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Report No: PAD1484-BO

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT AND
INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED LOAN IN THE AMOUNT OF US$165.95 MILLION

AND PROPOSED CREDITS TOTALING SDR 42.1 MILLION
(US$59.05 MILLION EQUIVALENT)

TO THE

PLURINATIONAL STATE OF BOLIVIA

FOR A

ROAD SECTOR CAPACITY DEVELOPMENT PROJECT

October 22, 2015

Transport & ICT Global Practice
Latin America and the Caribbean Region

CURRENCY EQUIVALENTS
(Exchange Rate Effective as of September 15, 2015)

Currency Unit	=	Bolivian bolivianos
BOB 6.91	=	US$ 1.00
US$ 1.00	=	SDR 1.41

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials
ABC	*Administradora Boliviana de Carreteras* (Bolivian Road Agency)
AC	Asphalt Concrete
ADT	Average Daily Traffic
CReCE	*Contratos de Rehabilitación y Cumplimiento de Estándares* (Contracts for Rehabilitation and Achievement of Standards)
CUT	Treasury Single Account
DBMOT	Design-Build-Maintain-Operate-Transfer
DLI	Disbursement-linked Indicator
DST	Double Surface Treatment
EMF	Environmental Management Framework
EMP	Environmental Management Plan
FM	Financial Management
GRS	Grievance Redress Service
GSA	*Gerencia Socio Ambiental* (Environmental and Social Department)
HDM-4	Highways Development and Management Model
ICB	International Competitive Bidding
IFR	Interim Financial Report
IPP	Indigenous Peoples Plan
IRI	International Roughness Index
IRR	Internal Rate of Return
M&E	Monitoring and Evaluation
MEFP	Ministerio de Economía y Finanzas Públicas/Ministry of Economy and Public Finance
MOPSV	*Ministerio de Obras Públicas, Servicios y Vivienda* (Ministry of Public Works, Services, and Housing)
NCB	National Competitive Bidding
NPV	Net Present Value
OM	Operational Manual
PBC	Performance-based Contract
PDO	Project Development Objective
PP	Procurement Plan
QCBS	Quality- and Cost-Based Selection

RAP	Resettlement Action Plan
RMM	Road Maintenance Microenterprise
RPF	Resettlement Policy Framework
SBD	Standard Bidding Document
ToR	Terms of Reference

Regional Vice President:	Jorge Familiar
Country Director:	Alberto Rodriguez
Senior Global Practice Director:	Pierre Guislain
Practice Manager:	Aurelio Menendez
Task Team Leader:	Gylfi Palsson

PLURINATIONAL STATE OF BOLIVIA
Road Sector Capacity Development Project

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PAD DATA SHEET

Bolivia

BO Road Sector Capacity Development Project (P144597)

PROJECT APPRAISAL DOCUMENT

LATIN AMERICA AND CARIBBEAN

Transport and ICT Global Practice

Report No.: PAD1484

Basic Information		
Project ID P144597	EA Category B - Partial Assessment	Team Leader(s) Gylfi Palsson
Lending Instrument Investment Project Financing	Fragile and/or Capacity Constraints [ ] Financial Intermediaries [ ] Series of Projects [ ]	
Project Implementation Start Date 04-Jan-2016	Project Implementation End Date 31-Dec-2021	
Expected Effectiveness Date 02-Mar-2016	Expected Closing Date 30-Jun-2022	
Joint IFC No		

Practice Manager/Manager	Senior Global Practice Director	Country Director	Regional Vice President
Aurelio Menendez	Pierre Guislain	Alberto Rodriguez	Jorge Familiar

Borrower: Ministry of Development Planning			
Responsible Agency: Bolivian Roads Agency (Adminstradora Boliviana de Carreteras, ABC)			
Contact:	Noemi Villegas	Title:	President ABC
Telephone No.:	591-22357220	Email:	sduarte@abc.gob.bo

Project Financing Data(in USD Million)					
[X]	Loan	[ ]	IDA Grant	[ ]	Guarantee
[X]	Credit	[ ]	Grant	[ ]	Other

Total Project Cost:	225.00	Total Bank Financing:	225.00
Financing Gap:	0.00		

Financing Source	Amount
BORROWER/RECIPIENT	0.00
International Bank for Reconstruction and Development	165.95
International Development Association (IDA)	59.05
Total	225.00

Expected Disbursements (in USD Million)

Fiscal Year	2015	2016	2017	2018	2019	2020	2021	2022
Annual	0.00	3.00	23.00	37.00	60.00	45.00	29.00	28.00
Cumulative	0.00	3.00	26.00	63.00	123.00	168.00	197.00	225.00

Institutional Data

Practice Area (Lead)

Transport & ICT

Cross Cutting Topics

[ ] Climate Change
[ ] Fragile, Conflict & Violence
[ ] Gender
[ ] Jobs
[ ] Public Private Partnership

Sectors / Climate Change

Sector (Maximum 5 and total % must equal 100)

Major Sector	Sector	%	Adaptation Co-benefits %	Mitigation Co-benefits %
Transportation	Rural and Inter-Urban Roads and Highways	80		
Transportation	General transportation sector	20		
Total		100		

☑ I certify that there is no Adaptation and Mitigation Climate Change Co-benefits information applicable to this project.

Themes

Theme (Maximum 5 and total % must equal 100)

Major theme	Theme	%

Trade and integration	Regional integration	90
Financial and private sector development	Infrastructure services for private sector development	10
Total		100

Proposed Development Objective(s)

The Project Development Objectives (PDO) are to enhance Bolivia's national road sector management and improve the condition of the country's primary paved road network targeted under the Project.

Components

Component Name	**Cost (USD Millions)**
Component A. Capacity Development	10.00
Component B. Road contracting for paved primary network	215.00

Systematic Operations Risk- Rating Tool (SORT)

Risk Category	**Rating**
1. Political and Governance	Moderate
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	Substantial
5. Institutional Capacity for Implementation and Sustainability	High
6. Fiduciary	High
7. Environment and Social	Moderate
8. Stakeholders	Substantial
OVERALL	Substantial

Compliance

Policy

Does the project depart from the CAS in content or in other significant respects?	Yes [ ] No [X]
Does the project require any waivers of Bank policies?	Yes [ ] No [X]
Have these been approved by Bank management?	Yes [ ] No [X]
Is approval for any policy waiver sought from the Board?	Yes [ ] No [X]
Does the project meet the Regional criteria for readiness for implementation?	Yes [X] No [ ]

Safeguard Policies Triggered by the Project	**Yes**	**No**
Environmental Assessment OP/BP 4.01	**X**	

Natural Habitats OP/BP 4.04	**X**	
Forests OP/BP 4.36		**X**
Pest Management OP 4.09		**X**
Physical Cultural Resources OP/BP 4.11	**X**	
Indigenous Peoples OP/BP 4.10	**X**	
Involuntary Resettlement OP/BP 4.12	**X**	
Safety of Dams OP/BP 4.37		**X**
Projects on International Waterways OP/BP 7.50		**X**
Projects in Disputed Areas OP/BP 7.60		**X**

Legal Covenants

Name	**Recurrent**	**Due Date**	**Frequency**
Project Management, Schedule 2, Section I, A, 1 of the FA and LA	**X**		Continuous

Description of Covenant

The Borrower shall cause ABC to assign responsibility internally for the management, implementation, monitoring and reporting of the Project among its central and regional offices, as described in detail in the Operational Manual.

Name	**Recurrent**	**Due Date**	**Frequency**
Safeguards, Schedule 2, Section I, D, 1 of the FA and LA	**X**		Continuous

Description of Covenant

The Borrower shall cause ABC to carry out the Project in accordance with the Environmental Management Framework (EMF), the Resettlement Policy Framework (RPF) and the Indigenous Peoples Plan (IPP). Except as the Bank shall otherwise agree, the Borrower shall cause ABC to not assign, amend, abrogate or waive the EMF, the RPF and the IPP, or any of their provisions.

Name	**Recurrent**	**Due Date**	**Frequency**
Terms of References, Schedule 2, Section I, D, 3 of the FA and LA	**X**		Continuous

Description of Covenant

The Borrower shall cause ABC to ensure that the terms of reference for any consultancies related to the technical assistance provided under the Project, shall be satisfactory to the Bank and, to that end, such terms of reference shall require that the advice conveyed through such technical assistance be consistent with the requirements of the Bank’s Safeguard Policies.

Name	**Recurrent**	**Due Date**	**Frequency**
Technical Audits, Schedule 2, Section II, C of the FA and LA	**X**		Continuous

Description of Covenant

In implementing Part B.2 of the Project, if applicable, as determined by the Association, the Recipient shall cause ABC to: (a) prepare and furnish to the Bank, an independent technical audit (Technical Audit) in form and substance acceptable to the Bank which shall include, inter alia: (1) a description of all the findings and results; (2) a list of proposed measures and actions to be taken to re

Conditions

Source Of Fund	Name	Type
IBRD	ABC Subsidiary Agreement	Effectiveness

Description of Condition

The ABC Subsidiary Agreement has been executed on behalf of the Borrower and ABC.

Source Of Fund	Name	Type
IDA	ABC Subsidiary Agreement	Effectiveness

Description of Condition

The ABC Subsidiary Agreement has been executed on behalf of the Recipient and ABC.

Source Of Fund	Name	Type
IBRD	Operational Manual	Effectiveness

Description of Condition

The Operational Manual has been adopted by ABC in a manner acceptable to the Bank.

Source Of Fund	Name	Type
IDA	Operational Manual	Effectiveness

Description of Condition

The Operational Manual has been adopted by ABC in a manner acceptable to the Bank.

Source Of Fund	Name	Type
IBRD	Financing Agreement Execution	Effectiveness

Description of Condition

The Financing Agreement has been executed and delivered and all conditions precedent to its effectiveness (other than the effectiveness of this Agreement) have been fulfilled.

Source Of Fund	Name	Type
IDA	Loan Agreement Execution	Effectiveness

Description of Condition

The Loan Agreement has been executed and delivered and all conditions precedent to its effectiveness (other than the effectiveness of this Agreement) have been fulfilled.

Team Composition

Bank Staff

Name	Role	Title	Specialization	Unit

Gylfi Palsson	Team Leader (ADM Responsible)	Lead Transport Specialist	Team Lead	GTIDR
Jose Yukio Rasmussen Kuroiwa	Procurement Specialist	Senior Procurement Specialist	Procurement	GGODR
Lucas Carrer	Financial Management Specialist	Financial Management Specialist	Financial Management	GGODR
Angela Maria Caballero Espinoza	Safeguards Specialist	Social Development Specialist	Social Issues	GSURR
Benedictus Eijbergen	Peer Reviewer	Program Leader	Review	SACIN
Carlos Alberto Molina Prieto	Safeguards Specialist	Social Development Specialist	Social Issues	GSURR
Carlos Mauricio Navarro Banzer	Team Member	E T Consultant	Engineering	GTIDR
Elena Segura Labadia	Counsel	Senior Counsel	Legal Issues	LEGLE
Hector Miguel Mansilla	Team Member	Consultant	Engineering	GTIDR
Juan Carlos Enriquez Uria	Safeguards Specialist	E T Consultant	Environment	GENDR
Karla Dominguez Gonzalez	Team Member	Consultant	Gender	GTIDR
Kulwinder Singh Rao	Peer Reviewer	Sr Highway Engineer	Review	GTIDR
Licette M. Moncayo	Team Member	Program Assistant	Support	GTIDR
Maria Alejandra Velasco	Team Member	Operations Analyst	Country Issues	LCCBO
Maria Virginia Hormazabal	Team Member	Finance Officer	Disbursement	WFALN
Melisa Gaitan Fanconi	Team Member	Consultant	Institutional	GEE04
Patricia De la Fuente Hoyes	Team Member	Sr Financial Management Specialist	Financial Management	GGODR
Ramon Munoz-Raskin	Peer Reviewer	Urban Transport. Spec.	Review	GTIDR
Satoshi Ogita	Team Member	Transport Specialist	Greenhouse Gas Analysis	GTIDR

Shirley Leigue Gutierrez	Team Member	Program Assistant	Support	LCCBO
Steven Farji Weiss	Team Member	E T Consultant	Socio-economic	GTIDR

Locations

Country	First Administrative Division	Location	Planned	Actual	Comments
Bolivia	El Beni	Trinidad		**X**	Road Corridor Trinidad - Santa Cruz
Bolivia	Santa Cruz	Departamento de Santa Cruz		**X**	Road Corridor Trinidad - Santa Cruz

I. STRATEGIC CONTEXT

A. Country Context

1. Bolivia took advantage of a decade of high commodity prices to generate strong growth and build robust macroeconomic indicators. Boosted by gas and mining exports as well as by rapidly increasing public investment, growth has averaged around 4.7 percent per year between 2002 and 2014. Good economic performance has allowed for a substantial reduction in poverty and inequality. Higher commodity and food prices and a dynamic domestic demand allowed for a rapid increase in revenues and a reduction in unemployment, both in rural areas—where most poor are located—and for non-tradable sectors in urban areas, particularly those engaging low-skilled workers. As a result, on basis of latest available data, the average income of the bottom 40 percent of the population increased by 9.4 percent per year between 2002 and 2013. This is the root of the strong poverty reduction—from 63 percent of the population in 2002 to about 39 percent in 2013; extreme poverty fell from 39 percent in 2002 to 19 percent in 2013. The Gini coefficient also decreased from 0.60 in 2002 to 0.49 in 2013.

