

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

**BOLIVIA**

**ROAD INFRASTRUCTURE PROGRAM TO SUPPORT  
DEVELOPMENT AND MANAGEMENT OF THE  
PRIMARY ROAD NETWORK I**

**(BO-L1095)**

**LOAN PROPOSAL**

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ELECTRONIC LINKS	
<b>REQUIRED</b>	
1. Annual work plan (AWP) and project execution plan (PEP)	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=39017903">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=39017903</a>
2. Monitoring and evaluation plan	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=38994981">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=38994981</a>
3. Environmental and social management report (ESMR)	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=38994871">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=38994871</a>
4. Procurement plan	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=39021534">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=39021534</a>
<b>OPTIONAL</b>	
1. Map of segment locations and map of the Primary Road Network	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=39119807">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=39119807</a>
2. Project economic evaluation	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=39019808">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=39019808</a>
3. Analysis of the operation within the framework of the Regional Integration Policy	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=38994887">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=38994887</a>
4. Government National Agenda, 2010-2015	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=38994151">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=38994151</a>
5. Study to estimate the probability of additional costs	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=39022829">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=39022829</a>
6. Institutional analysis carried out by the Italian Highway Agency	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=39018009">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=39018009</a>
7. Simplification of budget execution procedures for public investment	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=39019294">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=39019294</a>
8. Institutional Strengthening Plan	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=39022189">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=39022189</a>
9. Report on the National Weighing Plan	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=38994465">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=38994465</a>
10. Rural access index (Rural Access Index: A Key Development Indicator)	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=38991743">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=38991743</a>
11. TESA study for construction of the Nazacara–Hito IV segment	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=38994618">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=38994618</a>
12. Technical study, Achacachi–Escoma rehabilitation	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=38994735">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=38994735</a>
13. Operating Regulations	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=38998640">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=38998640</a>
14. Maintenance Program for the Primary Road Network	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=39090594">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=39090594</a>
15. Statistical Yearbook for Freight Transportation in Latin America and the Caribbean	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=39106531">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=39106531</a>

## ABBREVIATIONS

AADT	Annual average daily traffic
ABC	Administradora Boliviana de Carreteras [Bolivian Highway Administration]
COSIPLAN/IIRSA	South American Infrastructure and Planning Council of the Initiative for the Integration of South American Regional Infrastructure
GNT	Gerencia Nacional Técnica [National Technical Department]
ICB	International competitive bidding
IRR	Internal rate of return
LAC	Latin America and the Caribbean
LMS	Loan Management System, IDB
MOPSV	Ministry of Public Works, Services, and Housing
NB-SABS	Normas Básicas del Sistema de Administración de Bienes y Servicios [Basic Standards for the Goods and Services Management System]
NCB	National competitive bidding
NPV	Net present value
PND	Plan Nacional de Desarrollo [National Development Plan]
QCBS	Quality- and cost-based selection
RVF	Red Vial Fundamental [Primary Road Network]
SBDs	Standard bidding documents
SCF	Single Currency Facility
SGCT	Subgerencia de Construcción [Construction Division]
SGCV	Subgerencia Conservación Vial [Road Maintenance Division]
SGSA	Subgerencia Socio Ambiental [Socioenvironmental Division]
SICOES	Sistema de Contrataciones Estatales [Government Contracting System]
SIGEP	Sistema de Gestión Pública [Public Management System]
SIGMA	Sistema Integrado de Gestión y Modernización Administrativa [Integrated Administrative Management and Modernization System]
UDAPE	Unidad de Análisis de Políticas Sociales y Económicas [Unit for Social and Economic Policy Analysis]
VMT	Viceministerio de Transportes [Office of the Deputy Minister for Transportation]

## PROJECT SUMMARY

### BOLIVIA ROAD INFRASTRUCTURE PROGRAM TO SUPPORT DEVELOPMENT AND MANAGEMENT OF THE PRIMARY ROAD NETWORK I (BO-L1095)

Financial Terms and Conditions					
<b>Borrower:</b> Plurinational State of Bolivia			<b>Financing</b>	<b>OC</b>	<b>FSO</b>
			Amortization period:	30 years	40 years
			Disbursement period:	5 years	5 years
<b>Executing agency:</b> Bolivian Highway Administration (ABC)			Grace period:	6 years	40 years
			Interest rate:	SCF Fixed*	0.25%
<b>Source</b>	<b>Amount</b>		Inspection and supervision fee:	**	N/A
	<b>US\$</b>	<b>%</b>		**	N/A
IDB (OC)	148,400,000	80%	Credit fee:		N/A
IDB (FSO)	37,100,000	20%	Currency of approval:	SCF U.S. dollars	U.S. Dollars
Local	0	0%			
<b>Total</b>	<b>185,500,000</b>	100%			
<b>Project at a Glance</b>					
<b>Objective.</b> The program objective is to continue improving the quality and serviceability, accessibility, and safety conditions of the Primary Road Network through an increase in paved road coverage and the rehabilitation and upgrading of road corridors connecting production centers to local and foreign markets. The program will also promote improvements in public expenditure efficiency in the sector by supporting integrated road asset management. This will involve incorporating the works into road maintenance management systems, as well as developing capabilities at the Bolivian Highway Administration (ABC). The program will be financed with a global multiple-works operation.					
<b>Special contractual conditions precedent to the first disbursement:</b> (i) the program Operating Regulations will be approved and in force, including the social and environmental management framework; and (ii) a Bank-approved interagency agreement between the ABC and Vías Bolivia will be signed and in force (see paragraph 3.5).					
<b>Special contractual conditions of execution:</b> (i) prior to award of the works construction and procurement of the goods planned under subcomponent 2.1, the ABC will provide evidence to the Bank’s satisfaction that Vías Bolivia has hired and trained the staff necessary for the administration of such works and goods; (ii) prior to competitive bidding for equipment, gantries, systems, and works for the electronic toll system, the ABC will submit for the Bank’s approval a comprehensive implementation plan for the intelligent transportation system, including details of implementation phases, lots for works procurement, dissemination and communication plans, and IT architecture; (iii) prior to the solicitation for construction of each of the works, the ABC will submit the following for the Bank’s no objection: (a) the final design of the projects, approved by the ABC, including updated costs and timelines for works execution; and (b) the environmental and social analysis used to determine each project’s environmental and social eligibility, including an Involuntary Resettlement Plan (as applicable) and the outcomes of public consultations (as applicable), in accordance with the environmental and social management framework; and (iv) prior to the physical start of the works at each location identified by the executing agency, the ABC will provide the following to the Bank’s satisfaction: (a) evidence that the right of way has been secured and is 100% unencumbered; (b) a copy of the relevant environmental certifications and permits and related documents; and (c) the final version of the environmental and social management plan prepared in accordance with the environmental and social management framework, adjusted and supplemented by the supervision firm for the program, and approved by the ABC (see paragraph 3.6).					
<b>Exceptions to Bank policies:</b> None.					
<b>Project qualifies as:</b>		SEQ [X]	PTI [X]	Sector [ ]	Geographic [X]      Headcount [ ]

\* The borrower will pay interest on the outstanding balances of Ordinary Capital loan portion at a LIBOR-based rate. Once the outstanding balance reaches 25% of the net amount approved, or US\$3 million, whichever is greater, the rate will be set on the basis of that balance.

\*\* 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.

## I. DESCRIPTION AND RESULTS MONITORING

### A. Background, problem, and rationale

- 1.1 **General.** Bolivia's GDP expanded by an average of 4.8% in the 2008-2012 period. Growth of 6.8% in 2013 was the highest rate in the last 25 years. The country's economy produces commodities and agricultural/livestock products for export. Brazil and Argentina are the main destinations for the country's exports, accounting for a combined US\$5.7 billion in 2012 (more than 50% of total exports), followed by the United States and Peru.<sup>1</sup> Commodities account for just over 80% of Bolivia's export basket. Given their low value-added content, transportation costs play a crucial role in the competitiveness of these types of commodities. The weight of commodities in foreign trade, together with the country's landlocked status and size, mean that development of the road network, ensuring adequate capacity and service standards, is key for the country's economic development.<sup>2</sup>
- 1.2 Bolivia has the third lowest population density in Latin America and the Caribbean (LAC), behind Suriname and Guyana.<sup>3</sup> Not only is the country very large, but 44% of the population still lives in rural areas,<sup>4</sup> which generally have less than optimal access to means of transportation. Moreover, 45% of the population is poor (one of the highest proportions in the region),<sup>5</sup> and this percentage is exacerbated by the physical remoteness of Bolivia's rural areas.<sup>6</sup> Various studies and empirical evidence confirm the link between rural poverty and low connectivity, as well as the role of public infrastructure development in helping to reduce economic inequality in a region.<sup>7</sup> In particular, a better quality road system boosts the consumption and income of beneficiary population, spurs

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<sup>1</sup> In 2012 Bolivia exported 13.5 million tons of products to Brazil, and 6.2 million tons to Argentina. It also exports approximately 1 million tons of minerals (silver, zinc, and gold) and 1.2 million tons of soya cake. Bolivian Institute of External Trade.

<sup>2</sup> Bolivia is the leading exporter of natural gas in South America.

<sup>3</sup> Land area of 1.1 million km<sup>2</sup> and a population of 10 million (9.13 inhabitants per km<sup>2</sup>).

<sup>4</sup> The regional average is 21%. UN Population Division (2012): World Urbanization Prospects.

<sup>5</sup> Average for LAC: 34%. Economic Commission for Latin America and the Caribbean (ECLAC), 2013. Unit for Social and Economic Policy Analysis (UDAPE).

<sup>6</sup> For example, poverty stands at 80% in rural parts of the Department of La Paz. National Statistics Institute and UDAPE.

