening (Baseline: 2011; Target: 2015.)				
Percentage of the state network for which the State Highways Plan has been physically implemented	0%	100%		The Highways Plan was approved in 2011 but has not yet been implemented.
Percentage of the Highway Planning System that has been updated	0%	100%		Update of vehicle counts, roughness and deflection indices, and pavement defects: financed under 2171/OC-BR through 2012 and subsequently under this operation. Operation of updated tools.
New technical staff hired as part of the program of renewal and updating of the trained technical corps (expressed as a percentage of total DEINFRA staff).	0%	100% (all new technical staff)		DEINFRA has not recently hired any new technical staff. A significant number of professional staff are expected to reach retirement age over the next three years, further reducing the technical staff complement.

Component 1: Engineering and administration								
Indicators	Baseline	2011	Year 1	Year 2	Year 3	Year 4	Year 5	Target
Studies and projects: 1. Preparation of technical, economic, socioenvironmental, and geotechnical studies 2. Design of engineering designs for program works	-	-			3	6	10	10
Program administration: Support and management of program execution	-	-	20%	40%	60%	80%	100%	100%
Financial audit, evaluation and monitoring: 1. Independent external audit 2. Evaluation and monitoring	-	-	20%	40%	60%	80%	100%	100%
Component 2: Civil works and supervision								
Indicators	Baseline	2011	Year 1	Year 2	Year 3	Year 4	Year 5	Target
Construction of new roads (km)	0				9	21	40	40
Paving works (km)	0				50	90	120	120
Rehabilitation works (km)	0			40	80	120	200	200
Environmental hazards remedied (units)	0				50	150	311	311
Elimination of high-accident spots (units)	0					10	22	22
Component 3: Institutional strengthening								
Indicators	Baseline	2011	Year 1	Year 2	Year 3	Year 4	Year 5	Target
<i>State Highways Plan:</i>								
1. Public awareness program and dissemination of the Highways Plan	-		100%					100%
2. Physical implementation of the Highways Plan	-		20%	70%	100%			100%
<i>Highways Planning System</i>								
1. Updating of vehicle counts	-		20%	40%	60%	80%	100%	100%
2. Surveys: roughness, deflection, and pavement defect indices	-				50%		100%	100%
Professional training								
1. Training of DEINFRA technical staff	-				30%	30%	100%	100%

FIDUCIARY AGREEMENTS AND REQUIREMENTS

Country:	Brazil
Project:	Santa Catarina Logistics Infrastructure Program
Number:	BR-L1336
Executing agency:	Departamento Estadual de Infraestrutura [State Infrastructure Department] (DEINFRA)
Prepared by:	Monica Merlo (Financial Specialist) and Carlos Lago (Procurement Specialist)

I. EXECUTIVE SUMMARY

The evaluation of fiduciary management is based on the institutional analysis of the executing agency, conducted using the Institutional Capacity Assessment System (ICAS), as well as a risk workshop with the staff of the executing agency and the project team. The experience of the executing agency, gained through its work on similar projects since the 1980s, was also taken into account.

In particular, DEINFRA has been involved in the execution of the following Bank-financed projects: (i) First Feeder Roads Program (380/OC-BR and 624/SF-BR); (ii) Second Feeder Roads Program (770/SF-BR and 157/IC-BR); (iii) Santa Catarina State Transport Corridors Program (719/OC-BR); (iv) Santa Catarina State Highway Program – Phase IV (1390/OC-BR); and (v) Santa Catarina State Highway Program – Phase V (2171/OC-BR).

The fiduciary agreements for execution of the program in the areas of procurement and financial administration are based on the results of this assessment of the executing agency.

They also take into account the fiduciary context of the country and the executing agency, the most salient points of which are summarized below.

II. FIDUCIARY CONTEXT OF THE COUNTRY

Brazil has robust national fiduciary systems that allow for good management of administrative, financial, control, and procurement processes, consistent with principles of transparency, economy, and efficiency. Ongoing strengthening of the systems is required to address new fiduciary needs. Accordingly, the Bank's fiduciary strategy for Brazil is aimed at ensuring the progressive and sustainable use of the country's fiduciary systems.