2. Despite these positive results and reductions in poverty and inequality, Bolivia still faces numerous development challenges. The country still has one of the lowest gross domestic product per capita levels in the region while other social indicators, which have improved since the 1990s, are still below those in neighboring countries. Despite strong public investment and the exceptional recent context, total investment remains low as private investment is among the lowest in the region. In 2013, Bolivia launched the 2025 Patriotic Agenda with the goal of eradicating extreme poverty and translating the country's increasing prosperity into well-being at the local levels.

B. Sectoral and Institutional Context

3. Bolivia's transportation network comprises 39 airports, of which 7 are classified as international; 2,268 km in two non-contiguous railway systems, the Paraguay-Parana inland waterway and Lake Titicaca with limited passenger and freight transport, and 74,740 km of national road network. As a landlocked country, Bolivia uses the seaports of neighboring countries. From 1990 to date, the nationwide road network has increased by about 70 percent, promoting connectivity as well as lower costs and reduced travel times for passengers and freight.

4. The road sector is strategically relevant to Bolivia's economic development. Bolivia is a landlocked country that is challenged by its geography and topography. The main cities and areas of extractive industries along with agriculture tend to be the economic drivers. The primary road network, instrumental in providing efficient transport services, comprises Bolivia's corridors for trade and economic activity and provides socially important integration between Bolivia's regions. Roads are key for imports and exports,[1] with a majority of goods trucked from production zones to consumption centers or across borders. During 2010, a partial analysis of the paved portion of the primary road network showed that it was used for approximately 90 million passenger trips per year and the transportation of 70 million tons of freight.[2]

[1] Transport & Logistics, Bolivia's Path Towards Competitiveness, World Bank Group, 2014 (background document for "Bolivia Sources of Growth - A Sectoral View", 2015).
[2] *Source:* ABC 2010.

5. The road network is divided into the primary network covering approximately 15,963 km; departmental network covering 19,258 km; and a municipal network covering some 39,492 km.[3] Despite the significant growth of the road network, Bolivia has one of the smallest national road networks in the region and one of the lowest number of paved kilometers per person and per surface area. With only 10 percent of the roads paved and 50 percent dirt roads, the quality of Bolivian roads is lower than in most other countries in the region.[4] Out of the 15,963 km of primary road network, 5,883 km are currently paved, which is an increase of 30 percent since 2006: 67 percent with asphalt concrete (AC), 13 percent with concrete, 10 percent with double surface treatment (DST), and the remaining 10 percent with other materials. For 2014, 31 percent of Bolivia's public investment was in the transport sector, representing 5 percent of the total budget. Of this investment budget, US$996.07 million was allocated to the primary road network, of which US$705.89 million was invested, accruing 71 percent of the allocated budget. The growth in traffic volumes on primary network roads during the period 2007–2012 ranges from 4 to 11 percent per year, with the largest increases occurring on routes closest to departmental capitals.[5] Of the length of the paved primary road network, 76 percent had average daily traffic (ADT) of less than 3,000 vehicles, whereof 9 percent was less than 500 vehicles based on the 2010 traffic survey.

6. The country is rapidly expanding its primary road network in support of its larger development objectives and poverty reduction strategy, thus leading to an imbalance between capital investments and maintenance funding. Somewhat predictably, maintenance loses the battle, resulting in irregular and insufficient funding and inadequate private sector interest leading to a poor-quality network overall.

7. Overall portfolio responsibility for Bolivia's road sector is with the *Ministerio de Obras Públicas, Servicios y Vivienda* (Ministry of Public Works, Services, and Housing, MOPSV), with the primary road network managed by *Administradora Boliviana de Carreteras* (Bolivian Road Agency, ABC). The mandate of the ABC is to plan, study and design, construct, maintain, preserve, and operate the road network under its responsibility. The ABC was formed in 2006 as a result of the restructuring of a previous road agency and has since been challenged with building its capacities to adequately manage the sector while at the same time absorbing increases in its budget. Before the reorganization, upgrading the network progressed slowly.

8. **Capacity challenges.** In preparation of the proposed Project and to understand the ABC's capacity for management of the primary road network, the World Bank Group (WBG) completed a comprehensive assessment of the ABC's systems, procedures, and processes. Broadly, the assessment found that fiduciary management needs substantial strengthening; that weaknesses in technical management include monitoring of the condition of paved roads, planning for timely interventions to ensure long-term servicability and preservation of the network, and contract management; and that while environmental and social management in preparation and execution of works is generally acceptable, features of these can be strengthened.

9. The ABC has identified that addressing some of these capacity challenges in the short and medium term is critical to its mission to efficiently deliver on its mandate overall and under the

[3] Source: *Administradora Boliviana de Carreteras* (Bolivian Road Agency, ABC), 2007.
4 Argentina (30 percent), Brazil (12 percent), Chile (21 percent), Colombia (9 percent), Ecuador (15 percent), Paraguay (51 percent), and Peru (18 percent).
[5] Transport & Logistics, Bolivia's Path Towards Competitiveness, World Bank Group, 2014.

proposed Project in particular. Many of the challenges are caused by the public procurement framework the ABC is required to use, but which is now under review by *Ministerio de Economía y Finanzas Públicas* (Ministry of Economy and Public Finance, MEFP) for possible updating within a couple of years.

10. **Road sector strategy.** Bolivia's implicit strategy for the primary road network based on past and current government actions and discussions with ABC can be summarized as (a) upgrading the primary road network; (b) providing timely and appropriate maintenance of road assets through rehabilitation, particularly on the paved primary road network; and (c) delivering routine maintenance for the whole of the primary road network.

11. Bolivia's highway network is not yet mature and still requires significant development to address the mobility needs of the country's remote areas. A political direction has given in 2006 for the entire Bolivia primary road network to be paved by 2025. It is this decision which in a relatively short period has absorbed a majority of the allocations to the road sector between 2006 and 2014. As this is taking place, the ABC has found it challenging to adequately preserve its paved roads through timely and appropriate interventions. Following road upgrading, pavement conditions tend to deteriorate soon due to late and insufficient interventions. The latest condition assessment (2010) of the paved primary road network highlighted that out of the 80 percent of the surveyed network, about a third was in good condition and about half in regular condition. In 2013, ABC estimated that the part of the primary road network in good condition had dropped to about 26 percent. This is largely due to inadequate maintenance and rehabilitation and continuing this pattern would constitute inefficient use of public resources. The overall primary road network situation is that of a fast-expanding paved highway network, albeit in poor condition overall.

12. The ABC is seeking to balance its focus with significantly increasing attention on providing appropriate maintenance of the road assets through rehabilitation and has been exploring ways to perform routine and periodic maintenance more systematically by integrating paved road condition assessments with planning and execution of needed works to ensure serviceability of the paved road network.

13. **Contracting methodology.** Contracting for road works in Bolivia has traditionally been on the basis of the input type of contracts, where the ABC prepares detailed engineering designs and issues—as part of the bidding—a bill of quantities which bidders price and where any variation in quantities during execution is the responsibility of the ABC. As is also the case globally, this results in numerous transactions, many of which fail before contracting; contracts that are frequently completed late and often with significant cost variations; and sometimes roads of substandard quality. Delays in maintenance works adversely affect the management of the entire road network, causing losses in road assets and unsatisfactory service for road users.

14. To address these deficiencies, the ABC has decided that it will move toward the usage of a multiyear, performance-based contract (PBC) methodology for preservation of the paved primary road network.[6] The methodology focuses on outputs and not on inputs and measures what

[6] These types of contracts for preservation of a paved primary road network were introduced originally in Argentina in the 1990s and are referred to as CREMA. A number of countries have since adopted this contractual methodology. The CREMA are multiyear, lump-sum performance-based contracts entered into by road authorities with private sector contractors and which obligate the private sector contractor to undertake all phases of road

is achieved rather than what is done. Under the PBC, the payments made to the contractor are not based on the quantity of works measured by unit prices for works inputs but rather on measured outputs reflecting the target conditions of the roads under contract, expressed through contractually defined service levels. The contractor is responsible for the preparation of a detailed design, the management of the works necessary to reach the required service levels, and the durability and performance of the roads over the multiyear life-span of a contract. Internationally, this contracting methodology and structure has proven to provide the appropriate incentives and disincentives to contractors, resulting in better quality works and better value for money. The use of a PBC in preserving the established paved primary road network represents the first steps of the ABC toward adoption of formal Road Asset Management.[7]

15. The decision to use PBCs is based both on the ABC's prior piloting of contracts by standards (*contratos por estandares*), where an outcome is prescribed in the contracts, and learning from the experience of other countries in the use of PBCs. The ABC has developed a specific model of contracts based on local and international experiences, referred to as *Contratos de Rehabilitación y Cumplimiento de Estándares* (Contracts for Rehabilitation and Achievement of Standards, CReCE). The proposed Project will support implementation of the first set of these contracts and the ABC plans to expand their use over the coming years to eventually cover the whole of the paved primary road network—initially with an annual US$200 million allocation to the CReCE, which can be expected to add 500–600 km of the primary road network to this system of management. Should the trend hold, half of the paved primary road network will be covered by these contracts in about six to seven years.

16. The capacity of the local construction industry in road works is considered inadequate. This is partly explained by deficiencies in the country's procurement processes and systems which has caused some construction firms to stop pursuing road works contracts, but also by the fact that, often, the contractors are not sustaining the required financial and equipment capacity due to uncertainties in business outlook. For the former, Bolivia's procurement systems are now under review and is expected to largely address systemic procurement deficiencies. For the latter, the ABC's move toward systematic maintenance of established paved roads should ensure that in the long run, there is a volume of predictable contracting.

C. Higher Level Objectives to which the Project Contributes

17. The proposed Project supports the WBG's corporate goals of ending extreme poverty and boosting shared prosperity in direct and indirect ways. Transport alternatives are limited in Bolivia, and therefore, sustaining the quality of the road network is essential for the efficiency, economy, and reliability of the access to markets for producers and manufacturers; access to employment opportunities for people; and the provision of services to all segments of the population.

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rehabilitation and maintenance work as a single package, from design and programming of the works, through the execution of such works.

[7] The Organisation for Economic Co-operation and Development in its 2001 publication Asset Management for the Roads Sector defines Road Asset Management as "a systematic process of maintaining, upgrading, and operating assets, combining engineering principles with sound business practice and economic rationale, and providing tools to facilitate a more organized and flexible approach to making the decisions necessary to achieve public expectations."

18. The proposed Project would also support several objectives of the World Bank Group's Country Partnership Strategy (CPS) for Bolivia FY2012-2015 (Report No. 65108-BO), discussed by Executive Directors on December 1, 2011. Specifically, the proposed Project would contribute to the achievement of Results Areas 1 and 4 (Sustainable Productive Development and Public Sector Effectiveness), and also supports Results Area 3 (Human Development and Access to Basic Services).

II. PROJECT DEVELOPMENT OBJECTIVES

A. PDO

19. The project development objectives (PDO) are to enhance Bolivia's national road sector management and improve the condition of the country's primary paved road network targeted under the project.

Project Beneficiaries

20. In 2011, the ABC initiated a rehabilitation program (*Puesta a Punto*) of more than 2,000 km of priority paved primary roads with significant deterioration, with the aim of restoring the initial conditions of pavements and recovering the structural and functional integrity of the roads. The Trinidad-Santa Cruz corridor (connecting the capitals of the departments of Beni and Santa Cruz) is part of the program and is specifically slated for resurfacing. The proposed Project will address key mobility and accessibility needs of about 3 million inhabitants (400,000 in Beni and 2.6 million in Santa Cruz) located in the extended area of interest of the corridor and a further 500,000 road users from other regions who use the corridor for transit.

21. The Trinidad-Santa Cruz road corridor directly serves the municipalities of Guarayo, Ñuflo de Chávez, Andrés Ibáñez, San Javier, San Andrés, and Cercado spanning over 567 km. Improving and maintaining the corridor's quality and serviceability is vital for local economic and social needs. Approximately 30 percent of dwellers in these municipalities are engaged in agricultural production and thus depend on the corridor to transport their goods to cities and larger markets and also to access cheap inputs and production technologies. Moreover, the area of influence has a rural accessibility index of 50 percent compared to the national average of 49 percent which is high but lower than the index in Latin America which is estimated at 54 percent. High-quality public and social services are largely absent in some of the more remote rural communities. So the corridor serves as the backbone of the region linking vulnerable populations to health (close to 300 health centers and 50 hospitals) and education services (close to 400 education facilities and 15 universities), the majority of which in both cases are concentrated in the cities of Trinidad and Santa Cruz. The low availability of infrastructure affects the cost of freight transportation and creates obstacles for better integrating economic activity in the departments of Beni and Santa Cruz to the rest of the country and beyond. As such, shippers of goods and end consumers will benefit from lower transport and logistics costs, and consequently, a more competitive situation where efficiency gains in the logistics chain should translate into reduced prices for consumer goods. Finally, indigenous communities—in this case, Guarayo and Sirionó—with an observed mobility disadvantage can greatly benefit from transit improvements in the region. The indigenous

groups in the area are commonly located on the fringes of urban areas or outer regional and remote rural areas. The project is expected to improve accessibility and availability of transport as well as safety for these largely vulnerable minorities. Beni in particular is affected by floods[8] and this road is the primary paved road in the department, giving the corridor a strategic connectivity relevance.