<sup>7</sup> Estache, Gomez-Lobo, and Leipziger (2000) argue that development of a country's infrastructure helps to reduce economic inequality, as long as it increases accessibility for the poor.

job creation, and helps expand the adoption of new technologies in the agricultural sector, and thus the productivity of agricultural land.<sup>8</sup>

- 1.3 Low road density, combined with the insufficient quality of the system, hinders the population's access to transportation. This is particularly the case for the rural population, which has a rural access index of 48%.<sup>9</sup> The low availability of infrastructure also affects the cost of freight transportation and creates obstacles to economic activity and integration, both nationally and with neighboring countries. The estimated cost of freight transportation in the country is US\$0.1337/MT-km, higher than the average of US\$0.091 for the Andean countries.
- 1.4 **Bolivia's road system.** As a landlocked country with a diverse topography and geographically highly dispersed population, Bolivia depends on the transportation sector, which contributes around 7% of GDP, to meet demand for products and services and to promote economic and social development. With a road system 81,000 km in length, Bolivia's road density of 0.07 km/km<sup>2</sup> is one of the lowest in LAC; the average for the region is 0.18, and for the Andean countries, 0.12. Moreover, only 7.34% of the road network is paved, well below the averages for LAC (39%) and the Andean countries (27%).
- 1.5 Bolivia's performance on the road index developed by the IDB is weak (see [optional electronic link 15](#)). This index assigns weights to four objective indicators to measure performance: (i) road network density; (ii) the proportion of paved roads within the total; (iii) highway transportation emissions; and (iv) average transportation charges. Bolivia ranks 20th out of the 21 countries with information available included in the sample. In this analysis, low road density and the low proportion of paved roads are the two main factors determining this low ranking.
- 1.6 **Primary road network.** The Red Vial Fundamental [Primary Road Network] (RVF) falls under the jurisdiction of the national government and is composed of the national routes that link the political capitals of the departments<sup>10</sup> and make international linkages possible, connecting national highways to the main routes

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<sup>8</sup> (i) Gertler, P., M. Gonzalez-Navarro, A. Rothenger, and T. Cracner (2014) "The effects of road quality on household welfare: evidence from Indonesia's highways;" (ii) Escobal, J. and C. Ponce (2004) "The benefits of rural roads: enhancing income opportunities for the rural poor;" (iii) Dercon, S., D. Gilligan, J. Hoddinott, T. Woldehanna (2008) "The impact of agricultural extension and roads on poverty and consumption growth in fifteen Ethiopian villages;" (iv) Aggarwal, S. (2013) "Do rural roads create pathways out of poverty?" A review of available evaluations and studies, particularly those relating to Peru's analogous experiences, demonstrates the validity of the proposed interventions for the Bolivian context.

<sup>9</sup> This development indicator estimates the proportion of the rural population that has adequate access to a country's transportation system. Brazil, 53%; Peru, 43%; Chile, 76%; and Ecuador, 73% ([optional electronic link 10](#)).

<sup>10</sup> Bolivia's road network is divided into three functional levels: (i) the RVF; (ii) the departmental road network administered by the departmental governments (approximately 24,500 km); and (iii) the municipal road network administered by the municipios (approximately 40,500 km).

in neighboring countries. The RVF is under the responsibility of the Bolivian Highway Administration (ABC). It measures 15,972 km in length, around 37% of which is paved, and its five corridors form the backbone of the national territory: East-West, North-South, West-North, West-South, and Central-South.

**Table 1. Primary Road Network (RVF) by Type of Surface**

(Km)	2004	2005	2006	2007	2010	2011 (*)	2012	2013
Paved	4,295	4,394	4,513	4,742	5,883	5,413	5,997	6,200
Gravel	5,583	5,845	6,455	5,805	4,051	7,232	6,998	7,243
Dirt	4,487	5,426	5,060	3,384	3,021	-	-	-
Construction **	-	-	-	2,033	2,445	2,595	2,235	1,618
Uninventoried	-	-	-	-	742	742	742	926
<b>TOTAL</b>	<b>14,365</b>	<b>15,665</b>	<b>16,028</b>	<b>15,964</b>	<b>16,142</b>	<b>15,982</b>	<b>15,972</b>	<b>15,987</b>

\* From 2011 onwards, dirt roads are classified as gravel roads.

\*\* Paved roads under construction. Data is only available for the period since the ABC was created.

- 1.7 **Institutional aspects of the sector.** The Ministry of Public Works, Services, and Housing (MOPSV) is the apex agency for the sector, and includes the Office of the Deputy Minister for Transportation (VMT). The VMT's role includes proposing policies and rules and implementing sector plans for overland, sea, river, lake, rail, and air transportation. The Bolivian Highway Administration (ABC), under the MOPSV's supervision, is an administratively autonomous agency organized and operating under public law, responsible for planning and management of the RVF.
- 1.8 The ABC defines its role in relation to the RVF as implementing both a maintenance program and an upgrading and expansion program. The maintenance program identifies several levels of intervention from routine, periodic maintenance and simple works (improvements) to more costly and complicated interventions intended to restore deteriorated parts of the road network (rehabilitation). Routine maintenance work, such as cleaning of drainages and the road surface, is performed by local microenterprises supervised by the Road Maintenance Department of the ABC. Periodic maintenance and rehabilitation are performed by private firms hired for such purpose. To finance RVF investments and maintenance,<sup>11</sup> the ABC uses funds from various sources: (i) the Cuenta Nacional de Carreteras [National Highways Account] (CNC), which takes in

<sup>11</sup> According to the Framework Plan for Road Maintenance, an annual budget of US\$100 million is required to properly maintain the RVF ([optional electronic link 14](#)).



revenue from tolls and the excise tax on hydrocarbons and derivatives (see paragraph 2.7); (ii) the National Treasury; and (iii) external financing.<sup>12</sup>

- 1.9 Vías Bolivia, a public entity, is responsible for managing toll collection and vehicle weight and size inspection systems on the RVF. It administers 123 toll plazas and 17 vehicle weight and size inspection stations, only 7 of which are certified to impose fines. In 2013, Vías Bolivia transferred US\$47.3 million to the CNC, equivalent to 83% of its revenue intake.
- 1.10 Budget execution by the ABC has risen from US\$324 million in 2006 to more than US\$788 million in 2014.<sup>13</sup> Yet this increase has not been accompanied by a strengthening of internal processes or development of capabilities in keeping with its functions. In the period to 2014, the ABC has overseen the construction of 2,737 km of roads and the maintenance of 80% of the RVF. Since 2005, investment has risen by 561%, while staffing at the ABC has grown by only 13%; this state of affairs creates problems for the management, maintenance, and administration of the road network. The ABC's technical and administrative capabilities need to be developed and improved, to support the comprehensive management of Bolivia's road assets.<sup>14</sup>
- 1.11 **Road safety.** Traffic accidents rose steadily (by almost 30%) over the 2009-2013 period in Bolivia, reaching 22.1 fatalities per 100,000 inhabitants, above the LAC average of 17.2.<sup>15</sup> The Office of the Deputy Minister for Citizen Security at the Ministry of the Interior is leading the effort, now getting under way, to address the problem of road safety, and is spearheading development of the National Road Safety Plan in coordination with other ministries and agencies. The country has no system for the management and monitoring of traffic accidents that enables blackspots on the network to be identified and analyzed.
- 1.12 **Identification of the problem.** Bolivia's geographical position is such that South American Infrastructure and Planning Council of the Initiative for the Integration of South American Regional Infrastructure (COSIPLAN/IIRSA) has made top priorities of most of the RVF road segments. Although the country has stepped up

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<sup>12</sup> Government policy is for the first level of intervention (routine and periodic maintenance) to be financed with internally generated resources. The program of upgrading and widening seeks to rebuild roads where the pavement has deteriorated to the point that it cannot be restored through rehabilitation activities, as well as to extend the road's useful life as long as possible before the road surface needs to be changed (from dirt or surfaced to paved roads). It also includes paving and capacity expansion for key segments.

<sup>13</sup> Sixty-eight percent of funds executed for investment were provided by the Bank, the CAF, and other bilateral and multilateral lenders.

<sup>14</sup> Foreseeing this situation, tools have been developed since 2007 under the Performance-Based Road Maintenance Program (loan 1940/BL-BO) to consolidate a management system for the Road Maintenance Department and optimize resources and contracting models for road maintenance (see paragraph 2.7).

<sup>15</sup> IDB. "Avances en seguridad vial en América Latina y el Caribe 2010-2013" [Advances in road safety in Latin America and the Caribbean 2010-2013].

its net investment in improving and updating its road network, it still needs to continue improving the percentage of the RVF that is paved and in good condition. This takes on even more importance given that highways are the main mode of freight transportation for the country's external trade (see [optional electronic link 3](#)). Around 95% of goods consumed domestically and 59% of those exported move over the road.<sup>16</sup> Nonetheless, the low coverage of the paved network and limited accessibility at the municipal level mean that freight shipping costs are between 2 and 20 times higher than in neighboring countries, affecting both domestic trade and exports.<sup>17</sup> Agriculture is the second most important source of export earnings for the country, and has historically been held back by the poor quality of supporting road infrastructure.

- 1.13 At the same time, given the increase in public investment in the sector, maintenance and integrated management needs for the network managed by the ABC have also expanded. These needs include: (i) update of the sector capabilities of technical staff and improvements in road asset management and maintenance systems; (ii) prioritization of projects based on integrated planning criteria, and systematic monitoring of the network condition; (iii) development of unit pricing information systems for road works; and (iv) improvements in socioenvironmental capabilities. There are not enough vehicle weight and size inspection stations to cover the RVF. The inspection station infrastructure is inadequate, and there is a lack of equipment for mobile inspections.<sup>18</sup>
- 1.14 The main problems affecting highway transportation in Bolivia are as follows: (i) the low density and availability of road infrastructure in good condition, which affects accessibility to/from the various rural producing areas, raises transportation costs, and creates road safety problems, with a negative impact on the country's economy; (ii) weaknesses in institutional capacity to coordinate integrated road asset management, which create inefficiencies in maintenance processes and low revenue intake for weight violations, contributing to the accelerated deterioration of the capital assets; and (iii) limited overland connections with neighboring countries, which also fail to meet international standards for the safe and efficient transportation of passengers and freight.

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<sup>16</sup> "Perfiles de infraestructura y transporte en América Latina: caso Bolivia" [Infrastructure and transportation profiles for Latin America: the Bolivian case]. Economic Commission for Latin America and the Caribbean (ECLAC), 2012.

<sup>17</sup> Ministry of Development Planning, Plan Nacional de Desarrollo [National Development Plan], 2007-2010.

<sup>18</sup> In 2013, 843 special overweight permits and 8,703 oversize permits (weight undetermined) were issued, and in the Department of Santa Cruz, 222 special overweight permits were issued between January and April 2014—a major factor in the accelerated deterioration of the road surface. It is estimated that the damage caused to pavement by a 36-ton semitrailer is equivalent to 9,523 cars, an effect that is exacerbated at harvest time given the large volume of heavy vehicles carrying soya and minerals. For more information on the weight control system in Bolivia, see the National Weighing Plan ([optional electronic link 9](#)).