III. FIDUCIARY CONTEXT OF THE EXECUTING AGENCY

The executing agency for the program will be the State Infrastructure Department (DEINFRA), which will implement the program with the support of a program execution

unit, the Special Programs Office (COPRE). This institutional arrangement has been in place since the previous program and will remain in place for this new program.

In other words, COPRE will continue to represent DEINFRA in promoting compliance with the conditions established in the loan contracts, and in maintaining a system of technical, financial, and administrative information for the program.

For execution of the activities envisioned under the program, a procedures manual should be prepared that sets out COPRE's functions and tasks in relation to coordination of the various technical areas within DEINFRA responsible for activities associated with program implementation.

IV. FIDUCIARY RISK EVALUATION AND MITIGATION MEASURES

As a result of the exercise to assess risk and institutional capacity at DEINFRA, the following fiduciary risks were identified: (a) in the area of planning and programming of program components and activities, a lack of mechanisms and/or procedures that would allow monitoring of programmed activities was observed, particularly in relation to fulfillment of targets and divergence from planned timetables, as well as the absence of a risk analysis methodology. Mitigation measure: Establish work procedures and processes with methodologies and formats, including with the annual work plan, as well as other models necessary for planning, through the creation of a manual for the execution, review, monitoring, and evaluation of planned activities; (b) DEINFRA's administrative organization system is old and needs to be updated, as the lack of documented service instructions affects compliance with program time schedules, causing delays to execution. Mitigation measure: Update the relevant manuals; and (c) understaffing and lack of qualified personnel, owing to a failure to conduct recruitment for several years and the advanced age of technical staff. This leads to inefficiencies in fulfillment of the loan contract, with a negative impact on team morale. Mitigation measure: Support the preparation of a plan for positions, careers, and salaries, and accelerate the recruitment process.

V. CONSIDERATIONS FOR THE SPECIAL CONDITIONS OF CONTRACTS

- a. **Special execution conditions:** No later than six months after signature of the contract, the borrower will submit evidence that the program management support system has been designed, and that the training plan has been prepared.
- b. **Exchange rate:** Prior to the negotiation mission, the borrower will notify the Bank of the option chosen.

VI. AGREEMENTS AND REQUIREMENTS FOR PROCUREMENT EXECUTION

1. Procurement execution

- a. **Procurement of works, goods, and nonconsulting services:** Works, goods, and services financed in full or in part using Bank resources will be procured in

accordance with the Policies for the procurement of goods and works financed by the Bank (document GN-2349-9), of March 2011.

It was agreed with the executing agency that program works would be procured using international competitive bidding (ICB), even in cases where the estimated budget is below the established threshold. This measure is intended to protect COPRE from possible pressures. At a later stage, the Bank or the executing agency may review program execution and decide to use national competitive bidding (NCB) for program contracts.

Wherever the procurement of goods and services has an estimated cost of more than US\$5 million, ICB will be used. Wherever the estimated cost is US\$5 million or less, NCB may be used. Below US\$100,000, shopping may be used.

The Bank may also recognize the following procurement methods provided for in national law (Law 10,520/2002—the Electronic Reverse Auction Law), for contracts financed under the loan: (i) electronic reverse auction, using the systems approved by the Bank for procurement of off-the-shelf goods and services with an estimated cost of US\$5 million or less; (ii) price list, for procurement of off-the-shelf goods and services with an estimated cost of US\$5 million or less, subject to the Bank's prior approval; and (iii) onsite reverse auction, for procurement of off-the-shelf goods and services with an estimated cost of less than US\$100,000. At any point during the execution period of this program, the Bank may suspend the use of one or more of the methods described in this paragraph.