PDO Level Results Indicators

22. Three key results indicators have been selected to measure success in achieving the PDO. They are included in the Project Results Framework in Annex 2 and are as follows:

(a) An integrated financial management (FM) information system in the ABC detailed, designed, installed, and used. The indicator will evidence if significant weaknesses in the ABC's internal controls are addressed in the proposed Project.
(b) Development of an ABC strategy for primary highway network rehabilitation planning by the purchase and installation of a Pavement Management System and populating it with pertinent data. The indicator will evidence if a systematic approach to preserve the primary road network is being established at the ABC.
(c) Average International Roughness Index (IRI) of target roads at contract closings is less than 3 m per km. This indicator informs whether selected technical solutions and the use of PBC sustain good road conditions.

III. PROJECT DESCRIPTION

A. Project Components

23. The IDA credits and IBRD loan will support the ABC's capacity development and strengthen management and preservation of Bolivia's paved primary road network through financing of a handful of CReCE. Project objectives will be achieved through two complementary components implemented in parallel. Collectively, these will support transformational actions that will strengthen Bolivia's primary road network management. Details of the activities are presented in Annex 2.

Component A: Capacity Development - US$10 million

24. **Subcomponent A.1.** The proposed Project will finance US$5 million through disbursement-linked indicators[9] (DLIs) for achievement of the following listed below.

(a) **DLI 1. Implementation of an Integrated FM Information System (US$2.5 million).** The weak accounting and reporting environment will be strengthened by designing and implementing an integrated FM information system.

[8] On the basis of climate and disaster risk screening undertaken by the team, the area is subject to occasional flooding. Mean precipitation has increased by 15 percent since the 1970s but predictions for the future vary from decrease in precipitation to a 20 percent increase. The subject road is part of the primary road network and is not known to have been affected directly by floods in recent times. The planned interventions and management of the road can be expected to strengthen its resilience.

[9] The DLI approach was decided for these activities to both encourage a more results-based approach for them specifically and as a step in inspiring a results-oriented organizational culture.

(b) **DLI 2. Strengthening ABC's Environmental and Social Management Capacity Concerning Road Works (US$1.0 million).** This will be done through guidelines and training to strengthen environmental and social management, specifically those related to additional categories for resettlement and strengthening handling of the indigenous peoples' issues.
(c) **DLI 3. Development of a Rehabilitation Planning Strategy for the Paved Primary Road Network (US$1.5 million).** The ABC will purchase and install a Pavement Management System and populate with pertinent data.

25. **Subcomponent A.2.** The additional activities listed below will be financed but through transactional-based disbursement (US$5 million).

(a) Support to and strengthening of the ABC's contract management. The ABC has decided that it will try to address this long-standing weakness by engaging a firm specializing in contract management for a multiyear period.
(b) A Road Safety Capacity Assessment will be undertaken and disseminated along with the implementation of minor road safety improvements to the road network.
(c) Training and certification of ABC technical staff by a recognized contract management and/or procurement institute, with responsibilities related to drafting contracts, supervision, and contract management.
(d) Engaging an international procurement advisor to comprehensively review the ABC's internal procurement processes.
(e) Support for developing capacity for Road Asset Management and PBC.
(f) Activities to strengthen climate risk mitigation in the primary road network.
(g) Designing and implementing a training program on skills enhancement for Road Maintenance Microenterprises (RMMs) not subcontracted by the CReCE contractors.
(h) Project management activities, including audits and incremental operating costs.

Component B: Road Contracting for Paved Primary Road Network - US$214.6 million

26. Sub-component B.1. Under this subcomponent, bidding documents for the rehabilitation and maintenance works contracts to be financed under Part B.2 below will be prepared through, inter alia: (a) the provision of transactional advice and validation of design and costs for said works; and (b) the carrying out of awareness campaigns of the potential effects of using Performance-Based Contracts.

27. Sub-component B.2.Rehabilitating and maintaining approximately 567 kilometers of the Recipient's primary paved road network, in Selected Departments (Santa Cruz-Trinidad road corridor), including providing support for the monitoring and evaluation of said rehabilitation and maintenance works. The contracts will incorporate all interventions needed during a five-year period, including some road rehabilitation, sealing and patching, repaving, and all maintenance requirements to achieve a prescribed level of service of the road.

B. Project Financing

28. The total cost of the proposed Project is estimated to be US$225 million. Bolivia has requested that all project costs be financed by the WBG under a mixture of IDA and IBRD terms.

Subcomponent A.1. applies results-based disbursements, while Subcomponent A.2. and Component B use transaction-based disbursement.

Project Cost and Financing

Project Components	Project Cost (in US$)	IBRD Financing (in US$)	IDA Financing Blend Terms (in SDR)	IDA Financing Hard Terms (in SDR)	% Financing
Subcomp. A.1	5,000,000	–	3,550,000	–	100
Subcomp. A.2.	5,000,000	–	1,810,000	1,800,000	100
Component B	214,585,125	165,535,125	34,940,000	–	100
Total Costs	224,585,125	165, 535,125	40,300,000	1,800,000	100
Total Proj. Costs	224,585,125				
Front-End Fees	414,875				
Total Fin. Reqd	225,000,000				

C. Lessons Learned and Reflected in the Project Design

29. Road Asset Management and well-designed PBCs are found to improve value for money in the management of the road sector and result in better efficiency in the use of public resources.[10] In the region, contracting similar to the CReCE is, among others, practiced with WBG support in Argentina, Brazil, Uruguay, and Paraguay. An assessment of the initial 15-year experience in Argentina found that the cost efficiency of the PBCs was 24 percent as compared to traditional contracting.[11] Many countries globally use Design-Build-Maintain-Operate-Transfer (DBMOT) contracting arrangements for durations of 10 years or more for road upgrading or construction, including in Europe and North America and with WBG support in Africa and South Asia. The cost efficiency of these contracts is frequently estimated to be around 20 percent.

30. Bolivia began to pilot contracts based on the standards in 2010, with the award of two contracts for a length of nearly 300 km. While the results of this pilot are still under evaluation, preliminary survey results show favorable opinion of road users, who observe a sustained level of intervention on these sections and a marked differentiation from other nearby sections managed under the traditional modality. Notwithstanding, stakeholders in the process consider that some of the contract clauses need to be improved to establish clearer and adequate rules for the assessment of service levels. It was also assessed that the level of intervention in these contracts was oriented

[10] Supported by various publications, for instance, Road Asset Management - An ERF (European Union Road Federation) position paper for maintaining and improving a sustainable and efficient road network, European Union Road Federation, 2013; Asset Management for Sustainable Financing, International Transport Forum, Discussion Paper, 2013; Legal Aspects of Performance-based Specifications for Highway Construction and Maintenance Contracts, National Cooperative Highway Research Program, 2013; Cost Savings Analysis of Performance-Based Contracts for Highway Maintenance Operations, Journal of Infrastructure Systems, 2010.

[11] Performance-based Road Rehabilitation and Maintenance Contracts (CREMA) in Argentina - A review of 15 Years of Experience (1996–2010), World Bank Transport Paper 36, 2011.

toward road surfaces in good condition, so their focus was mostly maintenance activities and pavement rehabilitation works were not considered to improve their structural capacity. On the basis of the pilot, a new contracting arrangement that is geared to further restore damaged pavement conditions and to recover the structural capacity of the roads was found necessary. Therefore, the CReCE have greater focus on rehabilitation of pavements and raise the standards required to consider the comfort of the user through the permitted maximum-level IRI.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

31. As the proposed Project's implementing agency, the ABC has full responsibility of its technical, fiduciary, and environmental and social aspects. The ABC is a decentralized entity of the MOPSV and is granted its own legal status and technical, administrative, and financial autonomy. The ABC consists of a central office in La Paz and nine regional offices in each of the country's departments. The agency has about 340 staff, out of which nearly 200 positions are based in the regional offices. A third of the total staff are engineers, half of whom are regionally based. The ABC has a decentralized model for its operation, under which the regional offices have responsibility for operational aspects of project implementation, including contract management and subsequent daily works supervision and quality control.

32. The director of Technical Management (*Gerencia Nacional Tecnica*) in the ABC will lead the implementation of capacity-development actions under the proposed Project. The ABC's Preservation Unit (*Sub Gerencia de Conservación*) will carry out the civil works program planning and preparation. The WBG has shared with ABC good practices of PBC contracting from other countries. Bidding documents for the CReCE financed under the proposed Project are being developed by the ABC. Works monitoring (supervision) will be carried out by the ABC with the support of monitoring consultancy firms. For the purposes of day-to-day engagement, the ABC has a person dedicated to WBG-financed projects, who coordinates as required with various units of the ABC.

33. The collation of project activities and introduction of a new contract methodology imply the start of change management in the ABC. Beyond financing the proposed Project components, the WBG will support the ABC with lessons from other road authorities that have successfully reoriented their organizations and will arrange training and workshops on change management.

34. By early 2016, the ABC will formally engage the construction industry and present Bolivia's multiyear road works and investment plan to give the private sector confidence to start building the necessary capacities. With WBG guidance and to improve the likelihood of successful tendering of the CReCE financed by the proposed Project, the ABC will, by the end of 2015, consult with the market on the tender documents before commencing bidding to both start sensitizing contractors and to receive feedback on the structure of the contract. Upon tendering, the ABC will hold two-stage pre-bid meetings where the contract details will be presented and discussed.

35. The ABC's *Gerencia Socio Ambiental* (Environmental and Social Department, GSA) is responsible for the overall environmental and social supervision of the proposed Project and its

compliance with legislation applicable to the sector. Working closely with the Preservation Unit, it coordinates all aspects related to planning, preparation of social and environmental studies, and compensation programs for resettlement and land acquisition.

B. Results Monitoring and Evaluation

36. The ABC's existing monitoring and evaluation (M&E) framework will be strengthened through implementation of the integrated FM information system, in particular through an improvement in fiduciary systems and technical planning. The M&E of Component A activities will be the overall responsibility of the director of Technical Management, supported by staff dedicated to facilitate the preparation and implementation of capacity-development activities. Progress and results reached under Component B will be gathered through contractually required reporting by the CReCE contractors and monitoring consultants and overseen by the ABC's Preservation Unit. The ABC will prepare semiannual reports detailing financial and physical progress of all activities. Also, through citizen engagement, the ABC supports a system where the beneficiary population in road works is organized to undertake a formal monitoring of the works.

37. Meanwhile, the WBG, especially at the beginning of implementation, will support the ABC in ensuring adequate monitoring progress and achievement of the proposed Project indicators and results by undertaking technical assessments at two different execution stages of the CReCE as implementation support and by supporting additional assessment and consultation to better understand possible gender dynamics of the contracting methodology and work interventions. Midterm review will be held around June 2018.

C. Sustainability

38. The central focus of the proposed Project is strengthening primary road network management. If the proposed Project is successfully implemented, at project closing, the ABC will be in a better condition to plan, procure, and execute Bolivia's funded public works with value-for-money in mind.

39. The overall level of resources for the road sector seems sufficient at this stage and the budget allocations envisioned in the coming few years for preservation of the network serve to rebalance with development of the road network. This is a move toward proper Road Asset Management. A rolling set of multiyear CReCE will preserve the established road network in a systemic manner.

40. The annual level of resources required to adequately maintain the primary highway network is not known, as Bolivia does not yet have any Road Asset Management system. The proposed Project will increase the sustainability of rehabilitation investments through (a) the implementation of a Pavement Management System covering the whole paved highway network; (b) improved information for decision making and prioritization in the road network; and (c) scaling up the funding resources devoted to asset preservation.

V. KEY RISKS

A. Overall Risk Rating and Explanation of Key Risks

41. The proposed Project's overall risk rating is Substantial, with High ratings identified for institutional capacity for implementation and sustainability and procurement aspects of fiduciary management. The technical design of the proposed Project and stakeholder risks are rated Substantial while other risks are deemed Moderate.

42. The ABC may be challenged to implement an ambitious capacity development component, including enhancement of its fiduciary capacity. Procurement assessment of the ABC found that procurement processes failed frequently and attracted limited interests. Introduction of a new (to Bolivia) contracting methodology may be resisted by the contracting industry and the ABC will need to gain experience in managing these types of contracts. Currently, the RMMs are contracted by the ABC for all routine maintenance of the primary road network. This arrangement will not continue under the CReCE where the contractor is responsible for all results.