- 1.15 **The country's strategy.** The National Development Plan (PND) and the Government National Agenda, 2010-2015 set out a public policy framework to ensure stronger growth through productivity and competitiveness gains and greater social equity through poverty reduction. Actions under the PND are grouped around four core pillars.<sup>19</sup> In terms of production, the PND focuses on support to several strategic sectors in the economy, including transportation, and emphasizes the new role of the State as a central protagonist in its development. The strategy established in the Government National Agenda defines actions in the road sector in terms of (i) integration of the capitals of the country's departments via paved routes; (ii) development of integration corridors that improve Bolivia's links with neighboring countries and the rest of the world; (iii) prioritization of connectivity with border areas as part of national and international territorial integration; and (iv) improvements in road infrastructure and competitiveness gains in producing areas.
- 1.16 **Strategic alignment.** The program is aligned with the ABC's Institutional Strategic Plan for 2011-2014, in that it includes projects for maintenance and progressive upgrading of the RVF, as well as for strategic improvements in institutional capacity and road asset management. This operation is also consistent with the Bank's country strategy with Bolivia (document GN-2631-1), which was developed in accordance with the national priorities reflected in the PND and the Government National Agenda (see paragraph 1.15), and identifies transportation is one of seven areas for cooperation. The Transportation Sector Note, which accompanies document GN-2631-1, proposes the following actions: (i) inventories of the departmental and municipal networks; (ii) ensuring the allocation of funds for maintenance and investment costs; (iii) building out the RVF corridors by investing in upgrades of a number of segments; (iv) road safety, promoting better safety conditions for both users of roads and the inhabitants of the communities they serve; and (v) weight and size control, to avoid the premature deterioration of roads.
- 1.17 **Alignment with lending targets.** The program will contribute to the lending program priority targets under the Ninth General Increase in the Resources of the Inter-American Development Bank (document AB-2764) related to: (i) lending to support development of small and vulnerable countries; (ii) lending to support regional cooperation and integration; and (iii) lending poverty reduction and equity enhancement operations, through the upgrading and rehabilitation of infrastructure and support for regional integration initiatives (document GN-2733). The program will contribute to improved access to external markets

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<sup>19</sup> The PND identifies the transportation sector as driver of economic growth, but also acknowledges its structural weaknesses and the need for intervention in relation to all modes of transportation. Accordingly, the PND promotes increased road investment to improve the country's internal linkages and external integration, recognizing its effectiveness in incorporating the population into productive activities, markets, and services, and in enhancing strategic, competitive access of its goods to export markets.

for Bolivia's agricultural produce, as well as improved accessibility for the rural population and producers to/from low-income and disadvantaged areas. It will also support regional integration by financing road segments that link internationally to Peru. Additionally, on this point, it is also important to note that the five corridors comprising Bolivia's RVF (see paragraph 1.6) perform an integration role, with many segments included in the COSIPLAN/IIRSA portfolio.

- 1.18 In addition, the program output of approximately 300 kilometers of interurban roads built, maintained, or upgraded, as stated in the Results Matrix, will contribute to the regional target for paved road coverage (km/km<sup>2</sup>). The program is also aligned with the IDB Infrastructure Strategy, "Sustainable Infrastructure for Competitiveness and Inclusive Growth" (document GN-2710-5), as it contributes to the following strategic principles: (i) financing and technical assistance for infrastructure that supports economic growth, provides access, and fosters regional and global integration; and (ii) planning, building, and maintaining infrastructure for the delivery of quality services that promote sustainable and inclusive growth. The program is also aligned with the Transportation Sector Framework Document (document GN-2740-3) in that it contributes to (i) an increase and improvement in the coverage, quality, capacity, and connectivity of transportation networks; and (ii) institutional development in the transportation sector, through intervention in the RVF and investment in capacity development at the ABC.
- 1.19 **Sector knowledge and lessons learned.** The Bank has provided support to the road sector through active participation in the administration, design, and financing of numerous transportation projects, resulting in the accumulation of very precise sector knowledge and experience.<sup>20</sup> The following are the key lessons learned from road projects: (i) the importance of having complete engineering studies and updated designs (see paragraph 3.6); (ii) the need to support institutionalization processes at road sector agencies; (iii) the need to prioritize investment in road maintenance and strengthen its management (see paragraph 1.25); (iv) that operations should have the smallest possible number of components, to facilitate execution and meet objectives within the planned time frame; and (v) the need to define precise targets and outcome indicators. These lessons have been fully integrated into the design of this operation.
- 1.20 The program builds on past and current portfolio operations to improve and expand the RVF by developing integrated road asset management capabilities, improving and developing tools for the monitoring and control of environmental performance, updating the road inventory, and financing intelligent transportation systems including electronic toll plazas and scales for weight and size control.

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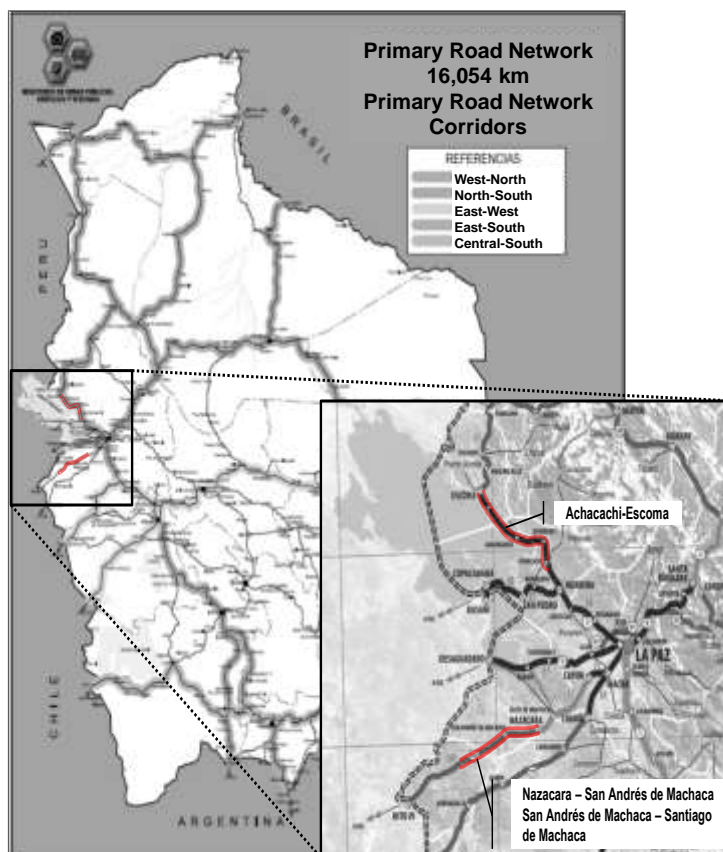
<sup>20</sup> Since 1990, the Bank has financed 39 operations and technical cooperation projects related to Bolivia's transportation sector (15 of them now in execution), for a total approved value of US\$825 million.

**B. Objectives, components, and cost**

- 1.21 The program objective is to continue improving the quality and serviceability, accessibility, and safety conditions of the Primary Road Network through an increase in paved road coverage and the rehabilitation and upgrading of road corridors connecting production centers to local and foreign markets. The program will also promote improvements in public expenditure efficiency in the sector by supporting integrated road asset management. This will involve incorporating the works into road maintenance management systems, as well as developing capabilities at the Bolivian Highway Administration (ABC).
- 1.22 To address the problems identified (see paragraphs 1.12 to 1.14), actions under the program are structured into three specific components: (i) improving the physical condition of road infrastructure; (ii) improving integrated road asset management; and (iii) developing the ABC's capacity to manage its growing project portfolio.
- 1.23 **Component 1. Civil works and road safety (US\$144.91 million).** This component includes the construction, widening, rehabilitation, and upgrading of RVF corridors that meet eligibility conditions (see paragraph 1.35), as well as performance-based maintenance and works supervision and inspection. It will also include actions necessary to improve road safety, including signs and markings, bypasses for urban areas, and upgrading of pedestrian crossings. Socioenvironmental mitigation activities will also be included alongside the works where necessary.
- 1.24 **Subcomponent 1.1. Upgrading, paving, and widening works.** Includes works for the construction, upgrading, and/or widening of priority segments of the RVF. All segments targeted under this subcomponent are expected to be added to the ongoing road management system for routine maintenance (see paragraph 1.8).
- 1.25 **Subcomponent 1.2. Rehabilitation and maintenance works.** Includes rehabilitation and/or maintenance works for priority segments of the RVF. Indicator-based maintenance involves execution of the rehabilitation and maintenance works (routine, periodic, and/or emergency) necessary to attain and maintain predetermined condition standards. It also includes works to build, improve, and upgrade toll and weigh stations.

- 1.26 **Subcomponent 1.3. Road safety and signage.** This subcomponent will finance investment in road safety measures on the targeted RVF segments, including road signs and pavement markings, upgrading of pedestrian crossings, and installation of speed reduction devices on municipal access roads. These measures will enhance safety levels for all road users. The ABC will also develop a database to record and classify accidents for a future program of interventions for accident blackspots.

Figure 1. Map of the location of sample segments



- 1.27 **Representative sample of projects.** For preparation and evaluation of the program, works corresponding to the Achacachi-Escoma highway (rehabilitation and standards-based maintenance, 76.1 km) and the San Andrés de Machaca-Santiago de Macahaca highway (upgrading and paving, 32.7 km) were selected from a list of potentially eligible projects. The first is part of RVF Route 16 and is located in the western part of Bolivia in the provinces of Omasuyos and Camacho. It forms part of the West-North corridor and links rural communities in the north of La Paz with markets and supply centers. This segment is the continuation of the Huarina-Achacachi segment, where works to widen the road are being financed with treasury funds. The second, belonging to RVF Route 43, is also located in the western part of Bolivia, in the provinces of Ingavi and Jose Manuel Pando. It is part of the East-West corridor that links Peru to Bolivia; given its proximity to the border, the segment directly affects the border crossing between the two countries. Construction of the preceding segment, Chama-Nazacara, is being financed by the Development Bank of Latin America (CAF) (see Figure 1). The characteristics of this sample of projects are representative of the technical, environmental, and social features of the potential universe of projects that make up the program. The feasibility studies and project designs have been finalized. The estimated cost of these projects is equivalent to 43% of the total investment amount for works under the program.