- b. **Selection and contracting of consultants:** Consulting services financed in full or in part with Bank resources will be selected and contracted in accordance with the Policies for the selection and contracting of consultants financed by the Bank (document GN-2350-9), of March 2011. For the selection and contracting of consulting services with an estimated cost of more than US\$200,000, international publicity will be required using the United Nations Development Business website. In the case of contracts with an estimated cost of less than US\$1 million, shortlists of consulting firms may be comprised entirely of national firms.
- c. **Selection of individual consultants:** Consultants financed with Bank resources (either partially or in full) will be selected and contracted in accordance with Section 5 of the Policies for the selection and contracting of consultants financed by the Bank (document GN-2350-9). The selection of individual consultants will be based on their qualifications for the assignment, following a comparison of the qualifications of at least three candidates. When the situation so warrants, notices may be placed in the local or international press in order to recruit qualified consultants.
- d. **Advance contracting and recognition of expenditures:** In accordance with operational policy OP-504, the Bank may recognize up to US\$23 million as chargeable to the local counterpart contribution for the reimbursement of expenses for program activities incurred by the executing agency on or after 8 February 2012

and for a period not to exceed the 18 months prior to the approval of this operation by the Bank's Board of Executive Directors.

e. **Direct contracting:** No direct contracting is envisioned using loan proceeds.

2. **Table of thresholds:** The following table lists the thresholds according to method and category of expenditure.

Works			Goods ¹			Consulting services	
International competitive bidding	National competitive bidding	Shopping	International competitive bidding	National competitive bidding	Shopping	International publicity	Shortlist 100% national
≥ 25,000,000	< 25,000,000 and ≥ 500,000	< 500,000	≥ 5,000,000	< 500,000 and ≥ 100,000	< 100,000	≥ 200,000	< 1,000,000

3. **Major procurement processes:** The main procurements are presented in the following table.

Description	Estimated cost (US\$)	Selection method
Works		
Implementation of the State Highways Plan	1,500,000	ICB
Road works - Group I	187,299,000	ICB
Remediation of high-accident spots	5,850,000	ICB
Correction of environmental hazards	5,500,000	ICB
Road works - Group II	53,199,000	ICB
Road works - Group III	49,092,000	ICB
Consulting services		
Works supervision - Group I	12,000,000	ICB/QCBS
Engineering designs - Group II	3,500,000	ICB/QCBS
Support for DEINFRA institutional strengthening (training)	1,200,000	ICB/QBS
Works supervision - Group II	4,100,000	ICB/QCBS
Engineering designs - Group III	4,000,000	ICB/QCBS
Accounting audit	200,000	ICB/LIB
Works supervision - Group III	3,850,000	ICB/QCBS

4. **Procurement supervision:** It was agreed that all procurements financed with loan proceeds, including the selection and contracting of consultants, would be reviewed ex ante by the Bank, regardless of contract value. The supervision process may transition to ex post reviews as the operation advances.

¹ Includes nonconsulting services.

However, direct contracts and those that exceed the Bank's threshold for Brazil for international bidding, in accordance with the table in paragraph VI.2 of this document, will always be reviewed ex ante.

5. **Special provisions:** (i) COPRE will update the procurement plan on an annual basis or as required by the Bank, in order to reflect actual program execution needs and the progress achieved; (ii) in the case of the procurement of goods and nonconsulting services carried out under Law 10.520/2002 (the Electronic Auction Law), processes must be conducted using systems recognized by the Bank for this purpose (in this case, COMPRASNET or Banco do Brasil's *Licitações-e*).
6. **Records and files:** Program records and files will meet the following minimum conditions:
 - a. The files will contain original documentation filed in chronological order, stamped and numbered accordingly.
 - b. The files will be kept in a secure room for this exclusive purpose, with restricted access.
 - c. A file registry will be kept.

VII. FINANCIAL MANAGEMENT AGREEMENTS AND REQUIREMENTS

1. Programming and budget

State-level administration in Brazil is based on a structured process for the overall planning of activities, in accordance with rules governing Brazil's public sector.

DEINFRA's planning activities are carried out by the Directorate for Administration and Project Planning, which is responsible for, *inter alia*, global planning and preparation of the Multiyear Plan.

For the planning and programming of activities (works, studies, projects, etc.), DEINFRA, like other government agencies, in this case at the state level, uses the following support instruments: (i) the Multiyear Plan, which establishes the guidelines, objectives, and targets for public administration, including capital expenditures and other expenditures related to ongoing programs; (ii) the Budgetary Guidelines Law, which is an annual law establishing government targets and priorities, including capital spending allocations for the following financial year and for preparation of the annual budget law.