43. The achievements of the component are expected to be realized in tandem with Bolivia's review of its procurement framework, which is expected to address a major weakness in the ABC's function. Technical assistance is built into project support to strengthen contract administration and to learn global lessons in the implementation of PBC type of contracting.

44. Technical risks are being mitigated by the ABC having designated a core technical team for project preparation. This team is being trained on the CReCE and has prepared, with WBG support, the technical analysis required. The contractual structure of the CReCE will include incentives for the contractors to not only engage the RMMs as subcontractors but also be responsible for building their overall capacity. As previously mentioned, procurement risks are being mitigated through consultation with the market on tender documents and a planned two-stage pre-bid conference to ensure full appreciation and understanding of the contractual obligations. Furthermore, consulting monitoring services will be engaged for support in the implementation of the CReCE. Finally, contract administration will be capacitated with the support of a multiyear consultancy.

VI. APPRAISAL SUMMARY

A. Economic and Financial Analysis

45. Rehabilitation works identified for the section are based on annual traffic densities, varying from 890 to 560 ADT, with estimated annual traffic growth of 5.5 percent for small vehicles and 4.2 percent for freight vehicles. The proposed Project's economic evaluation was carried out using the Highways Development and Maintenance Model (HDM-4) which simulates life cycle conditions and costs and provides economic decision criteria for multiple road design and maintenance alternatives. Only two benefits were quantified for economic evaluation: savings due to decreases in vehicle operating costs and decrease in travel time costs. Through HDM-4, comparisons were made to estimate benefits from several alternatives for a total evaluation period of 20 years.

46. Prior to the appraisal of the proposed Project, the middle section of the target corridor had been technically prepared and constituted the basis for economic evaluation. The economic analysis yields a net present value (NPV) of US$8.9 million, at 12 percent discount rate, and an economic rate of return of 18.1 percent. A sensitivity analysis of the main risks was conducted. With up to a 20 percent increase in investment costs, the NPV decreases to US$0.8 million and yields an IRR of 13.1 percent. The proposed Project can simultaneously allow an increase of up to 10 percent of costs and a decrease of 10 percent in the users benefits, reaching an NPV of US$1.8 million yielding an IRR of 13.7 percent.

47. In addition, an assessment of the proposed Project's impact in terms of CO_2 emissions (as a proxy to greenhouse gases) was undertaken, focusing on the 183 km section of Yotaú-Nueva Cotoca. The proposed Project's impact was defined as the difference in vehicle emissions between a reference scenario ('without project' scenario, same as in the economic appraisal) and the proposed Project scenario. The assessment concluded in a net increase of about 0.8 thousand tons or 0.1 percent in CO_2 emissions as compared with the reference scenario.

B. Technical

48. The proposed Project will finance five lots for management of the 567 km Santa Cruz–Trinidad road corridor through the CReCE.

Table 1. Principal Road Segments

Contracts	National Route Number and Segments	Length
I–III	9 Cotoca (18+367 km) – Yotaú (263+500 km)	245 km
IV	9 Yotaú (263+500 km)-Nueva Cotoca (446+214 km)	183 km
V	9 Nueva Cotoca (446+214 km)-Trinidad (547+700 km) 3 Pto. Varador (587+710 km)-Trinidad (587+710 km) 9 Trinidad (562+866 km)-San Javier (588+866 km)	101 km 12 km 26 km

49. A feasibility study, using the American Association of State Highway and Transportation Officials (AASHTO) Overlay Design guidelines, was carried out to evaluate the proposed technical designs for the pavement solutions, based on the inventory of road impairments, geotechnical studies, and roughness and deflection measurements.

50. Current technical characteristics of the roads are DST or AC with a 7 m wide platform and 1 m paved shoulders on either side. Most of the corridor's length is paved with DST and to a lesser extent with AC, due to recent repaving surface works. The original pavement is more than 15 years old and is predominantly DST on a stabilized granular base course. The surface has had intermittent and diverse interventions over the years, but most of the sections have only received routine maintenance such as seals and surface treatments. In the segments identified for contracts IV and V, these types of interventions mentioned above have been performed on short stretches five to ten years ago. For the segments identified for contracts I–III, more recent and extensive interventions have been made with some AC applications.

51. An AC overlay of 4 cm has been considered for most of the length of this section, with select stretches having a thickness of 6 or 7 cm. Subject to specific deterioration conditions, some

other repairs have also been foreseen. Some parts of the road will require reconstruction activities before the new overlay. Based on the AASHTO Overlay Design guidelines, proposed solutions are expected to last for a period of six to seven years and are expected to have an extended service period of three years after contract conclusion. The IRI values upon contract conclusion are expected to be below 3 m per km. Overall, in the design of the rehabilitation solutions, due consideration is given to improving road safety and climate resilience of the infrastructure. Rehabilitation designs are considered technically sound and economically suitable.

C. Financial Management

52. An FM capacity assessment was carried out to review the adequacy of the FM arrangements of the ABC. However, the ABC is in the process of adopting an integrated FM system. Once the system is in place, a new capacity assessment will be carried out to determine its adequacy to support project implementation under its respective components. This section spells out the main features of the current FM arrangement for project implementation, which are broadly based on existing capacity and performance under the IDA financed National Road and Airport Infrastructure Project, Cr.4923, and the closed Road Rehabilitation and Maintenance Project, Cr.3630.

53. While the ABC has developed experience in external-financed projects, this will be the first project it will implement with the DLIs. The ABC's FM performance in previous projects has been considered Moderately Satisfactory. However, there are still key shortcomings that need to be addressed. Specific measures have been agreed to supplement the existing arrangements to make sure they fully respond to project needs allowing timely reporting and reliable information for decision-making purposes. Those arrangements mainly include (a) revised and streamlined processes and procedures, including internal controls, focusing on contract management, approval of progress certificates, and payment processing; (b) implementation of a new information system that allows the compiling of information related to programming and budget execution, to provide the ABC with a single and reliable source of information for monitoring and decision-making purposes; (c) adjustments to the chart of accounts that allows the tracking and reporting of the DLIs; and (d) the adjustment to the format, content, and specific arrangements for preparation of interim financial reports (IFRs). Once these arrangements have been agreed and finalized, they will be reflected in a project-specific Operational Manual (OM).

54. . The key financial management shortcomings are: (a) the ABC's lack of experience with the DLIs; (b) the shortcoming of its FM systems; (c) complex implementation arrangements which require that regional offices assume some of the FM activities; and (d) complex budgeting, accounting, and contract management arrangements that require regular reconciliation between Bolivia's integrated FM system (*Sistema Integral de Gestión y Modernización Administrativa*, SIGMA) and auxiliary systems that may affect project implementation.

55. To mitigate the above-mentioned weaknesses and improve the design of the FM arrangements, the ABC has agreed to the following: (a) seek confirmation from the Ministry of Economy and Public Finance on the timeline for implementation of the new Public Management system – Integrated Administrative System for Projects (*Sistema de Gestion Publica - Sistema integrado de Administración de Proyectos*, SIGEP-SIAP); (b) prepare a draft OM reflecting revised internal procedures required for DLI reporting, including coordination mechanisms with

regional offices; and (c) define content and the format of financial reports, including those required from the regional offices, as well as their issuance from an auxiliary information system.

D. Procurement

56. Procurement activities will be carried out by the ABC central office. As it will be the first time that the CReCE will be used in Bolivia, risks are related to (a) technical and fiduciary teams' inadequate knowledge of Bank procurement procedures and contract monitoring and national companies' (contractors) lack of previous experience with Bank procurement procedures; (b) inadequate management of large contracts due to the ABC's lack of suitable experience; (c) no offers received or no offers awarded for a contract because of the new scope and responsibilities of contractors; (d) local firms not being able to participate and present claims to the Bank-given contract sizes; (e) at the bid process stage and the contract stage, probability of social problems arising from the RMMs that now have contracts with the ABC; (f) contractors winning bids at significantly lower prices than the engineer's estimates; and (g) timely supply of materials for the civil works. Based on the information available at the time of the appraisal, the procurement risk is deemed high.

57. In line with the PDO, to achieve the long-term sustainability required for this type of contractual arrangement (build, repair, and maintain) in Bolivia, the procurement plan divides the bid into five lots (two large segments estimated to cost approximately US$60 million each and a third segment to be divided into three equal parts estimated to cost US$20 million each). This will allow local companies to bid for smaller lots independently or as joint ventures. Nevertheless, the structure of the bidding process ensures that international companies would be able to participate and bid for all the five lots as well as be awarded the entire CReCE. The works will be procured through one International Competitive Bidding (ICB) process consisting of five lots to be distributed as aforementioned. For the corresponding 'monitoring' contracts of the works, a consultant firm contract could be awarded through an international procurement process.

E. Social (including Safeguards)

58. A social assessment (SA) was undertaken and indicates no irregular occupations within the right-of-way or informal sale-points that need to be relocated. No involuntary resettlements or land acquisition are foreseen and the road does not pass through conservation, protected, or indigenous areas.

59. The social impacts of the proposed Project are considered to be generally positive and as the works are for preservation of existing roads, most important physical impacts are existing. Identified positive impacts include reduced costs and travel time and convenience of travel. Households and communities will benefit from the investment through increased economic activity and employment opportunities during the contract period. Potential negative impacts on the Guarayo and Sirionó indigenous people present in the area include interactions with drivers due to increase in traffic. Presence of outsiders can lead to practices that could negatively affect their communities and cultures such as adoption of disproportionate consumption habits, inappropriate relationships with community members, loss of local languages, and harassment and exploitation of women and children.

60. Although the proposed Project characteristics have not raised the need for new works requiring land acquisitions, OP 4.12 on Involuntary Resettlement is triggered to anticipate possible unforeseen future needs. The ABC's team has developed a Resettlement Policy Framework (RPF) consistent with Bolivian laws and in compliance with WBG safeguard policies. The RPF considers the protocol needed to develop a Resettlement Action Plan (RAP) if required, in case of changes to the proposed Project design that could impact land, properties, or involuntary resettlement of populations. The SA identified 23 RMMs, with a total of 164 people (both male and female household heads) working on the maintenance and road emergency activities. It was considered that the RMMs can be affected by an economic displacement caused by the type of contract carried out by the CReCE. Mitigation measures will include, among its strengthening activities, the design and implementation of a training program to enhance RMM skills.

61. The SA identified the presence of two indigenous peoples groups in the influence area of the works. Both the Guarayo and Sirionó have their own language and are also Spanish speakers. Therefore, OP 4.10 for the protection of indigenous peoples is triggered, and an Indigenous Peoples Plan (IPP) has been prepared by the ABC so that the indigenous peoples can participate in the proposed Project benefits. Civil society organizations and stakeholders were consulted during the preparation of the proposed Project. Consultations with the Guarayo and Sirionó indigenous peoples included consultations with national-level organizations. In addition, consultations with the authorities and indigenous Sirionó and Guarayo communities were developed to define the components of the IPP. The consultations achieved broad community support for the proposed Project. The main conclusion determines that the Sirionó and Guarayo indigenous groups consider that it is critical to spread their culture to external agents (contractors).

62. Following approval by the WBG of the IPP and RPF, these were published on the ABC website on September 10 and 11, 2015, respectively, and by the Bank on its InfoShop website on September 11, 2015.

63. The ABC supports a system of citizen engagement through 'social control', where coordination with local stakeholders is undertaken officially by the ABC, allowing participation and social involvement in investment projects. Civil organizations select representatives who form a social control group, which undertakes a formal monitoring of the proposed Project activities.

64. **Gender.** Indigenous and non-indigenous women are actively present in the work area. They participated in the consultation process. So both women's and men's needs are considered and potential negative impacts of the proposed Project are mitigated. During the SA and consultations process, three gender issues were identified: (a) during the time of project operations, women and specially young women are more exposed than men to sexual harassment, gender/generational violence, and racism; (b) some women who are part of the RMMs are single household heads; (c) for the Guarayo and Sirionó people, enculturation processes are specially driven by women; therefore, their knowledge about territory and natural resources management, as well as their ways to respect nature, has to be collated, especially from old women, to be carried to outsiders that the proposed Project brings into the area.

65. Based on these three issues, four gender-based actions are taken into account over the proposed Project cycle: (a) an analysis of gender differences in road safety will be considered in the Road Safety Capacity Assessment; (b) women who are actually part of the RMMs will be

encouraged to participate in planned training programs to ensure the mitigation of the potential negative impacts on their economy while strengthening their competencies to offer services; (c) two IPP activities were built on the importance of promoting respect for the Sirionó and Guarayo people and cultures; and (d) in case of involuntary resettlements, the RAPs will ensure equal compensation for men and women.