- 1.28 **Component 2. Integrated road asset management program (US\$12.82 million).** This component will support the development and consolidation of a modern, sustainable management system for RVF maintenance and management and will finance the following activities:
- 1.29 **Subcomponent 2.1. Development of an intelligent transportation system.** This subcomponent will finance a comprehensive implementation plan for toll and weigh stations along the Bioceanic Corridor (the East-West corridor of the RVF linking Brazil to Chile), including the procurement of scales; devices for electronic tolls and weight and size control; mechanisms for communication between toll and weigh stations; gantries and associated equipment; and the development of weight and size control protocols, with the objective of improving maintenance practices for road assets.
- 1.30 **Subcomponent 2.2. Development of road management systems.** This subcomponent will include: (i) financing of the road inventory, supporting the development and implementation of a system for the ongoing assessment of pavement condition, through the procurement of hardware and software, systems development, and the hiring and training of the technical staff necessary to inventory, classify, and manage the RVF; and (ii) design and implementation of a pavement management system.
- 1.31 **Component 3. Capacity development program for the Bolivian Highway Administration (US\$3.2 million).** This component will support the ABC's capabilities to manage its growing execution portfolio, as well as the integrated management of road assets, with the objective of optimizing and updating management processes. The ABC's areas of competence will be updated under this component, with the strengthening of policy, administrative, technical, road safety, environmental, and social areas. The updating of capabilities will be supported through the procurement of services, equipment, and vehicles, the development of management systems, and other actions.
- 1.32 This component will strengthen technical staffing in the various ABC departments by hiring new consultants and training existing staff at the national level. It will institute new systems for project control and execution, supported by computer software and hardware developed to cover specific needs. It will also support the Socioenvironmental Division with respect to: (i) review and drafting processes for regulatory instruments of specific scope; (ii) development and implementation of a monitoring and control system for road project socioenvironmental performance; and (iii) training in involuntary resettlement issues. The component will also strengthen the Construction Division by developing an information system for the analysis of unit pricing in road works. Strengthening of the National Technical Department will include implementation of an institutional integrated system and strengthening of project management and administration capabilities.

- 1.33 **Management, administration, and supervision (US\$12.81 million).** This component will finance: (i) program administration, consisting of technical support for execution and fiduciary management, financial and procurement audits,<sup>21</sup> and the results monitoring and evaluation activities included in the project monitoring and evaluation plan ([required electronic link 2](#)); and (ii) works supervision and inspection and procurement of required equipment and vehicles, as well as the team responsible for securing the right of way, the loss compensation program, and program dissemination and visibility.
- 1.34 **Cost and financing.** The total cost of the Bank-financed global multiple-works operation will be US\$185.5 million. Table 2 shows the costs broken down by category:

**Table 2. Cost and Financing  
(US\$ million)**

Category		IDB	%
<b>1</b>	<b>Civil works and road safety</b>	<b>144.91</b>	<b>78.1</b>
1.1	Upgrading, paving, and widening works	28.20	15.2
1.2	Rehabilitation and maintenance works	112.64	60.7
1.3	Road safety and signage	4.08	2.2
<b>2</b>	<b>Integrated road asset management program</b>	<b>12.82</b>	<b>6.9</b>
2.1	Development of an intelligent transportation system	8.17	4.4
2.2	Development of road management systems	4.65	2.5
<b>3</b>	<b>Capacity development program for the ABC</b>	<b>3.2</b>	<b>1.7</b>
	<b>Program management, administration, and supervision</b>	<b>12.81</b>	<b>6.9</b>
	Audit, monitoring, and evaluation	0.20	0.1
	<b>Contingencies and cost escalation</b>	<b>11.56</b>	<b>6.2</b>
	<b>Total</b>	<b>185.50</b>	<b>100.0</b>

- 1.35 **Eligibility criteria.** For those projects under Component 1 not included in the representative sample (see paragraph 1.27), the selection criteria for financing with program resources will be as follows: (i) they must be part of the RVF, thus ensuring the development and upgrading of this network; (ii) they must improve both accessibility within the country and international integration by linking departmental capitals together and producing areas with border crossings, and by making poor rural areas more accessible; (iii) they must meet technical, environmental,<sup>22</sup> and social feasibility standards; (iv) they must generate an economic return of 12% or more (as measured by the economic internal rate of

<sup>21</sup> From 2015 onward, external audit will encompass procurement management (contract selection and execution), in addition to the financial management of IDB-financed resources.

<sup>22</sup> Works classified as environmental category “B” or “C” that meet the environmental and social requirements set in the environmental and social management framework (see paragraph 3.5) will be eligible for financing under the program.



- return), as shown in the case of the sample projects; and (v) where necessary, evidence must be provided that counterpart resources are available.<sup>23</sup>
- 1.36 **Program beneficiaries.** The program beneficiaries will be individuals who use the roads<sup>24</sup> and/or live in neighboring communities, as well as users of freight transportation services and other logistics chain operators. In general, the segments belonging to the representative sample serve municipios with high rates of poverty (92%, well above the averages of 66% for the Department of La Paz and 58% for the country as a whole).<sup>25</sup> By ensuring greater reliability and predictability in overland transportation, the intervention will not only contribute directly to improvements in operating times and costs (making the country's producers more competitive), it will also address an important benefit for households with access to markets and services, thus improving their quality of life.
- 1.37 **Technical and economic evaluation.** Preliminary designs for the paving and rehabilitation works have been prepared by the ABC with the support of specialized consulting firms. (Final designs will be prepared by the contractor.) These provide adequate technical solutions and construction cost estimates consistent with those prevailing in the local market.
- 1.38 An economic evaluation was done of the investments in rehabilitation and paving of the representative sample, in the larger context of the road system, using the consumer surplus method. The benefits generated by the intervention were quantified and compared to an alternative base case scenario for a 15-year period, using the HDM-4 (Highway Development and Management Model) adapted to local conditions. Estimates were made of savings from lower vehicle operating costs, shorter travel times, and fewer accidents. Indicators of economic return were determined for each of the segments in the representative sample, based on the aforementioned costs and benefits and using a 12% discount rate. Table 3 summarizes the results of this analysis, which show that all of the projects generate returns in excess of the discount rate used. The sensitivity analysis carried out for different scenarios also shows that the economic rate of return for each segment remains above 12% even when costs rise by 20% and/or benefits are reduced by the same percentage. See [optional electronic link 2](#) for a more

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<sup>23</sup> Where counterpart financing by the departments is necessary, the executing agency will provide evidence that an agreement has been signed between the executing agency and the beneficiary department, together with a certification issued by the relevant authority that the local counterpart resources are available.

<sup>24</sup> Each segment in the sample will have annual average daily traffic (AADT) of 850 vehicles, once the works have been completed.

<sup>25</sup> The representative sample includes the following municipios in the Department of La Paz, with a total population of 226,321 people: Achacachi, Ancoraimes, Puerto Acosta, Mocomoco, Puerto Carabuco, Viacha, Guaqui, Tiahuanacu, Desaguadero, San Andrés de Machaca, Santiago de Machaca, and Catacora. Ninety-two percent of this population is poor under the criterion of unmet basic needs. The rate of extreme poverty is 63% in the representative sample, 42% in La Paz, and 40% at the national level. Compendium of Municipal Statistics, UDAPE, based on the 2001 Census.

detailed explanation of the assumptions and methodologies used in the calculation of costs and benefits.

**Table 3. Results of the Cost-Benefit and Sensitivity Analyses**

Segment	AADT 2013	Length (km)	Investment cost (US\$ million)	ENPV (US\$ million)	EIRR (%)			
					Base case	+20% investment cost	-20% benefits	+20% investment cost; -20% benefits
Achacachi–Escoma	1,393	76.08	41.35	17,965	20.0	17.70	17.23	15.00
Santiago–San Andrés	667	32.7	38.5	17,180	25.1	21.81	21.11	18.18

- 1.39 With respect to the capacity development component, a cost effectiveness analysis was done using least cost criteria applied to effective performance indicators, identified according to the ABC’s improvement and development needs in the area of institutional capacity. The results indicate that cost effectiveness is reduced by a factor of 4.4 per project between the condition “without the project” and the condition “with the project” (from US\$53,000 to US\$12,000), based on a 5% reduction in the efficiency cost of projects owing to improved control, review, and study processes, calculated for new paving and future rehabilitation projects according to the ABC’s targets under the alternative “with the project” (see [optional electronic link 2](#)). In the case of the road asset management component, a detailed evaluation was carried out of the current situation (without the project) and the situation with the project, with detailed calculations of revenues and operating and maintenance costs under both conditions. The benefits of project investments in toll and weigh stations were analyzed, taking into account lower maintenance needs and increased revenue intake stemming from reduced evasion. The result was an economic net present value (ENPV) of US\$117.8 million.

## C. Results framework

- 1.40 The main expected outcomes that will contribute to improving the level of service to RVF users are: (i) shorter travel times; (ii) lower annual vehicle operating costs; (iii) better management and preservation of road assets; and (iv) fewer traffic accidents. Outcome indicators will be measured directly or indirectly based on the methodologies to be selected (see “Monitoring and evaluation plan,” [required electronic link 2](#)). These measurements and/or estimates will be compared to the projections made in the results matrix of the progress monitoring report ([Annex II](#)).