Santa Catarina has an Integrated Planning and Fiscal Management System (SIGEF/SC) that supports the budgetary classification of expenditures under this program.

The budget line items will be linked to the various components of the program, according to funding source.

SIGEF/SC does not yet support control of program financial execution with the level of detail required by the operation: categories and components.

The Bank will reimburse eligible program expenditures in accordance with the budget lines established and executed by the program. The 2012 budget law provides for the following

allocation of resources for the program: counterpart contribution of R\$43,212,000 million, equivalent to US\$23,259,769.62; IDB contribution of R\$75,000,000, equivalent to US\$40,370,330.50; total of R\$118,212,000, equivalent to US\$63,630,100.12. Preliminarily, these figures are consistent with the proposed investment schedule.

2. Accounting and information systems

DEINFRA uses the Financial Administration System, which is operated by the Administration, Finance, and Accounting Section of the Administrative Directorate.

This will provide the framework for activities related to program execution.

This financial administration function is performed in accordance with the rules of public administration, and the system used for this purpose is the State and Municipal Financial Administration System (SIAFEM).

The project will use the SIAFEM, which provides transparency and specific controls in the area of budget execution. This module facilitates the recording of program accounts. Accounts will be maintained on an accrual basis, and in accordance with international accounting standards. However, in order to support program execution and generate the required information and financial statements, adjustments should be expected. However, these are not yet available.

For this reason, the recommendation is to identify and adapt the computer system to allow the importation of SIAFEM data, via interface, with a view to guaranteeing the reliability of records and control over the production of program accounting and financial reports.

3. Disbursements and cash flow

The program will use the state's treasury system. Expenditure will be subject to budgetary and financial execution processes, and the information relating to its formalization within the framework of the legal rules applicable to each stage—commitment, liquidation, authorization, and payment—will be recorded in SIAFEM.

The program will operate in accordance with Bank disbursement methods, including advances of funds, based on the financial program prepared by the executing agency and presented to the Bank.

DEINFRA, acting through COPRE, will submit disbursement requests to the Bank, together with a financial plan of expenses for activities included in the annual work plan and projected cash flow for the following 120 days (disbursements every four months). At least 80% of the value of disbursements will be accounted for in the next disbursement request.

DEINFRA will deliver the initial financial plan for the program to the Bank, setting out the disbursement schedule for the entire program. The schedule may be updated annually.

Disbursements will be subject to ex post review.

4. Internal control and internal audit

DEINFRA's internal control functions are performed by the Management Control Office (CONGE). Although the functions include analysis of administrative, financial, and operational practices and decisions, and the issuance of recommendations for corrective

action to ensure principles of economy, efficiency, efficacy, legality, legitimacy, morality, and publicity, in practice there is no broadly disseminated institutionalized methodology for the systematic analysis of risk. During execution of phase IV of the Bank program, CONGE performed technical audits of program works.

Given the shortage of technical staff at DEINFRA, these technical audits are not being performed. CONGE considers them to be important and has asked management to hire technical staff in order to fulfill this function.

The IDB recommends that CONGE should be given the necessary support to perform its financial and technical audit functions, either through the official recruitment of new technical staff, or through outsourcing of technical audit activities.

5. External control and reports

Program audits will be performed by the Santa Catarina State Court of Accounts. Following consultation by DEINFRA, the Court will issue its formal consent to perform the audit function. Audit services will be performed in compliance with international audit standards and in accordance with the requirements of all parties, as agreed with the Bank.

6. Financial supervision plan

Please refer to the attached appendix. (This document will be prepared during the analysis mission.)

7. Program execution – cash flow

The proposed execution arrangements will be the same as for phase V of the Santa Catarina program. In other words, the formalization of the institutional arrangements that already exist for the previous program will remain in force for this new program. COPRE will continue to represent DEINFRA in promoting compliance with the conditions established in the loan contracts, and in maintaining a system of technical, financial, and administrative information for these programs (phase V of Santa Catarina and the current operation).

DEINFRA will prepare an annual work plan for the purpose of planning and controlling the schedule for bidding, execution, and financial needs, by source, quarterly and annually, for each program component. This plan should be delivered to the IDB prior to signature of the contract.