F. Environment (including Safeguards)

66. This project is rated as Category B in accordance with OP 4.01. Potential environmental impacts are specific and reversible with the application of appropriate prevention and mitigation measures. Any significant negative environmental impacts that might occur would have already occurred fifteen years ago during the initial paving of the Trinidad – Santa Cruz road. The ABC has prepared an Environmental Management Framework (EMF) approved by the World Bank, to provide guidance on potential issues that could arise during project implementation, which was disclosed on the ABC website on September 10, 2015, and by the Bank on its InfoShop website on September 11, 2015. OP 4.04 and OP 4.11 are triggered and the EMF has screening measures for potential impacts of induced long-term changes to habitats and forests, even though roads to be improved under the proposed Project are far from any local or protected area. No relevant safeguard issues have been observed. Specific Environmental Management Plans (EMPs) will be prepared once detailed designs have been made for the works. As mentioned before, civil society organizations and stakeholders were consulted during the preparation of the proposed Project. These consultations have been held according to the following details: May 29, 2015, in Santa Cruz. June 2, 2015 in Ascension de Guarayos. June 3, 2015 in Trinidad - Beni. Among others, transporters, traders, OTB, agricultural unions, small businesses directly involved in the road were duly consulted. Stakeholders were informed about the scope of the project and the measures to be implemented to prevent, mitigate environmental impacts. There were no issues or concerns raised on this matter.

67. The proposed Project will improve the condition of the paved primary road network project with important positive effects such as (a) improved access to transportation for passengers and transport of products; (b) improved road safety; and (c) improved communication between isolated regions. Potential negative impacts may include cutting of vegetation, soil erosion, changes in water quality, and flows of streams. Each EMP will have appropriate screening criteria to ensure that (a) impacts on natural habitats are properly evaluated; (b) mitigation measures to address potential impacts of increased visitors to sensitive environmental sites expected as a result of the proposed Project are included; (c) sensitive issues such as environmental protection and proper use of available water sources along the road segment and the conservation of fauna in places of ecological interest are considered; (d) issues related to pedestrian health and safety, particularly around populated areas, are assessed and have measures to be prevented and/or mitigated; and (e) occupational health and safety considerations are duly included.

G. World Bank Grievance Redress

68. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected

communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit http://www.worldbank.org/GRS. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

Annex 1: Results Framework and Monitoring

PLURINATIONAL STATE OF BOLIVIA: Road Sector Capacity Development Project

Project Development Objectives

PDO Statement

The Project Development Objectives (PDO) are to enhance Bolivia's national road sector management and improve the condition of the country's primary paved road network targeted under the project.

These results are at | Project Level

Project Development Objective Indicators

Indicator Name	Baseline	Cumulative Target Values							
		YR1	YR2	YR3	YR4	YR5	YR6	YR7	End Target
An integrated financial management (FM) information system in the ABC detailed, designed, installed, and used. (Yes/No)	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Development of an ABC strategy for primary highway network rehabilitation planning by the purchase and installation of a Pavement Management System and populating it with pertinent data.	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes

(Yes/No)									
Average International Roughness Index (IRI) of target roads at contract closings is less than 3 m per km. (Number)	3.70	3.70	2.30	3.00	3.00	3.00	3.00	3.00	3.00

Intermediate Results Indicators

Indicator Name	Baseline	Cumulative Target Values							
		YR1	YR2	YR3	YR4	YR5	YR6	YR7	End Target
Conceptual design of integrated financial management system (Yes/No)	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ABC's Socio-environmental Manual updated and approved (Yes/No)	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Pavement Management System installed and populated with information related to the primary paved network (Yes/No)	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Road Safety Capacity Assessment (Yes/No)	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Direct project beneficiaries (Number) - (Core)	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000

Female beneficiaries (Percentage - Sub-Type: Supplemental) - (Core)	50	50	50	50	50	50	50	50	50
Citizen Engagement (Percentage)	0	30	30	30	30	30	30	30	30
Roads rehabilitated, Non-rural (Kilometers) - (Core)	0	0	183	322	400	400	400	400	400

Indicator Description

Project Development Objective Indicators

Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
An integrated financial management (FM) information system in the ABC detailed, designed, installed, and used.	A well-structured MIS will integrate in a system budgeting, financial management, procurement, monitoring and control, and contract management for planning and implementing management of road works. "Used" refers to implementation at ABC headquarters and at least 5 regional offices.	Once	ABC	ABC
Development of an ABC strategy for primary highway network rehabilitation planning by the purchase and installation of a Pavement Management System and populating it with pertinent data.	The installed and operative pavement management system in ABC has been fed with information on the road condition of at least 90 percent of the Recipient's primary paved road network; and 20 percent of the information fed in the pavement management system under DLI 3.1 has been updated.	Sequential	ABC	ABC
Average International Roughness Index (IRI) of target roads at contract closings is less than 3 m per km.	The average IRI of Project financed roads put under multi-year, lump-sum performance-based contracts is 3.0 or less	Annual	ABC; monitoring/supervision reports	ABC

Intermediate Results Indicators

Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection

Conceptual design of integrated financial management system	Conceptual design of integrated financial management system based on revised operational procedures approved by ABC management	Once	ABC management	ABC
ABC's Socio-environmental Manual updated and approved	Update and approval of ABC's Socio-environmental Manual through guidelines or procedures to strengthen environmental and social management.	Once	ABC	ABC
Pavement Management System installed and populated with information related to the primary paved network	Pavement Management System installed and populated with information related to the paved network.	Once	ABC	ABC
Road Safety Capacity Assessment	Road Safety Capacity Assessment will be undertaken and disseminated	Once	ABC	ABC
Direct project beneficiaries	Direct beneficiaries are people or groups who directly derive benefits from an intervention (i.e., children who benefit from an immunization program; families that have a new piped water connection). Please note that this indicator requires supplemental information. Supplemental Value: Female beneficiaries (percentage) . Based on the assessment and definition of direct project beneficiaries, specify what proportion of the direct project beneficiaries are female. This indicator is calculated as a percentage.	2-times	ABC	ABC
Female beneficiaries	Based on the assessment and definition of direct project beneficiaries, specify what percentage of the beneficiaries are female.	No description provided.	ABC	No description provided.

Citizen Engagement	ABC supports a system of citizen engagement through what is referred to as "Social Control", where coordination with local stakeholders is undertaken officially by ABC, allowing participation and social involvement in investment projects. Civil organizations select representatives which form a social control group which undertakes a formal monitoring of the project activities. The indicator measures the percentage of the representatives of the social control groups that are: from any of the following groups: indigenous, or Female, or from a Vulnerable/ Marginalized beneficiary population.	Annually	Social Control groups produce reports after field visits to work sites	ABC
Roads rehabilitated, Non-rural	Kilometers of all non-rural roads reopened to motorized traffic, rehabilitated, or upgraded under the project. Non-rural roads are roads functionally classified d in various countries as Trunk or Primary, Secondary or Link roads, or sometime s Tertiary roads. Typically, non-rural roads connect urban centers/towns/ settlements of more than 5,000 inhabitants to each other or to higher classes of road, market towns and urban centers. Urban roads are included in non-rural roads.	Annual	ABC and monitoring/supervision reports	ABC

Annex 2: Detailed Project Description

PLURINATIONAL STATE OF BOLIVIA: Road Sector Capacity Development Project

1. The PDO are to enhance Bolivia's national road sector management and improve the condition of the country's primary paved road network targeted under the Project.

2. Through the preparation of the proposed Project, a comprehensive sector policy dialogue has taken place and is expected to continue during implementation, both on overall road sector management and technical aspects. The IDA credits and IBRD loan will finance proposed Project results that support the ABC's capacity development and strengthen professional management and preservation of Bolivia's primary paved road network through financing of a handful of lump-sum PBCs. The ABC refers to these contracts as the CReCE. While project financing is expected to be sufficient to finance contracts to cover approximately 567 km, the ABC has declared its intention to manage the entire paved primary road network—as it is now and as it develops—through these types of contracts. Project objectives will be achieved through two complementary components executed in parallel.

Component A: Capacity Development - US$10 million

3. The strategic relevance of the component lies in the fact that the ABC's systems need substantial strengthening, as demonstrated by technical, fiduciary, environmental, and social assessments the Bank undertook and discussed with the ABC.

4. **Subcomponent A.1.** Specifically, the proposed Project will finance (US$5 million) through the achievement of the DLIs listed below.

(a) **DLI 1. Implementation of an Integrated FM Information System in the ABC (US$2.5 million).** The inadequate accounting and reporting environment will be strengthened by implementing an integrated FM information system that will (i) act as a single source of information for budget planning, monitoring of budget execution, and reporting; (ii) put in place a more efficient and transparent mechanism to assist in the management and implementation of a public investment project or program; (iii) support comprehensive and accurate data entry, enabling timely preparation of financial reports which could be used for decision making and management purposes; and (iv) strengthen contract management and administration. This will be done through the steps listed below.

- (i) The ABC has approved the design of an integrated FM information system based on revised operational procedures acceptable to the WBG.
- (ii) The ABC has installed and operationalized the approved integrated management information system in the ABC's central office and in at least five of its regional offices, in a manner acceptable to the WBG.
- (iii) At least 75 percent of the ABC's technical staff, with responsibilities related to operational tasks in the ABC's central office and in five of its regional offices, have been trained on revised operational procedures and the integrated FM information system, under terms of reference (ToR) acceptable to the WBG.

(b) **DLI 2. Strengthening ABC's Environmental and Social Management Capacity Concerning Road Works (US$1.0 million).** The ABC's Socio-environmental Manual has been assessed and is found to generally reflect good practices. Still, as isolated aspects of the manual can be strengthened, it is agreed that the ABC implement certain improvements. This would be done through the following steps.

(i) The ABC's Socio-environmental Manual has been updated to include guidelines for addressing involuntary resettlement in the right-of-way of roads and approved in a manner acceptable to the WBG. Updates will incorporate additional categories to address the displacement of informal vendors and their livelihoods (individuals, families, and communities that generate income from fishing, livestock, retail, forage, barter, and trade); occupants who live in the area but have no recognizable legal right to the land; and women who suffer violence and do not hold landed property.

(ii) The ABC's Socio-environmental Manual has been updated to include criteria to assess collective vulnerability of indigenous peoples' cultures, and approved on terms acceptable to the WBG. In all these cases, eligibility criteria for compensation will be defined.

(iii) All ABC social and environmental staff and at least 75 percent of ABC technical staff with responsibilities related to works supervision have been trained on the description of the features of the updated ABC's Socio-environmental Manual. At least one workshop has been organized with private sector contractors and consultants, all on terms and in a manner acceptable to the WBG.

(c) **DLI 3. Development of a Rehabilitation Planning Strategy for the Paved Primary Road Network (US$1.5 million).** Currently, road rehabilitation prioritization and planning of interventions is done in an ad hoc manner, factoring in (i) qualitative knowledge of pavement condition from the ABC's central and local engineers; (ii) available resources, prioritizing 'what pays back more'; and (iii) demands from the central and local governments. The ABC will purchase and install a Pavement Management System and populate it with pertinent data. After initial population of available data, the system will be further updated, including results from future road condition assessments. This would be done through the steps listed below.

(i) Pavement Management System has been installed in the ABC and populated with information on the road condition of at least 50 percent of the recipient's paved primary road network and at least three ABC's technical staff have received training on the use of the Pavement Management System, all on terms and in a manner acceptable to the WBG.

(ii) The installed Pavement Management System in the ABC is operative.

(iii) The installed and operative Pavement Management System in the ABC has been fed with information on the road condition of at least 90 percent of the recipient's paved primary road network, and 20 percent of the information fed into the Pavement Management System under DLI 3.1 has been updated, all on terms and in a manner acceptable to the WBG.

5. **Subcomponent A.2.** The additional activities listed below will be financed under this component but through transactional-based disbursement (US$5 million).

(a) Support to and strengthening of the ABC's contract management. The ABC has decided that it will try to address this long-standing drawback by engaging, for a multiyear period, a firm specializing in contract management which will (i) advise the ABC on all contractual issues in WBG-financed projects and (ii) train all ABC staff engaged in contract management using actual contracts under their management.
(b) A Road Safety Capacity Assessment will be undertaken and disseminated along with the implementation of minor road safety improvements to the road network. While the assessment will in particular assist the ABC in pinpointing areas for improvement within the organization for addressing road safety issues, it may benefit other entities who should be concerned about road safety issues, such as those in the health and education sector as well as law enforcement.
(c) Training and certification will be undertaken by a recognized contract management and/or procurement institute, of at least two procurement staff in each of the ABC's regional offices and at least 75 percent of ABC technical staff with responsibilities related to drafting contracts, supervision, and contract management at the central level.
(d) Engaging through an international recruitment a procurement advisor to comprehensively review the ABC's internal procurement processes. The work will be a detailed review and result in a report with recommendations for improvement in internal processes, which the ABC will discuss with the Bank.
(e) Support to developing capacity for Road Asset Management and management of the PBCs. This may take the form of engagement with foreign road agencies with relevant experiences, attending an international course and workshops on the subject, and bringing in trainers and lecturers who add value to the effort of developing these capacities.
(f) Strengthen climate risk mitigation in the management of the primary road network.
(g) Design and implement a training program on skills enhancement for the RMMs not subcontracted by the CReCE contractors.
(h) Undertake project management activities, including audits and incremental operating costs.