## II. FINANCING STRUCTURE AND MAIN RISKS

### A. Financing instrument

- 2.1 The global multiple-works operation involves the financing of similar but independent projects. A representative sample of projects has been selected (see

paragraphs 1.27 to 1.35). The physical start of all works must be within two years of the loan contract's entry into force. The Bank financing will total US\$185.5 million, drawn from the Ordinary Capital and the Fund for Special Operations in a proportion of 80% and 20%, respectively. The planned execution period is five years, running from the loan contract's entry into force:

**Table 4. Projected Disbursement Schedule**

<b>Year</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Total</b>
Amount (US\$000)	35.06	37.84	44.15	39.70	28.75	185.5
Percentage	18.9	20.4	23.8	21.4	15.5	100

## **B. Environmental and social safeguard risks**

- 2.2 The program has been classified as category "B" in terms of its environmental and social impact, in accordance with the requirements of the Bank's Environment and Safeguards Compliance Policy (Operational Policy OP-703) ([required electronic link 3](#)). In addition to the Bank's policies, the program also complies with Bolivia's environmental laws and regulations. Generally, the planned interventions have no socioenvironmental impacts beyond the usual ones for this type of works. These are mostly temporary and limited to the immediate surroundings, the areas from which materials are sourced, work camps, and asphalt plants. As the works target pre-existing routes, most will occur within existing rights of way. Compensation for losses may be required, but little or no involuntary resettlement. The key points of the environmental and social studies and plans are summarized in the environmental and social management report (ESMR) ([required electronic link 3](#)).
- 2.3 The environmental and social evaluation reports for the projects in the representative sample were reviewed, in particular, and it was found that the direct, indirect, cumulative, and regional impacts had been appropriately identified and analyzed, and that the proposed mitigation and monitoring measures are adequate to comply with the Bank's environmental and social policies, especially as they relate to the quantity and quality of information, implementation capacity, costs, definition of responsible parties, timelines, and quality control, specifically the plans and programs stipulated by Bolivia's environmental authorities. The program made recommendations for supplementing the environmental and social analysis prior to competitive bidding for the works. Program execution will be consistent with the environmental and social management framework, the implementation of which will ensure that the projects are consistent with Bank policies (see paragraph 3.4).
- 2.4 **Gender aspects of the operation.** In accordance with Operational Policy OP-761 on Gender Equality in Development, this operation will include the following actions: (i) events will be organized as part of the public consultation process to ensure the participation of men and women, and women's participation will be

encouraged, seeking to hear their specific needs and explain the benefits to be provided to their community by the project; (ii) in cases of involuntary resettlement, the Involuntary Resettlement Plans will contribute to the economic empowerment of women by designing equitable economic recovery and compensation measures and allowing new dwellings to be titled to female heads of household, or jointly to women and their partners; (iii) any barriers to the equitable participation of women and men will be eliminated from the bidding documents; and (iv) insofar as possible, women's participation will continue to be encouraged in routine maintenance microenterprises.

### **C. Fiduciary risks**

- 2.5 Given the ABC's experience in the execution of road projects and programs, no significant problems are anticipated in project launch. However, a risk assessment matrix was prepared during program preparation that identified "medium" risks, for which mitigation actions have been proposed. These actions will be implemented by the executing agency, with the support of the project team for their verification and compliance. Of particular note are the development risks, such as difficulties in accessing borrow pits for works construction, issues related to public management and governance, and a lack of coordination among participating stakeholders and its impact on management of the operation. To mitigate these risks, strengthening of the ABC's Socioenvironmental Division is planned, as well as the creation of agreements and levels of interagency coordination between ABC departmental and ABC municipal, training and monitoring workshops, and the use of project management tools (PM4R), among other things.
- 2.6 The decentralized fiduciary team will also be strengthened to ensure effective contract management and supervision by the regional offices, with the objective of making processes more efficient. This recommendation is consistent with the findings and recommendations of the diagnostic assessment "Simplification of budget execution procedures for public investment in Bolivia" ([optional electronic link 7](#)), which indicates the need to design and update the ABC's operational process flows, prepare fiduciary manuals and guides, develop computerized management systems that are integrated with accounting systems, and other tasks.

### **D. Other key issues**

- 2.7 **Sustainability of investments.** Once the works under the rehabilitation and upgrading subcomponent are completed, these will form part of a standard-based maintenance contract that will ensure the sustainability of the results obtained. For the upgrading, paving, and widening subcomponent, Vías Bolivia will be responsible for these works under the ABC's Road Maintenance Program. This program is supported by CNC funds for maintenance of the RVF, and it follows the criteria set out in the ABC's maintenance manual, which will continue to be used, once the works have been completed.

- 2.8 To reduce the risk of incremental costs in the representative sample, the “TESA” technical, economic, social, and environmental study ([optional electronic link 11](#)) and the technical rehabilitation study ([optional electronic link 12](#)) (both prepared by consultants contracted by the ABC) were reviewed, and the necessary adjustments made to the program budget. In addition, as a condition precedent to competitive bidding for the works, the executing agency will submit the final design of the projects, approved by the ABC, to the Bank for acceptance (see paragraph 3.6), together with the technical agreements, including the supplemented final design for the San Andrés–Santiago de Machaca and Achacachi–Escoma segment, with the agreed technical content. This will reduce the likelihood that (i) the bids received will exceed the estimated budget; (ii) there will be substantial changes in the works design and/or quantities during construction; and (iii) the construction process will be delayed by contractor claims or alterations to the designs and/or increases in quantities, resulting in cost escalation due to extensions of the works and supervision contracts.
- 2.9 A study was also done to estimate the probability of incremental costs, using a Montecarlo simulation ([optional electronic link 5](#)). The results indicate that, with 90% probability, the incremental costs would be no higher than 13% of the value of the works. This includes a price update prior to solicitation, price escalation during construction, and incremental costs of works. The cost table includes these values.

### III. IMPLEMENTATION AND MANAGEMENT PLAN

#### A. Summary of implementation arrangements

- 3.1 **Borrower and executing agency.** The borrower will be the Plurinational State of Bolivia. The executing agency will be the Bolivian Highway Administration (ABC), an administratively autonomous agency under the supervision of the Ministry of Public Works, Services, and Housing (MOPSV). The organizational structure encompasses an Executive Board and departments responsible for operations, control, and coordination. Administration is supported by three national-level departments: (i) the National Technical Department, which supervises the Construction Division (SGC), the Road Maintenance Division (SGCV), and the Socioenvironmental Division (SGSA); (ii) the National Financial and Administrative Department (GNAF), which consists of the Financial Division and the Administrative Division; and (iii) the National Legal Department, with its Legal Division. There is also a deconcentrated level comprised of regional offices for each of the country’s nine departments.
- 3.2 **Execution mechanism.** The project will be executed by the ABC, which will be responsible for: (i) programming of works and services to be contracted; (ii) preparation of bidding documents; (iii) competitive bidding processes; (iv) contracting processes; and (v) inspection and administration of the paving,

- rehabilitation, and maintenance works and ensuring compliance with all socioenvironmental specifications and management plans.
- 3.3 In terms of fiduciary control, the ABC, acting through the Financial and Administrative Department (GNAF), will be responsible for (i) implementation and maintenance of effective systems for contract administration, accounting/financial administration, and internal control, consistent with Bank requirements; (ii) timely submission of disbursement requests and supporting documentation for eligible expenditures; (iii) preparation and presentation of six-monthly financial reports on the status and use of funds provided in the form of advances, and other required reports; (iv) maintenance of an exclusive bank account for management of Bank resources, separate from other sources, and use of the IDB's integrated financial administration system; (v) maintenance of an effective record-keeping system for supporting documentation for eligible expenditures; (vi) timely delivery of the audited financial statements for the program; and (vii) all information of a public nature relate to project execution kept up to date on the entity's website.
- 3.4 **Program Operating Regulations.** The program Operating Regulations is an operational tool that describes the technical procedures and criteria for program execution, as well as the environmental and social framework. They will also include the eligibility criteria for projects to be financed with the program resources (see paragraph 1.35).
- 3.5 **As special contractual conditions precedent to the first disbursement: (i) the program Operating Regulations will be approved and in force, including the social and environmental management framework (see paragraph 3.4); and (ii) a Bank-approved interagency agreement between the ABC and Vías Bolivia will be signed and in force.**
- 3.6 As special contractual conditions of execution: (i) prior to award of the works construction and procurement of the goods planned under subcomponent 2.1, the ABC will provide evidence to the Bank's satisfaction that Vías Bolivia has hired and trained the staff necessary for the administration of such works and goods (see paragraph 1.28); (ii) prior to competitive bidding for equipment, gantries, systems, and works for the electronic toll system, the ABC will submit for the Bank's approval a comprehensive implementation plan for the intelligent transportation system, including details of implementation phases, lots for works procurement, dissemination and communication plans, and IT architecture (see paragraph 1.28); (iii) prior to the solicitation for construction of each of the works, the ABC will submit the following for the Bank's no objection: (a) the final design of the projects, approved by the ABC, including updated costs and timelines for works execution (see paragraph 2.8); and (b) the environmental and social analysis used to determine each project's environmental and social eligibility, including an Involuntary Resettlement Plan (as applicable) and the outcomes of public consultations (as applicable), in accordance with the environmental and social management framework; and (iv) prior to the physical

start of the works at each location identified by the executing agency, the ABC will provide the following to the Bank's satisfaction: (a) evidence that the right of way has been secured and is 100% unencumbered; (b) a copy of the relevant environmental certifications and permits and related documents; and (c) the final version of the environmental and social management plan prepared in accordance with the environmental and social management framework, adjusted and supplemented by the supervision firm for the program, and approved by the ABC (see paragraph 2.2).

- 3.7 **Procurement.** Procurement will be conducted in accordance with policies documents GN-2349-9 and GN-2350-9. Procurement supervision will be based on the relevant procurement plan. Procurement processes for goods, nonconsulting services, and works in amounts below the thresholds for national competitive bidding will be subject to ex post review, as will contracts with individual consultants or consulting firms below US\$200,000. These thresholds may be raised subsequently based on the institutional capacity update.
- 3.8 **Disbursements.** The loan will be disbursed under the advance of funds modality. The frequency of advances will be determined as a function of the project's financial programming, which will be updated periodically by the ABC. The Bank may make a new advance of funds once justification has been provided for at least 80% of the total funds disbursed as advances. The financial review of disbursement requests will be conducted on an ex post basis.

**B. Summary of monitoring arrangements**

- 3.9 The program's monitoring and evaluation arrangements are based on a "before and after" analysis, which will evaluate the change in output and outcome indicators before and after program implementation. An ex post economic analysis will also be performed. Program monitoring arrangements will involve inspection visits, administration missions, six-monthly status reports, annual external audits, and a final report to assess outcomes, as described in the monitoring and evaluation plan ([required electronic link 2](#)). The project financial statements and eligibility of expenditures will be audited annually by an independent audit firm acceptable to the Bank, which will be engaged by the executing agency. Audit services will be financed with the loan proceeds. The program's audited financial statements will be delivered to the IDB no later than four months after the close of each fiscal year of the entity, in accordance with the procedures and terms of reference previously agreed upon with the Bank.

**C. Activities post-approval**

- 3.10 To ensure the smooth performance of program execution, the following needs are envisaged: (i) support for the technical aspects of the bidding process for works; (ii) assistance to the ABC in meeting the contractual conditions precedent to the first disbursement; and (iii) strengthening of the dialogue with the Peruvian authorities for development of the Tacna–Collpa corridor on the border with Bolivia.



Development Effectiveness Matrix				
Summary				
I. Strategic Alignment				
1. IDB Strategic Development Objectives		Aligned		
Lending Program		i) Lending to small and vulnerable countries; ii) Lending for poverty reduction and equity enhancement; and iii) Lending to support regional cooperation and integration.		
Regional Development Goals		Paved road coverage (km/km2).		
Bank Output Contribution (as defined in Results Framework of IDB-9)		i) Km of inter-urban roads built or maintained/upgraded; and ii) Number of cross border and transnational projects supported.		
2. Country Strategy Development Objectives		Aligned		
Country Strategy Results Matrix		GN-2631-1	i) Improve the coverage of paved roads; and ii) Improve the RVF applying best maintenance standards.	
Country Program Results Matrix		GN-2756-2	The intervention is included in the 2014 Operational Program.	
Relevance of this project to country development challenges (If not aligned to country strategy or country program)				
II. Development Outcomes - Evaluability		Evaluable	Weight	Maximum Score
		8.8		10
3. Evidence-based Assessment & Solution		10.0	33.33%	10
3.1 Program Diagnosis		3.0		
3.2 Proposed Interventions or Solutions		4.0		
3.3 Results Matrix Quality		3.0		
4. Ex ante Economic Analysis		8.8	33.33%	10
4.1 The program has an ERR/NPV, a Cost-Effectiveness Analysis or a General Economic Analysis		4.0		
4.2 Identified and Quantified Benefits		2.4		
4.3 Identified and Quantified Costs		1.5		
4.4 Reasonable Assumptions		1.5		
4.5 Sensitivity Analysis		0.0		
5. Monitoring and Evaluation		7.5	33.33%	10
5.1 Monitoring Mechanisms		2.5		
5.2 Evaluation Plan		5.0		
III. Risks & Mitigation Monitoring Matrix				
Overall risks rate = magnitude of risks*likelihood		Medium		
Identified risks have been rated for magnitude and likelihood		Yes		
Mitigation measures have been identified for major risks		Yes		
Mitigation measures have indicators for tracking their implementation		Yes		
Environmental & social risk classification		B		
IV. IDB's Role - Additionality				
The project relies on the use of country systems				
Fiduciary (VPC/PDP Criteria)		Yes	Financial Management: Budget and Treasury	
Non-Fiduciary				
The IDB's involvement promotes improvements of the intended beneficiaries and/or public sector entity in the following dimensions:				
Gender Equality				
Labor				
Environment				
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	The Bank approved Technical Cooperation resources (BO-T1206) to hire consultants that will revise and update all technical, social, environmental, economic and additional costs studies related to the project.	
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				

The program's goal is to continue improving the quality and traffic conditions, accessibility and safety of the Basic Road Network (RVF) in Bolivia, by increasing coverage of paved roads and the rehabilitation and improvement of road corridors that connect production centers with local and external markets. The program also seeks to support the integrated management of road assets, incorporating the executed works to management systems of road maintenance and promoting the capacity-building of the Bolivian Administration of Roads (ABC).

The project presents rigorous empirical evidence, based on impact evaluation studies, from other countries to justify the potential impacts of this intervention. The results matrix presents in detail all the indicators and products associated with the objectives and program components. Output and outcome indicators presented are SMART. The project presents an economic analysis based on the HDM-4 model and a cost-effectiveness analysis for the capacity building component. In both cases, the sensitivity analysis could be strengthened by clearly identifying all the variables and assumptions used. The monitoring and evaluation plan is based on an ex post economic analysis and an analysis of indicators before and after to identify and quantify the impact of the program. The plan also presents the strategy for collecting data for those indicators for which there are no baseline values yet.

The risks identified are thoughtful and include mitigation measures and tracking metrics.



## RESULTS MATRIX

<b>Project objective:</b>	The program objective is to continue improving the quality and serviceability, accessibility, and safety of the Primary Road Network through an increase in paved road coverage and the rehabilitation and upgrading of road corridors connecting production centers to local and foreign markets. The program will also promote improvements in public expenditure efficiency in the sector by supporting integrated road asset management. This will involve incorporating the works into road maintenance management systems, as well as developing capabilities at the Bolivian Highway Administration (ABC).
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Outcomes	Unit	Base (2014)	Target (2019)	Comments/Mean of verification
<b>Shorter average travel times on the targeted highway segment</b>				
Average travel times <sup>1</sup>	Hours	1.2	0.82	Field measurements and estimates will be performed three months after completion of the works, based on the parameters for the economic evaluation
<b>Lower annual vehicle operating costs on the targeted highway segment</b>				
Vehicle operating costs <sup>2</sup>	(US\$/veh-km)	5,857	5,271	Field measurements and estimates will be performed three months after completion of the works, and updates made of the costs of the vehicle parameters reported
<b>Better management and preservation of road assets</b>				
Value of the country's road assets <sup>3</sup>	US\$ million	-	-	The baseline and the nominal value of the target will be determined through a study to be conducted prior to the start of the operation.
Average cost of periodic maintenance on the targeted segments <sup>4</sup>	(US\$/veh-km)	12,000	7,000	ABC database, cost per targeted segment in the past compared with projected costs after the project is completed
Percentage of trucks that travel the targeted segments each year and report overweight	Percentage	40%	15%	To be determined using Vías Bolivia work reports, calculated over a 12-month period for the weigh stations currently in operation
Number of km of the targeted segments with an IRI $\geq 6$ <sup>5</sup>	Km	32.9	300	TESA and Road Maintenance Division (SGCV) reports
<b>Fewer traffic accidents on the targeted highway segments<sup>6</sup></b>				
Fatal accidents, per year	Unit	-	-	The baseline will be determined through a Bank-financed study for the Huarina–Escoma segment (the only paved segment to be conducted prior to the start of the operation. (A reduction of approximately 10% is expected in the number of accidents, injuries, and fatalities)
Accidents with injury to users, per year	Unit	-	-	
Pedestrian injuries or deaths, per year	Unit	-	-	

<sup>1</sup> Baseline and target travel times are for the Nazacara–Santiago de Machaca segment. Estimates based on the final design study for the highway segment.

<sup>2</sup> Baseline and target reported average costs are for the Achacachi–Escoma segment.

<sup>3</sup> Economic cost of building the road infrastructure in its current condition.

<sup>4</sup> Baseline and target reported average costs are for the Achacachi–Escoma segment.

<sup>5</sup> International roughness index (IRI), uses any type of equipment to measure the roughness of a pavement and identifies the surface conditions of the network.

<sup>6</sup> There is currently no systematized, up-to-date database. The National Police are responsible for recording road accidents.

Shorter average travel time on the targeted highway segment								
Participation of women in consultation process events	Percentage	-	10%	To be determined using reports or minutes of Vías Bolivia consultation events.				

Outputs	Unit	Base	Year 1	Year 2	Year 3	Year 4	Target	Comments/Mean of verification
Component I - Civil works and road safety								
Km of RVF upgraded or widened	Km	0	-	-	32.7	-	32.7	ABC reports, San Andres de Machaca–Santiago de Machaca (32.7 km)
Km RVF rehabilitated with road maintenance contract completed	Km	0	-	20	70	120	278	ABC reports
Regional integration road project implemented	Unit	0	-	-	-	1	1	Works completed. ABC reports
Milestones								
Asphalt mix	m³	0	-	3,052	21,367	20,802	45,222 <sup>7</sup>	Execution will be verified by means of works progress reports prepared by the supervision and approved by the ABC
Recycled base layer with old asphalt layer levelled and compacted	m²	0	-	34,944	244,591	145,074	424,610	
Metal roadside barriers	ml	-	-	-	400	80	480	
Painting of road surface	ml	-	-	-	185	25	210.2	
Component II - Integrated road asset management program								
Toll and weigh stations built and equipped								
Milestones								
New mixed (toll/weigh) stations	Unit	0	4	-	-	-	4	Execution will be verified by means of works progress reports prepared by Vías Bolivia and approved by the ABC
Mixed (toll/weigh) stations, expanded and refurbished	Unit	0	7	-	-	-	7	
New toll stations	Unit	0	4	-	-	-	4	
New weigh stations	Unit	0	4	-	-	-	4	
Toll gantries	Unit	0	2	-	-	-	2	
Equipping of toll plazas, per lane	Unit	0	52	-	-	-	52	
Equipping of weigh stations, per station	Unit	0	19	-	-	-	19	
Number of mobile control units purchased	Unit	0	16	-	-	-	16	
Implementation of metrology laboratory	Unit	0	1	-	-	-	1	

<sup>7</sup> The volumes to be monitored using the verifiable milestones are estimates taken from the final design study commissioned by the ABC. These may be modified based on the recommendations and design modifications proposed during works construction by the technical and environmental supervision. The verifiable milestones may also be reformulated based on the time frames submitted by the successful bidder for the works.