Component B: Road Contracting for Paved Primary Network - US$214.6 million

6. B.1. Under this subcomponent, bidding documents for the rehabilitation and maintenance works contracts to be financed under Part B.2 below will be prepared through, inter alia: (a) the provision of transactional advice and validation of design and costs for said works; and (b) the carrying out of awareness campaigns of the potential effects of using Performance-Based Contracts.

7. B.2. Rehabilitating and maintaining approximately 567 kilometers of the Recipient's primary paved road network, in Selected Departments (Santa Cruz-Trinidad road corridor), including providing support for the monitoring and evaluation of said rehabilitation and maintenance works

8. .The contracts will incorporate all interventions needed during a five-year period, including some road rehabilitation, sealing and patching, repaving, and all maintenance requirements to

achieve a prescribed level of service of the road; monitoring consultancy of the work contracts; and consultancy services for evaluation of the performance of the CReCE and contracting methodology. The estimated cost for this component is US$214.6 million and will be financed with credits and loan proceeds.

9. Road management under the PBCs is a growing trend among road agencies as it provides the means for a sustained, satisfactory, and standardized level of service for users over a period of several years. The ABC has stated its intent in implementing these types of contracts for the entire primary road network of Bolivia.

Performance-Based Contracts: Main Characteristics

10. The PBCs are service contracts where contractors manage a road network (or a part of it) for a period of five years or more, with the aim of meeting minimum levels of service as defined in the contract. To this end, the firm develops a planning system to rehabilitate the road assets at the beginning of the contractual period and ensures further compliance of road assets with the levels of service defined in the contract through maintenance activities. Throughout the contract period, the main purpose is to ensure comfort and safety to the road users while reducing transport costs.

11. The objective is to provide integrated interventions over a period, through enhanced Road Asset Management, considering pavement rehabilitation activities, drainage, road safety aspects, and right-of-way management among others, all combined with routine maintenance activities.

12. The road network sections to be managed under the PBCs are selected by the road agency and usually comprise contiguous or area-specific sections of roads, with each contract generally having a total length ranging from 100 to 300 km.

13. The road agency defines a preliminary design in the bidding documents, considering minimum technical solutions that would enable achievement of the objectives of the contract. Contractors make their bid offers based on their assessment of this preliminary design. The contracts are awarded to the lowest evaluated bidder. After contract award, contractors are required to carry out a detailed engineering study based on the preliminary design provided by the road agency but are free to propose, on the basis of their own risk assessment, any rehabilitation solution above the minimum threshold defined in the contract. Final design will be prepared before the start of the works.

14. The quality of the works and the service provided are checked by a quality control mechanism established by the contractor and verified by the contract monitoring (supervision) team. Payments are made when a specified level of service is achieved and not on the basis of a predetermined bill of quantities and unit rates as in ad-measurement or input types of contracts.

15. Pavement performance indicators are set to assess level of service compliance, such as maximum level of roughness; rutting depth; cracking; raveling; absence of potholes or unsealed cracks and good condition and maintenance on road shoulders, culverts, and drains; guardrails; and vertical and horizontal signs, as well as on the road side environment. For each performance indicator, non-compliance penalties are defined in the contract and, if non-compliance is found, payment deductions are made from monthly payments.

16. The Argentina Road Asset Management approach relies extensively on PBC type of contracting in its national road network. Roughly a third of the network (12,000 km) is under toll concessions on a full life cycle of a 12-year DBMOT type of terms, while close to another third (11,000 km) of the network is managed under partial life cycle approach called CREMA contracting. These are PBCs and lump-sum contracts of a five-year duration with simplified DBMOT terms and geared specifically to established lower volume roads.

17. Argentina started using CREMA contracts in the 1990s when it was faced with a national road network that had deteriorated over time. The problems and the situation in the Argentina road sector at that point in time has many similarities with what can be seen today in the Bolivian road sector. There was chronic lack of routine and periodic maintenance, leading to eventually more expensive interventions once something was done; sporadic and unreliable stream of funding (and contracting opportunities which weakened the industry); sometimes an ad hoc approach to interventions; weak contract management and associated cost and time overruns; and little innovation by contractors.

Location and Physical Description of Project Area

18. For the first set of these PBCs, the ABC has prioritized the corridor linking the departmental capitals, Santa Cruz in Santa Cruz and Trinidad in Beni, for management through the CReCE. It is planned that the corridor will be split into three road segments, under separate contracts. The segments are identified as PBC I–V. The detail of the ranges covered by each contract are given in table 2.1.

Table 2.1. Principal Road Segments

Contracts	National Route Number and Segments	Length
I–III	9 Cotoca (18+367 km) – Yotaú (263+500 km)	245 km
IV	9 Yotaú (263+500 km)-Nueva Cotoca (446+214 km)	183 km
V	9 Nueva Cotoca (446+214 km)-Trinidad (547+700 km) 3 Pto. Varador (587+710 km)-Trinidad (587+710 km) 9 Trinidad (562+866 km)-San Javier (588+866 km)	101 km 12 km 26 km

19. These road sections are located in the eastern region of Bolivia and are part of Route 004 of the primary road network, which passes through the cities of Santa Cruz and Trinidad. This road corridor represents a little less than 10 percent of Bolivia's paved primary road network.

20. Current technical characteristics of the roads are that they are paved with DST or AC with a 7 m wide platform and 1 m wide paved shoulders on either side. Most of the corridor's length is paved with DST, and to a lesser extent with AC, due to recent surface repaving works.

21. The original pavement is more than 15 years old and is predominantly DST on a stabilized granular base course. The surface has had intermittent and diverse interventions over the years, but most of the sections have only received routine maintenance such as seals and surface treatments. In the segments identified for Contracts IV and V, these types of interventions have

been performed on short stretches five to ten years ago. For the segment identified for contract I, more recent and extensive interventions have been made, including some AC applications.

22. Almost all the sections have several-year-old detailed engineering designs, and the ABC is currently undertaking a complete review of these designs and updating the current road conditions. The greatest progress has been achieved for the section identified as Contract II, which is used for appraisal of the technical and economic evaluations of the proposed Project.

Types of Interventions and Technical Justification, Analysis of Alternatives

23. A feasibility study using the AASHTO Overlay Design guidelines was carried out to evaluate the proposed technical designs (rehabilitation solutions) for the pavement conditions, based on the inventory of road impairments, geotechnical studies, and roughness and deflection measurements.

24. As a result of the review and updating of the designs currently in progress by the ABC, a need for interventions along the entire length of the section for Contract II has been identified. The existing pavement is a DST with a very heterogeneous condition. The IRI values generally range from 2.6 to 3.7 m per km, but there are some stretches of the road were the IRI values exceed 7 m per km. To restore pavement standard characteristics, an AC layer 4 cm thick will be added to most of its length. Also, some repairs will be carried out before this new layer is applied, depending on the impairments in each section. These solutions were further adjusted by using HDM-4 to incorporate economic considerations.

Table 2.2. Overlay Thickness of CReCE II '*Yotaú-Nueva Cotoca*'

CReCE IV - *Yotaú-Nueva Cotoca* (263+500 km - 446+214 km)	
Overlay Thickness of AC (in cm)	% of Length
4	76
6	11
7	13

25. Rehabilitation designs are considered technically suitable and economically viable. Economic analysis of investments yield positive net benefits to the community while providing acceptable levels of service to the roads for a reasonable period of time. Figure 2.1 shows a comparison of forecasted IRI levels of 'with' and 'without' project analysis situations (on the basis of the HDM-4 analysis).

Figure 2.1. Project Forecasted IRI (With and Without project)

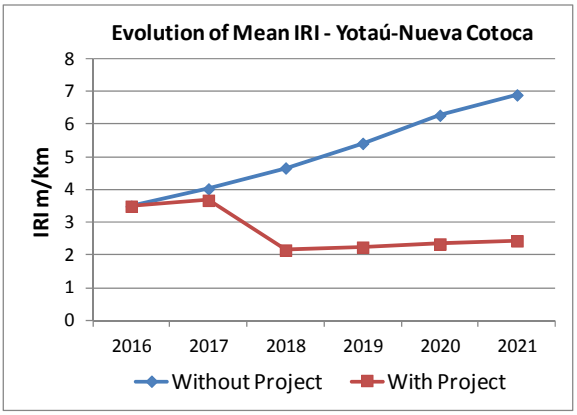


Table 2.3. Project Costs

Component B		km / %	Estimated Cost
CReCE Contracts		**567.33**	170,000,000
Contracts 1-3	Cotoca - Yotau	245.13	59,000,000
Contract 4	Yotau - Nueva Cotoca	182.71	61,000,000
Contract 5	Nueva Cotoca - Trinidad	101.49	35,000,000
	Trinidad-Pto. Varador	12.00	5,000,000
	Trinidad - San Javier	26.00	10,000,000
Monitoring Contracts		8.0%	13,600,000
CReCE Price Contingencies and Estimated Emergency Works		10.0%	17,000,000
Estimated Price Adjustments		8.5%	14,000,000
Total Cost of Component B			**214,600,000**

26. Unitary costs estimated for rehabilitation and routine maintenance are reflecting current market prices. In the PBCs, contingencies are minimal given that the interventions are easily foreseeable and these are lump-sum contracts. Indeed, variations in scope or quantities of works are recognized only in exceptional circumstances, where non-foreseeable situations occur, normally as a cause of force majeure events.

Annex 3: Implementation Arrangements

PLURINATIONAL STATE OF BOLIVIA: Road Sector Capacity Development Project

Project Institutional and Implementation Arrangements

Project Administration Mechanisms

1. The ABC is the proposed Project implementing agency and will have full responsibility of its technical, fiduciary, and environmental and social aspects. The ABC is a decentralized entity of the MOPSV and is granted with its own legal status (*personeria juridica*) and technical, administrative, and economic-financial autonomy. As such, a Subsidiary Agreement will be signed between the borrower and the ABC to transfer project funds and obligations.

2. The ABC consists of a central office in La Paz and nine regional offices in each of the country's departments; each regional office has a similar organizational structure as the central office. The agency has about 340 staff, out of which around 200 positions are based in the regional offices, and is further supported by consultants as necessary (at the beginning of 2014, 80 consultants worked in the nine regional offices). Of the total staff, 112 are engineers, with 66 of them regionally based. The ABC has recently adopted a decentralized model for its operation, under which the regional offices have responsibility of the operational aspects of project implementation, including contract management and subsequent daily works supervision and quality control. For the most part, the regional offices have numbers of staff that reflect the size of the network under their responsibility and expertise including engineering, environment, finance and procurement, and administration. Headquarters staff provide specialized technical support, for instance, in bridge and tunnel engineering, as well as support for both technical and safeguard supervision, especially to the smaller regional offices and when there is a peak in civil works in a region.

3. The office of the director of Technical Management of the ABC will lead the implementation of institutional strengthening actions under the proposed Project, with the support of two appropriately qualified consultants or reassigned staff. The ABC's Preservation Unit will carry out the civil works program planning and preparation as well as the M&E. Bidding documents for the performance-based CReCE financed under the proposed Project are being developed by the ABC with WBG support through sharing of in-depth experience from similar contractual approaches in other countries. Works monitoring (supervision) will be carried out by section engineers in the ABC with the support of monitoring consultancy firms. For the purposes of day-to-day engagement, the ABC has a person dedicated to Bank-financed projects, who coordinates with various units of the ABC.

4. The capacity and interest of the construction industry in road works appears to have reduced in recent years. This is partly explained by the country's procurement processes and systems but also by the fact that, often, the contractors are not sustaining the required financial and equipment capacity due to uncertainties in the industry. For the former, improvements in public procurement systems that are to be undertaken in 2016 and associated development of new ABC bid documents are expected to address the current procurement deficiencies. For the latter, the ABC will formally engage the construction industry and present Bolivia's multiyear road works

and investment plan with the aim of giving the private sector confidence to start building the necessary capacities. Moreover, the change to proper Road Asset Management will, in the medium term, build the industry's trust in the continuity of work on the road network. To improve the likelihood of successful tendering of the CReCE financed by the proposed Project, the ABC—with the support of the Bank—will consult the tender documents with the market before commencing bidding to both start sensitizing contractors and to receive feedback on the structure of the contract. Upon tendering, the ABC will hold two-stage pre-bid meetings where the contract details will be presented and discussed with those contractors who have bought the documents.

5. As this will be the first time the CReCE is used, the ABC has decided that the tendering will be prepared and implemented by its central office rather than by the regional offices.

6. The ABC's GSA is responsible for the overall environmental and social supervision of the proposed Project and its compliance with the Environmental Law (Law 1333) and other legislation applicable to the sector and works. Working closely with the Road Preservation Unit, it coordinates all aspects related to planning, preparation of environmental studies, environmental compensation programs, and supervision. The GSA at the ABC central office has three staff for countrywide oversight of environmental and social management, while 11 regionally based environmental engineers focus on works in their region. In addition, the GSA has 13 staff addressing resettlement issues. Since the coordination and sharing of environmental documentation is done mostly by hand or using the Internet, the processes of managing permits, evaluations, and reports are not efficient. The GSA complements the supervision of road works with additional environmental consultants on projects, as needed.