Outputs	Unit	Base	Year 1	Year 2	Year 3	Year 4	Target	Comments/Mean of verification
<i>Improved quality of rehabilitation and/or maintenance projects</i>								
<b>Milestones</b>								
Number of provisions developed/published <sup>8</sup>	Unit	0	1	-	-	-	1	The ABC will develop technical standards for the preparation and evaluation of rehabilitation and/or maintenance projects
Consulting firms trained in rehabilitation and/or maintenance standards	Number of firms	0	7	-	-	-	7	The ABC will promote training courses for consulting firms. Verification by means of work reports
Individual consultants trained in rehabilitation and/or maintenance standards.	Number of consultants	0	9	-	-	-	9	The ABC will promote training courses for individual consultants involved in supervision, inspection, and design.
<i>Road and pavement inventory system developed for the SGCV</i>								
<b>Milestones</b>								
Road inventory and management reporting system:	Unit	0	-	-	-	-	1	Development of an inventory system (linked to a georeferenced system) that supplies information to the pavement management system and issues road inventory reports. National Technical Department (GNT) reports
Consulting firm hired to develop system		0	-	1	-	-	1	Contract signed
System and inventory in execution		0	-	-	1	-	1	System developed and installed
System and inventory finalized		0	-	-	-	1	1	System functioning with road inventory data loaded based on the number of km contracted.
Staff trained in operation of the system		0	-	-	-	10	10	Staff trained in operation and use of the system
Inventory report produced		0	-	-	-	1	1	ABC road inventory reports, based on system outputs and cartographic reports
Pavement management and management reporting system:	Unit	0	-	-	-	-	1	System to consolidate information regarding condition, traffic, and structural data, based on georeferenced segmentation. SGCV reports
Consulting firm hired to develop system		0	-	1	-	-	1	Contract signed
System and inventory in execution		0	-	-	1	-	1	System developed and installed
System and inventory finalized		0	-	-	-	1	1	System functioning with linked road inventory data loaded
Staff trained in operation of the system		0	-	-	-	10	10	Staff trained in operation and use of the system
Inventory report produced		0	-	-	-	-	1	System management report, with information on the overall condition of the road network and the first work plan developed

<sup>8</sup> Standards, methodologies, and/or technical instruments available for the design of highway rehabilitation and/or maintenance projects

Outputs	Unit	Base	Year 1	Year 2	Year 3	Year 4	Target	Comments/Mean of verification
<b>Component III – Capacity development program for the ABC</b>								
<i>Subprogram to strengthen the Socioenvironmental Division (SGSA)</i>								
<b>Milestones</b>								
Computers, photographic, and GPS equipment purchased	Unit	0	23 <sup>9</sup>	-	-	-	23	Number of pieces of equipment purchased (cumulative). SGSA reports
Systems for the control and monitoring of road project environmental performance up and running:	Unit	0	-	-	-	-	1	System for the monitoring and control of the environmental aspects of projects in their various execution phases. SGSA reports
Consulting firm engaged to develop system		0	-	1	-	-	1	Contract signed
Monitoring and control system developed		0	-	-	1	-	1	System developed and installed
Staff trained in operation of the system		0	-	-	10	-	10	Staff trained in operation and use of the system
Monitoring system in operation		0	-	-	-	1	1	First management report for road project environmental monitoring and control
Consultants engaged to improve management capacity in relation to environmental issues	Unit	0	5	-	-	-	5	Specialists engaged for a 36-month period. SGSA reports
Training courses held in environmental management	Unit	0	-	3	3	-	6	SGSA reports with details of the courses held
New road construction projects with environmental impact studies in the design phase, in accordance with existing regulations	Unit	0	10	8	8	9	35	SGSA reports, including the number of projects with approved environmental impact studies (cumulative)
Road maintenance projects with environmental impact studies in the design phase, in accordance with existing regulations	Unit	0	5	6	6	7	24	SGSA reports, including the number of projects with approved studies (cumulative)
Road network coverage of ABC projects with environmental monitoring and control	%	0	-	-	25%	50%	60%	SGSA reports. Km of projects being studied or monitored, as a percentage of km paved.
Number of staff trained in environmental management	Unit	0	-	15	15	20	50	SGSA reports
<i>Subprogram for development and capacity-building of the SGCV</i>								
<b>Milestones</b>								
Equipment purchased to measure the structural state and condition of the road network	Unit	0	0	2	2	-	4	SGCV reports with the equipment purchased and in operation (cumulative) and results of its use
Computer hardware purchased and installed	Unit	0	-	4	-	-	4	SGCV reports

<sup>9</sup> The 23 pieces of equipment are as follows: 12 desktop computers; 3 laptop computers; 1 high-capacity scanner; 3 high-capacity printers; 2 digital cameras, and 2 GPS devices.

Outputs	Unit	Base	Year 1	Year 2	Year 3	Year 4	Target	Comments/Mean of verification
Consultants engaged to strengthen the pavement management team	Unit	0	3	-	-	-	3	SGCV. Specialists engaged for a 36-month period
<b>Indicator</b>								
Survey of the condition of the road network	Km	0	-	-	-	1,625	3,250	Measured using a road profiler (roughness, rutting, condition parameters). SGCV report
Structural deflection measurement	Km	0	-	-	-	1,625	3,250	Km measured (cumulative). SGCV report
Friction coefficient survey	Km	0	-	-	-	1,625	3,250	Measured using a GripTester device. Km measured (cumulative). SGCV report
Medium- and long-term investment plan with updated measurements	Unit	0-	-	1	-	-	1	Number of investment plans prepared. SGCV report
<i>Subprogram for development and capacity-building of the Construction Division (SGCT)</i>								
<b>Milestones</b>								
System for the analysis and monitoring of unit prices for road works:	Unit	0	-	-	-	-	1	Development and use of the system. SGCT reports
Consulting firm hired to develop system		0	1	-	-	-	1	Contract signed
System finalized, with database loaded		0		1	-	-	1	System developed, installed, and functioning
System finalized, with database updated annually		0	-	-	1	-	1	System functioning with database loaded (covering costs, outputs, and inputs)
Staff trained in operation of the system		0	-	-	-	10	10	Staff trained in operation and use of the system
System and inventory in operation		0	-	-	-	1	1	First consolidated report on average unit costs by type of structural solution and investment activity or maintenance
Consultants engaged to strengthen the pavement management team	Unit	0	4	-	-	-	4	Specialists engaged for a 36-month period. SGCV report
<i>Subprogram to improve skills development of the project review team at the National Technical Department (GNT)</i>								
<b>Milestones</b>								
Computers and GPS equipment purchased	Unit	0	7	8	-	-	15	Reports with the number of pieces of equipment purchased and installed (cumulative). GNT report
Development and implementation of an institutional integrated system:	Unit	0	-	-	1	-	1	Integrated dashboard system for the ABC. GNT reports
Consulting firm engaged to develop system		0	1	-	-	-	1	Contract signed
System developed and installed		0		1	-	-	1	System developed, installed, and functioning
System operating and producing management control reports		0	-	-	1	-	1	First management control report produced by the system
Consultants engaged to strengthen the road project design and review team	Unit	0	10	2	-	-	12	Number of specialists engaged on the project review team and in Human Resources. GNT reports

## FIDUCIARY AGREEMENTS AND REQUIREMENTS

<b>Country:</b>	Plurinational State of Bolivia
<b>Project name:</b>	Road Infrastructure Program to Support Development and Management of the Primary Road Network I (BO-L1095)
<b>Executing agency:</b>	Administradora Boliviana de Carreteras [Bolivian Highway Administration] (ABC)
<b>Prepared by:</b>	Carolina Escudero and Zoraida Argüello (FMP/CBO)

### I. EXECUTIVE SUMMARY

- 1.1 The Bolivian Highway Administration (ABC) is currently executing five loans, with available balances of US\$175.6 million as of 25 August 2014. The agency's structure is adequate for the execution of projects of this magnitude. Operational execution uses country systems for both financial management and procurement, with the exception of projects supported by external financing.<sup>1</sup>
- 1.2 Although the ABC's project execution experience and knowledge has been confirmed, actions have been identified as part of risk mitigation to enhance management capacity through the updating of manuals, handbooks, flowcharts, and systems, as well as the determination of performance indicators, in order to maintain execution standards in the face of increased public investment in highways.
- 1.3 Contracting and payment activities chargeable to the project will be conducted at the ABC central office, ensuring greater fiduciary monitoring and control. For accountability reporting, accounting records for the operation will be kept in accordance with the government's accounting system. Until such time as the Public Management System (SIGEP) is up and running, including the accounting module for external resources developed with Bank support, the IDB's LMS<sup>2</sup> system will be used for preparation of the financial reports required by the Bank.
- 1.4 For execution of this operation, it is recommended that the ABC determine whether the bidder qualification requirements adopted are commensurate with the complexity and magnitude of the contracts, and that these are included in the bidding and contracting documents, in order to prevent delays in procurement processes. The ABC will use the SICOES<sup>3</sup> government contracting system to publish requests for proposals and the outcomes of national competitive bidding

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<sup>1</sup> Depending on the provisions of financing agreements, agreed procedures are applied.

<sup>2</sup> Loan Management System (LMS), IDB.

<sup>3</sup> [www.sicoes.gob.bo](http://www.sicoes.gob.bo).

processes, and will also partially apply the Basic Standards of the Goods and Services Management System (NB-SABS), once that agreement has entered into force.

## **II. FIDUCIARY CONTEXT OF THE EXECUTING AGENCY**

- 2.1 The ABC is a decentralized public agency, governed by Law 1178 of 20 July 1990 on government administration and control (SAFCO Act), which regulates systems for the administration and control of government resources and their relationship with country's public planning and investment systems.
- 2.2 Financial transactions are performed in the Integrated Administrative Management and Modernization System (SIGMA), which makes information on budget execution available in a secure and reliable manner. The system provides financial information in the country's official currency (bolivianos), according to the classifier by object of expenditure, consistent with International Public Sector Accounting Standards (IPSAS).
- 2.3 Contract management is performed according to the NB-SABS of the local regulations; however, this system has not been fully accepted for use in Bank-financed operations.<sup>4</sup> The SICOES system is used to publish requests for proposals and the results of national competitive bidding processes.

## **III. FIDUCIARY RISK EVALUATION AND MITIGATION ACTIONS**

- 3.1 The level of fiduciary risk for this operation is rated as medium.
- 3.2 The project risk management matrix describes the execution risks identified by the ABC (jointly with the Bank), together with the corresponding action plan.
- 3.3 The actions to be taken by the ABC to mitigate these risks include:
  - updating process and operating manuals for the different units involved in project execution, including flowcharts, manuals, and the formulation of performance indicators;
  - training fiduciary staff with a focus on the type and size of contracts;
  - training financial staff at the regional offices;
  - developing and implementing a contract administration system;
  - reinforcing the fiduciary team with a procurement specialist and an accounting management specialist, in order to contribute directly to the expected outcomes in terms of time frames and quality.

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<sup>4</sup> The Bank is currently negotiating with the country regarding partial use of the NB-SABS for the procurement of services, goods, and works.

- 3.4 A factor that could delay the start of the works is failure to timely commit local counterpart resources in the budget. The project does not envisage a local counterpart, so where additional resources are necessary to comply with contractual commitments for works financed under the program, it is important that the ABC establish prior agreements with counterparts participating in the project, to ensure financing of the works. Thus, where local counterpart resources are necessary, the bidding process for the works may proceed once the agreements have been formalized, and contracts may be signed once the availability of the budgetary resources has been certified.

#### IV. CONSIDERATIONS FOR THE SPECIAL PROVISIONS OF THE CONTRACT

- 4.1 **Exchange rate agreed upon with the executing agency for financial reporting.** The exchange rate agreed upon with executing agency for the conversion of local currency expenditures into the currency of the operation will be the prevailing rate in the borrowing country on the effective date of payment.
- 4.2 **Financial statements and other audited reports.** During the execution period the ABC will deliver the program's audited financial statements (AFSs) on an annual basis, within 120 days after the close of each fiscal year. The AFSs will be prepared by an independent audit firm in accordance with the terms of reference previously agreed upon with the Bank.
- 4.3 **Procurement.** Procurement will be conducted in accordance with Bank policy documents GN-2349-9 and GN-2350-9, and with the agreement for partial use of the NB-SABS, once it has entered into force.

#### V. PROCUREMENT OF GOODS, WORKS, AND CONSULTING SERVICES

- 5.1 **Procurement of goods, works, and nonconsulting services.** Contracts for works, goods, and nonconsulting services generated under the program and subject to international competitive bidding (ICB) will be procured using the Bank's standard bidding documents (SBDs) and the SBDs adapted and authorized by the Bank's Country Office in Bolivia. Bidding processes subject to national competitive bidding (NCB) will be executed using SBDs agreed upon with the Bank (or satisfactory to the Bank, if not yet agreed upon). For price comparison ("shopping"), the model documents prepared by the Bank's Country Office in Bolivia will be used until such time as the agreement for partial use of the NB-SABS enters into force. Any modification of these documents will require the Bank's no objection.
- 5.2 To minimize the risk that bidding processes may be declared vacant owing to a lack of bidders or competition, the ABC must verify that (i) the complexity of bidder qualification requirements included in the SBDs is commensurate with the complexity and size of the contract; and (ii) the indicative budgets indicated in the "TESA" technical, economic, social, and environmental study are current and consistent with market conditions. The ABC will also verify that the bodies



- responsible for oversight of the bidding processes are the correct ones, and that the criterion of “substantial compliance” is properly applied in the bid evaluation reports.
- 5.3 **Selection and contracting of consultants.** Contracts for consulting services generated under the project will be procured using the standard request for proposals (RFP) issued by, or agreed upon with, the Bank (or satisfactory to the Bank, if not yet agreed upon), together with their respective contracts.
- 5.4 The Project Team Leader is responsible for reviewing the terms of reference for the contracting of consulting services, and for determining whether external support should be secured to assist the ABC in preparing the standard RFP and evaluating proposals.
- 5.5 To minimize the risk that bidding processes may be declared vacant owing to a lack of bidders or competition, the ABC must verify that the complexity of consulting firm qualification requirements included in the standard RFP is commensurate with the complexity and size of the contract. In the case of consulting engagements for works supervision, the ABC will ensure that the selection timetable allows sufficient time for the selected firm to perform the necessary verifications in relation to the TESA study before the start of works execution.
- 5.6 The following provisions will apply to procurement processes:
- (i) **Selection of consulting firms.** Consulting firms will be selected using the standard RFP issued by the Bank or the Bank’s Country Office in Bolivia.
  - (ii) **Short list of consulting firms.** This list may be comprised entirely (100%) of Bolivian firms<sup>5</sup> for contracts valued below the thresholds set by the Bank for the country. In the case of Bolivia, this threshold is US\$200,000.
  - (iii) **Selection of individual consultants.** Individual consultants will be selected according to their qualifications for the work, based on a comparison of the qualifications of at least three candidates. The ABC may, as it sees fit, use the SICOES system as a tool for publicizing solicitations of individual consultations.
- 5.7 **Direct contracting.** In the interests of efficient and speedy execution, expenditures of less than US\$500 individually, and no more than US\$5,000 as a lot, may be contracted directly. They must be approved by the Project Team Leader in the procurement plan, and will be subject to ex ante review.

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<sup>5</sup> This does not preclude the participation of foreign firms.

**Table 1. Threshold amounts (US\$000s)**

Works			Goods <sup>6</sup>			Consulting services	
ICB	NCB	Shopping	ICB	NCB	Shopping	International publicity, consulting	Short list 100% national
<b>More than 3,000,000</b>	3,000,000 or less	Less than 250,000	More than 200,000	200,000 or less	Less than 50,000	More than 200,000	<b>200,000 or less</b>

- 5.8 **Main procurements.** The plan for confirmed procurements relates to the initial sample of projects, as indicated in the table below. As the sample is expanded, additional processes will be added to the plan.

**Table 2. Procurement plan**

Activity	Type of bidding	Estimated date	Estimated cost (US\$000s)
<b>Works</b>			
Civil works, maintenance Achacachi–Escoma	ICB	Q4-2014	41,200
Civil works, construction San Andrés de Machaca–Santiago de Machaca segment	ICB	Q1-2015	35,800
<b>Consulting firms</b>			
Supervision, maintenance Achacachi–Escoma	QCBS	Q1-2015	3,100
Supervision, construction San Andrés de Machaca–Santiago de Machaca segment	QCBS	Q1-2015	2,700
Financial management audit and ex post audit of procurements	QCBS	Q4-2015	200

- 5.9 **Procurement supervision.** At least one supervision visit will be conducted each year, during which the status of the ABC's fiduciary capacity for project management will be reviewed, as well as the level of fiduciary risk associated with project execution. An ex post procurement review visit will be conducted if deemed appropriate.
- 5.10 Given the ABC's level of familiarity with IDB procurement procedures and its fiduciary capacity for procurement management, the agency is capable of executing procurement processes for goods, nonconsulting services, works, and consulting services provided by consulting firms under the Bank's system of ex post supervision of procurement, as summarized in the table below. All direct contracting and other procurements not included in this table will be subject to ex ante review. These thresholds may be raised subsequently based on an updated assessment of the ABC's institutional capacity.

<sup>6</sup> Includes nonconsulting services.

Works	Goods and nonconsulting services	Consulting services, firms	Individual consultants
Ex post review below US\$3,000,000	Ex post review below US\$200,000	Ex post review below US\$200,000	No threshold amount for ex post review

5.11 **Recurrent or operational expenditures.** Recurrent or operational expenditures are those operational and maintenance expenses required for the functioning of the project during its useful life. These include rental of premises; print, radio, or television communications; translations; bank charges; basic office supplies; photocopies; mailing services; fuel; short courses; and line staff travel expenses. These expenditures must be included in the approved budget for the project, and in the “operational expenditures” item in the procurement plan. Recurrent or operational expenditures may be contracted using ABC administrative procedures. The Bank may review these expenditures and decline to finance them if it determines that they violate the fundamental principles of competition, efficiency, and economy. A report on this category of expenditures will be delivered to the Bank on a quarterly basis.

5.12 **Records and files.** The ABC will be responsible for creating the supporting documentation, procedures, and controls necessary for project execution, as well as safeguarding them in accordance with the terms of the loan contract and local laws. The ABC has a documentation center deemed satisfactory based on the inspection and assessment conducted by the Bank. During the procurement supervision visit, the Bank will determine whether the standards of organization, control, and security for project files have been maintained; for this task, support will be requested from the records specialist at the Bank’s Country Office in Bolivia.

#### A. Financial management

5.13 **Programming and budget.** The ABC’s Planning and Budget Department, in coordination with the National Financial and Administrative Department, will be responsible for programming and budget formulation based on the annual work plan agreed upon with the Bank. The formulated budget will be registered in the SIGMA system, and, once it has been approved, the agency may begin execution. When external resources are involved, under the country’s budget laws and regulations, the ABC may modify the budget during the fiscal year. These modifications are approved by the Ministry of Development Planning, which then requests that the Ministry of Economy and Public Finance make the corresponding modifications to the national budget. This process may take place at any point in the year. Given this flexibility in public finance, no difficulties are anticipated for timely execution of the loan proceeds to achieve the expected outcomes.

5.14 For the purposes of reporting investment expenditures (by investment category) to the Bank, the ABC will prepare a chart of accounts for registration in the LMS,

establishing the relationship between these accounts and the government chart of accounts.

- 5.15 **Accounting and information systems.** SIGMA will be used as the principal means for recording funds. This system integrates the following accounting steps: budget registration (budget execution), asset registration (assets, liabilities, equity, and earnings), and treasury registration (cash transfers). Accounts will be kept on an accrual basis, consistent in principle with International Public Sector Accounting Standards (IPSAS).
- 5.16 A supplementary accounting and financial reporting system agreed upon with the Bank will be used to deliver financial reports to the Bank that allows financial information to be submitted in accordance with the cost structure approved in the loan contract. This system will be replaced by a SIGEP accounting module for projects financed with external, which is expected to begin operating in 2015.<sup>7</sup>
- 5.17 **Disbursements and cash flow.** The primary disbursement modality will be advances of funds, although this does not preclude the use of any other mechanism by the Bank to make payments or reimburse expenditures. Disbursements under the advance of funds modality will be based on liquidity needs, as reflected in financial programming covering no more than six months. To request new advances, justification must have been provided for at least 80% of the previous advance. Expenditures made with the funds advanced will be subject to ex post review by the same external audit firm responsible for review of the program financial statements.
- 5.18 **Administration of the loan proceeds.** Funds disbursed to the project will be deposited in a special account at the Central Bank of Bolivia and then transferred to the respective local currency account, following the procedures established by the Office of the Deputy Minister of the Treasury for the management of loan proceeds.
- 5.19 **Internal control and audit.** The Internal Audit Unit exercises control over compliance with the agency's objectives and with the applicable laws and regulations. It also reviews the accounting records of projects on a true-and-fair-view basis, so as to issue an opinion on the reliability of financial statements.
- 5.20 **External control and reports.** An external audit will be performed on an annual basis, financed with the loan proceeds. A report on procurement processes and disbursements will be provided as an integral part of the audited reports.
- 5.21 **Financial supervision plan.** Supervision activities may be adjusted based on the external audit reports and the annual project risk assessment conducted by the fiduciary team in conjunction with the executing agency. Supervision of expenditures will be performed on an ex post basis. However, at least one comprehensive visit (procurement and financial supervision) will be included in the Bank's annual supervision plan.

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<sup>7</sup> This module has been developed with financial support from the IDB.

- 5.22 **Execution mechanisms.** The operation will be executed using the ABC's existing organizational structure. The ABC will have a multidisciplinary team within its existing structure that includes project coordinators, regional managers, technical/engineering staff, inspectors, the financial/administrative department, legal support, and internal audit.