Financial Management, Disbursements, and Procurement

Financial Management

7. An FM capacity assessment was carried out of the ABC's current FM arrangements and the risk is based on the current systems and procedures. However, the ABC is in the process of adopting an integrated FM system. Once the system is in place, a new capacity assessment will be carried out to determine its adequacy to support project implementation under its respective components. The purpose of this section is to spell out the main features of the FM arrangements, which are broadly based on existing capacity and performance under the IDA financed National Road and Airport Infrastructure Project, Cr.4923, and the closed Road Rehabilitation and Maintenance Project, Cr.3630.

8. While the ABC has developed experience in external-financed projects, this will be the first project it will implement with the DLIs. The ABC's FM performance in previous projects has been considered Moderately Satisfactory. However, there are still key shortcomings that need to be addressed. Specific measures have been agreed to supplement the existing arrangements to make sure they fully respond to project needs allowing timely reporting and reliable information for decision-making purposes. Those arrangements mainly include (a) revised and streamlined processes and procedures, including internal controls, focusing on contract management, approval of progress certificates, and payment processing; (b) implementation of a new information system that allows the compiling of information related to programming and budget execution, to provide the ABC with a single and reliable source of information for monitoring and decision-making

purposes; (c) adjustments to the chart of accounts that allows the tracking and reporting of the DLIs; and (d) adjustments to the format, content, and specific arrangements for preparation of IFRs. Once these arrangements have been agreed and finalized, they will be reflected in the proposed Project OM, the approval of which is established as an effectiveness condition for the IBRD loan and IDA credits.

9. Based on the information gathered during the FM assessment process, the proposed Project's FM inherent risk is rated Substantial, the control risk is rated Substantial, and the overall FM risk is rated Substantial. The risk is rated Substantial mainly due to (a) the ABC's lack of experience with the DLIs; (b) the shortcoming of its FM systems; (c) complex implementation arrangements which require that regional offices assume some of the FM activities; and (d) complex budgeting, accounting, and contract management arrangements that require regular reconciliation between SIGMA and auxiliary systems that may affect project implementation.

10. To mitigate the above-mentioned weaknesses and improve the design of the FM arrangements, the ABC has agreed to the following: (a) seek confirmation from the Ministry of Economy and Public Finance on the timeline for implementation of the new SIGEP-SIAP system; (b) prepare a draft OM reflecting revised internal procedures required for DLI reporting, including coordination mechanisms with regional offices; and (c) define content and the format of financial reports, including those required from the regional offices, as well as their issuance from an auxiliary information system.

11. **Organizational arrangements and staffing.** As a decentralized entity, the ABC has been granted administrative, technical, and economic autonomy, but it has to comply with Bolivia's FM law (Ley SAFCO) with regard to budgeting, accounting, internal controls, funds flow, and financial reporting, which have been complemented with more specific arrangements according to its needs and external financiers' requirements. The ABC is in the process of implementing a new structure toward a more decentralized model; thus, it is expected that the regional offices (in this case Beni and Santa Cruz) take a more active role in technical and administrative tasks. Within such a framework, while overall FM tasks are under the responsibility of the *Direccion General Administrativa Financiera* (General Administration of Financial Administration), processing of payments will be partly assumed by the regional offices. Specific responsibilities for the Management of Northern Region and National Office have been reviewed and agreed and will be reflected in the project-specific OM focused on fiduciary aspects. Taking into account the number of transactions expected for the proposed Project, there is no need to hire any specific staff; however, additional training may be required in case new staff are assigned for the WBG-financed project. The ABC's FM team includes an FM specialist and an accountant.

12. **Programming and budget.** Similar to other WBG-financed projects in the Bolivia portfolio, the proposed Project will be fully integrated and executed through the national budget, in compliance with local regulations established by the Ministry of Economy and Public Finance and instructions issued by the *Viceminesterio de Inversion Publica y Financiamiento Externo* (Vice-ministry of Public Investment and External Finance). Accordingly, project transactions will be accounted for in accordance with Governmental Accounting Standards, and will use the chart of accounts established by the *Direccion General de Contabilidad Fiscal* (Accountant General's Office). Project execution will benefit from the use of the well-functioning project financial management elements, including SIGMA and the *Cuenta Unica Tersoro* (Treasury Single Account

[CUT]). These basic arrangements will be supplemented, where needed, to make sure project needs and risks are adequately addressed, mainly as they relate to internal controls, financial reporting, and auditing. Additionally, it has been agreed that the project contract manager will be in charge of preparing the annual operating plan, with at least quarterly budget estimates (based on the contractors' disbursement schedules), which can be consistently used for monitoring purposes, mainly at the contract level, presenting both estimates and budget execution.

13. **Accounting-Information System.** The ABC has to comply with the Governmental Accounting Standards. Therefore, the proposed Project will use the chart of accounts established by the Accountant General's Office. The proposed Project will benefit from the use of SIGMA and the CUT (in U.S. dollars and local currency) to process payments. Preparation of financial statements will follow the cash basis of accounting. SIGMA will be complemented with a parallel accounting system that will allow the recording of expenses by project component, category, or contract and the preparation of financial reports and withdrawal applications. Under the proposed arrangements, the chart of accounts will also have to be adjusted to allow the recording of expenditures related to the DLIs.

14. As of the date of this document, the ABC is in the process of implementing an integrated information system (SIGEP) that will replace SIGMA and allows for annual budget programming, budget execution, and accounting for externally financed activities through an integrated module (SIAP)—a feature that the current SIGMA system does not possess. Once it is in place, the WBG will need to review the operation of the SIGEP-SIAP system before it is adopted for the accounting of project transactions and the issuance of financial reports. This FM information system is captured as DLI 1 in this project.

15. **Processes and procedures.** Overall, processes put in place by the ABC comply with local requirements related to administrative and control systems (*Ley de Administración y Control Gubernamentales,* SAFCO Law N°1178). Within these processes, the ABC has put in place detailed procedures to address its specific needs, including those related to contract management, approval, and payment of civil works progress certificates and supervision contracts. The procedures set for approval of progress certificates and further payment proved to be cumbersome, lengthy, and usually cause delays, and some weaknesses were identified in the past. These internal processes are being revised to reflect adjustments in structure and delegation of certain tasks to regional offices. However, for project purposes, the following procedures have been agreed: (a) approval of progress certificates will be made by the project contract manager based on the external supervisor's report; (b) the approved certificate will then be submitted to the engineer responsible to start the administrative process of payment and the regional office manager's approval; (c) payment processing up to the accrual stage in SIGMA will be made by the regional office administrative team; and (d) payment will be made by the ABC's central office either through the CUT or direct payment request. These arrangements, including a detailed description of roles and responsibilities, will be reflected in the project-specific OM focusing on fiduciary aspects.

16. **Financial reporting.** Taking into account the considerations made in the Accounting-Information System section, at present, the IFRs would have to be prepared manually on the basis of the auxiliary records while making sure that the required reconciliation process between SIGMA and the auxiliary system is performed. Taking into consideration the expected use of the DLIs, this approach is acceptable as the information in the auxiliary system can be consistently used by all

ABC units for reporting and monitoring purposes. At the time of the assessment, the ABC has completed a pilot test of the auxiliary system, which indicated that the information from the system will be available to all ABC units.

17. As the ABC makes progress with the implementation of a new integrated FM system, and runs auxiliary systems in parallel during the transition, the actual system used to issue the financial reports will need to be regularly assessed for reliability and consistency. These IFRs should specify sources and uses of funds—reconciling items (as needed) and cash balances with expenditures classified by project component, subcomponent, and contract—and a statement of investments reporting the current quarter and the accumulated operations against ongoing plans and footnotes explaining the important variances. The draft format and content of the IFRs has been discussed and reviewed with the understanding that the reports will be prepared and submitted to the Bank on a semester basis, no later than 30 days after the end of each calendar semester. The reports will be prepared with local currency and U.S. dollar values.

18. On an annual basis, the ABC will also prepare project financial statements and include cumulative figures for the year and as of the end of the year. These financial statements will include explanatory notes in accordance with the requirement to explain important variances and other relevant information not evident in a single transaction.

19. **External audit.** The ABC will provide the management letter and annual audit reports on project financial statements to the Bank. The said reports will be submitted to the Bank within six months of the end of the recipient's fiscal year[12] (December 31). The audits should be conducted by an independent audit firm acceptable to the Bank and under ToR approved by the Bank. Audit cost will be financed out of credit and loan proceeds and selection will follow standard Bank procedures. The scope of the audit will be defined by the ABC in agreement with the Bank, based on project-specific requirements and responding, as appropriate, to identified risks. Audit requirements will include those given in table 3.1.

Table 3.1. Audit Requirements

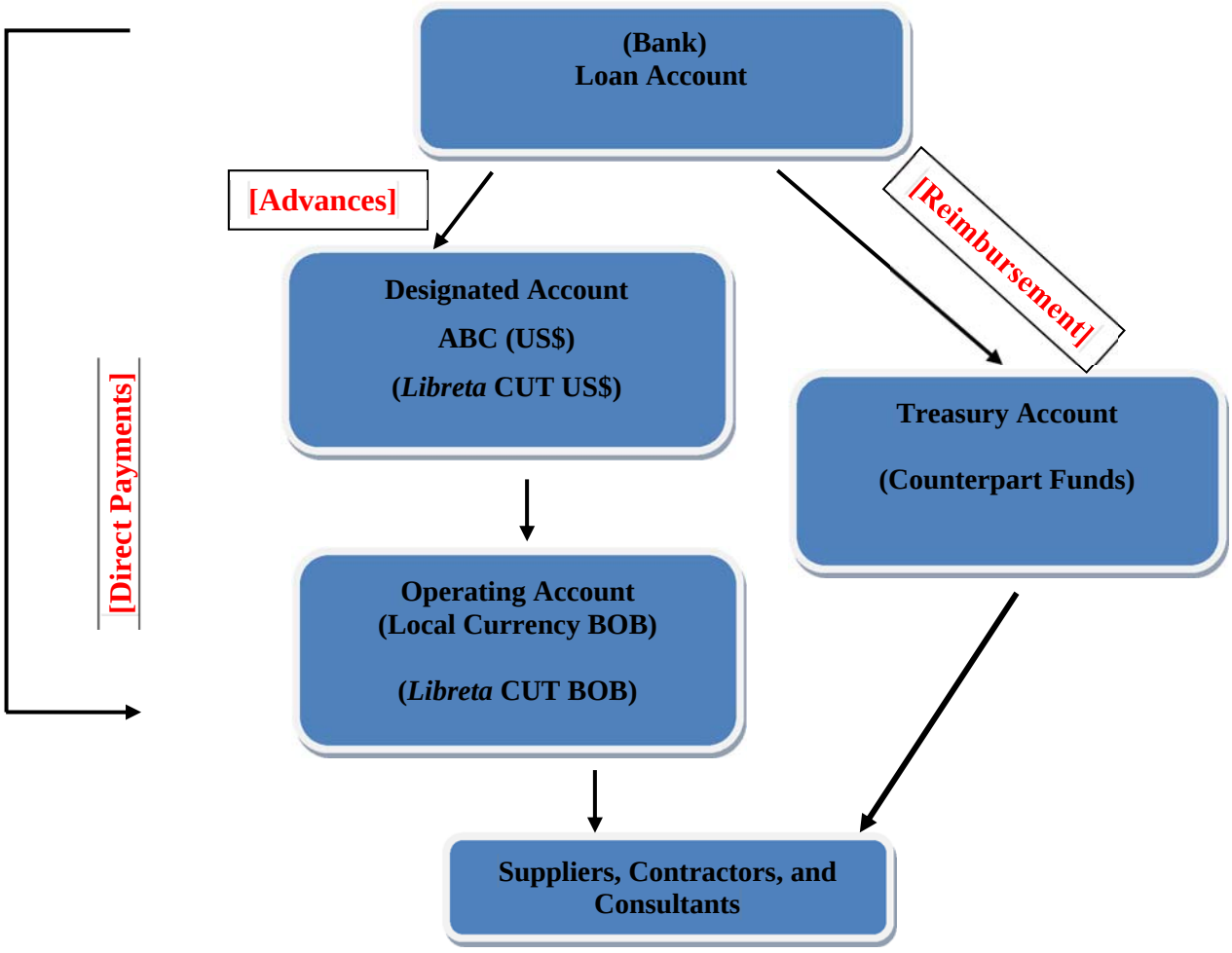
Audit Type	Due Date
Project financial statements	June 30
Special Opinions – Statement of Expenses	June 30

Disbursements and Flow of Funds Arrangements

20. Following the general practice of the current portfolio of WBG-financed projects in Bolivia, the following disbursement methods may be used to withdraw funds from the loan: (a) reimbursement, (b) advance, and (c) direct payment. Taking into account the nature of the activities, as well as the size of the contracts, it is expected that the direct payment option will become the preferred option, mainly to process payments under the civil work contracts. Overall disbursements from the Bank will follow standard policies and procedures illustrated in table 3.2 and further described in the disbursement letter.

[12] In accordance with the Bank's guidelines, the first and last audits may cover a period of up to 18 months.

Figure 3.1. Flow of Funds and Disbursement Methods



21. Under the advance method and to facilitate project implementation, a designated account in US$ will be opened and maintained by the ABC as part of the CUT system. In keeping with the current arrangements established by the Vice-ministry of Treasury and Public Credit for the operation and the use of a CUT in US$ (CUT-ME),[13] the designated accounts will be opened and maintained as a separate *Libreta* within the CUT in US$, which will also operate with a separate *Libreta* within the CUT in bolivianos, from which all payments will be processed.

22. For the specified DLIs, loan proceeds will be disbursed based on the achievement of each indicator in accordance with the criteria established (DLI tables at end of this annex) following either the advance or reimbursement method of disbursement. However, the amount disbursed for the cumulative achievement of the DLIs for the selected period cannot exceed the amount of eligible expenditures executed, based on budget execution reports of preselected budget line items, as reflected in the reports generated by SIGMA. The budget line selected is the salaries budget

[13] Supreme Decree No. 29236, dated August 22, 2007.

line. Disbursement arrangements for loan proceeds will be further described in the disbursement letter.

23. **Supervision strategy.** On a preliminary basis, the WBG plans to perform at least two supervision missions per year while also reviewing the annual audit reports and the semester IFRs.

Procurement

24. Procurement activities will be carried out by the ABC central office. As this will be the first time the CReCE will be used in Bolivia, risks are related to (a) technical and fiduciary teams' inadequate knowledge of Bank procurement procedures and contract monitoring and national companies' (contractors) lack of previous experience with Bank procurement procedures; (b) inadequate management of large contracts due to the ABC's lack of proper experience; (c) no offers received or no offers due to the new scope and responsibilities of contractors, given that the contractor is fully responsible for the detailed design and management of the works necessary to reach the required service levels and the durability and performance of the roads over the multiyear life-span of a lump-sum contract; (d) local firms not being able to participate and present claims to the Bank-given contract sizes; (e) at the bid process stage and the contract stage, probability of social problems arising from the RMMs that now have contracts with the ABC; (f) contractors winning at significantly lower prices than the engineer's estimates; and (g) timely supply of materials for the civil works. Based on the information available at the time of the appraisal, the procurement risk is deemed high. Based on the performance for the procurement process for the model (first section), the risk will be reduced to Substantial. However, the ABC's procurement activities will be carried out by the ABC central office.

25. Risk mitigation measures identified are given below.

(a) Bid documents are being elaborated in accordance with WBG Procurement Guidelines, and taking account of experiences from other countries in contractual arrangements for PBC's.
(b) A market research and communication strategy has been agreed upon with the aim of improving market response to the bidding processes, including a consultation with the contracting industry regarding draft technical and bid documents before tendering. In addition, a two-stage pre-bid conference is being implemented to ensure full appreciation and understanding of the contractual obligations.
(c) Consulting monitoring services will be engaged for support in the implementation of the CReCE. Finally, contract administration will be capacitated with the support of a multiyear consultancy.
(d) Project-specific OM focusing on fiduciary aspects including, among other things, procurement and contracting procedures will be adopted as a condition of effectiveness of the Financing Agreement.
(e) The Financing and Loan Agreements include additional provisions related to project implementation from a procurement perspective.
(f) The WBG will deliver a systematic training program on procurement for the existing and new lending operations and provide close monitoring, particularly during the first two years of project implementation.

26. Also, the ABC core and technical staff will be trained and certified by recognized firms or universities (procurement institute) in international procurement practices, bid evaluation, drafting, and contract management. It is envisaged that at least two procurement staff in each of the ABC's regional offices and at least 75 percent of ABC technical staff with responsibilities of the new procurement framework will be trained and certified. The cost will be eligible under 'training' defined below.

27. Procurement for the proposed Project will be carried out in accordance with the Bank's 'Guidelines: Procurement under IBRD Loans, IDA Credits and Grants by World Bank Borrowers' and 'Guidelines: Selection and Employment of Consultants under IBRD Loans, IDA Credits and Grants by World Bank Borrowers', both dated January 2011 and revised July 2014, and the provisions stipulated in the Legal Agreements. For each contract to be financed by the loan and credits, the different procurement methods or consultant selection methods, the need for pre-qualification, estimated costs, prior review requirements, and time frame, are agreed between the recipient and the Bank in the Procurement Plan (PP). The PP will be updated at least annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

28. **Procurement of works.** Works procured under this project may include the construction of urban roads infrastructure. Packages of ICB are foreseen. Also, packages amounting to under US$5,000,000 in the aggregate may be procured using National Competitive Bidding (NCB) processes. Shopping procedures may be used for contracts of up to US$200,000 (only in emergency cases). Procurement of works for the NCB or Shopping methods will be based on bidding documents satisfactory to the Bank.

29. **Procurement of goods and non-consultant services.** Goods procured under this project will include, among other things, civil construction goods necessary to carry out the project activities and goods (equipment, furniture, and materials) purchased for the project's implementation of each component. Procurement of goods will be done using the Bank's standard bidding documents (SBDs) for all ICB and bidding documents satisfactory to the Bank for NCB or Shopping methods.

30. All procurement notices will be advertised on the ABC and country's official procurement (*Sistema de Contrataciones del Estado*, SICOES) websites, and at least one local newspaper of wide national circulation. ICB notices and contract award information shall be advertised in the United Nations Development Business online (UNDB online), in accordance with provisions of paragraph 2.60 of the Procurement Guidelines. Also, invitation letters will be sent to the National and Regional Construction Chambers (*Cámara Boliviana de la Construcción*, CABOCO, and *Cámara de la Construcción*, CADECO).

31. **Selection of consultants.** Consulting firm services may be contracted for technical design studies, monitoring (supervision), audits, evaluations, and other purposes in accordance with the objectives of the proposed Project. The procurement of consulting firms will be carried out using the Bank's standard Request for Proposals documents. International firms should have the opportunity to participate in all solicitations above US$200,000. Short lists of consultants for services estimated to cost less than US$200,000 equivalent per contract may be composed entirely of national consultants (firms registered or incorporated in the country) in accordance with the

provisions of paragraph 2.7 of the Consultant Guidelines. Consulting firms will be selected following Quality- and Cost-based Selection (QCBS) for all contracts in the estimated amount of more than US$200,000.

32. **Selection of individual consultant services.** Individual consultant services will be contracted mostly for project management and for technical advice—mainly in the substantive matters of the proposed Project—but also for design, supervision, and technical assistance. The ToR, job descriptions, minimum qualifications, terms of employment, selection procedures, and the extent of Bank review of these procedures to contract and documents shall be described in the project-specific OM and the contract shall be included in the PP.

33. The ABC's and SICOES's websites and a national newspaper shall be used to advertise expressions of interest as the basis for developing short lists of consulting firms and individual consultants, and to publish information on awarded contracts in accordance with the provisions of paragraph 2.31 of the Consultant Guidelines and as mandated by local legislation. Contracts expected to cost more than US$200,000 shall be advertised in UNDB online.

34. **Training.** Training will include expenditures (other than those for consultants' services) incurred by the borrower to finance logistics for workshops, meetings, and seminars, as well as reasonable transportation costs and per diem of trainees and trainers (if applicable), training registration fees, and rental of training facilities and equipment. Procurement will be done using NCB and shopping procedures as discussed below.

35. **Operating costs.** The proposed Project will finance the incremental operational costs of implementing institutions, including salaries, travel costs, and subsistence for missions of project staff (excluding civil servants). The proposed Project will also finance support staff (soil testers, topographers, drivers, and secretaries) for the establishment and incremental operation of monitoring and supervision; operation and maintenance of project offices, including utilities and telecommunication and publications; and acquisition, operation, and maintenance of office and field equipment, including vehicles needed for project activities. These operating costs will be administered in accordance with the Bank's Procurement Guidelines, as appropriate. Procurement also will be carried out using the Bank's SBD or National SBD agreed with the Bank.

36. **OM.** The OM will be project specific with a focus on fiduciary aspects only.

37. **Procurement Plan.** A PP covering more than the first 18 months of project implementation has been discussed and agreed upon by the borrower and the project team during project appraisal, and the final version was cleared by the WBG. The PP activities consider the special nature of the proposed Project. It is available in the proposed Project's database and on the Bank's external website. The PP will be updated semiannually or as required to reflect the actual project implementation needs and improvements in institutional capacity. The PP sets forth those contracts which will be subject to the Bank's prior review. All other contracts are subject to post review by the Bank, except for those contracts terminated by the recipient's agency for which the borrower shall seek the Bank's no objection before the proposed termination.

38. **Frequency of procurement implementation support.** In addition to prior review implementation support missions to be carried out by the Bank, it is foreseen that the Bank will

perform semiannual missions, including field visits comprising contract implementation and monitoring, and post reviews of procurement actions. These contracts subject to post review will be reviewed by the Bank and, based on the findings of these reviews and the proposed ratings, the Bank may determine the revision of the prior review requirements. Details of the procurement arrangements involving international competition are given below.

(a) **Goods, works, and non-consulting services: List of contract packages to be procured following ICB and direct contracting.** It is expected that works will be procured through one ICB process consisting of five lots;[14] three lots will be smaller to allow for the participation of local bidders with the idea of strengthening local experience and capacity for future CReCE in Bolivia, as stated in the PDO (see procurement appraisal discussion in main text).

Table 3.1. Works

1	2	3	4	5	6	7	8	9
Ref. No.	**Contract (Description)**	**Estimated Cost (US$, millions)**	**Procurement Method**	**P-Q**	**Domestic Preference (yes/no)**	**Review by Bank (Prior / Post)**	**Expected Bid-Opening Date**	**Comments**
1	CReCE	180	ICB	NO	No	Prior	06-2016	X

(b) **Consulting services: List of consulting assignments with short list of international firms.** On the other hand, for the corresponding 'monitoring' contracts of the works, three different consultant contracts could be awarded through an international process. The idea behind three contracts instead of one is not only to learn from the best practices of each monitoring contract but also to have additional options in case one of the consultant firms fails to perform the services.

Table 3.2. Consultants

1	2	3	4	6	7
Ref. No.	**Contract (Description)**	**Estimated Cost (US$, millions)**	**Selection Method**	**Review by Bank (Prior / Post)**	**Expected Proposal Submission Date**
1	Consulting services for the monitoring	13.6	QCBS	Prior	March 2016
2	Contract management support	2.0	QCBS	Prior	
3					

[14] Two of these five lots will have an estimated cost of US$60 million each. The other three have an estimated cost of US$20 million each.

39. Thresholds for procurement methods and prior review are given in table 3.5.

Table 3.3. Procurement Methods and Prior Review Thresholds

Expenditure Category	Contract Value (Threshold) (US$, thousands)	Procurement Method	Bank Prior Review
1. Works	>5,000	ICB	All
	200–5,000	NCB	First two each year
	<200	Shopping (Price Comparison) (only in case of emergency)	First two each year
	Regardless of value	DC	All
2. Goods	>300	ICB	All
	100–300	NCB	First two each year
	<100	Shopping	First two each year
	Regardless of value	DC	All
3. Consultant Services	>200	QCBS	All
	<200	QCBS, QBS, CQS, FBS, LCS (as per PP)	All ToRs. Selection process reviewed twice yearly (ex post)
	Regardless of value	SSS	All
4. Individual Consultants	>100	IC	All
	<100	IC	All ToRs. Selection process reviewed twice yearly (ex post). All contracts awarded under SSS and key personnel.
	Regardless of value	SSS	All

Note: DC = Direct Contracting; QBS = Quality-Based Selection; CQS = Selection based on the Consultants' Qualifications; FBS = Selection under a Fixed Budget; LCS = Least-Cost Selection; SSS = Single Source Selection; IC = Individual Consultant.

40. Additionally, all ToRs for consulting services are subject to review and agreement with the Bank.

Environmental and Social (including safeguards)

41. **Environmental unit.** The GSA of the ABC has 30 staff in La Paz for the overall country supervision of environmental and social management of all types of road works (including

construction of new roads and rehabilitation works), which is a constraint for overall environmental and social management of the sector.

42. This project has been rated as Category B following OP 4.01. The ABC has prepared an EMF which will apply to the corridor and specific EMPs will be prepared once detailed designs have been prepared for the works. Even though roads to be improved under the proposed Project are far away from any local or protected area, OP 4.04 and OP 4.11 are triggered and the EMF includes measures to screen for potential impacts of induced long-term changes to habitats and forests.

43. **Potential environmental impacts.** The proposed Project will improve the condition of the paved primary road network project with important positive effects such as (a) improved access to transportation for passengers and transport of products; (b) improved road safety; and (c) improved communication between isolated regions. Potential negative impacts may include cutting of vegetation, soil erosion, and changes in water quality and flows of streams. Improvement of roads could also indirectly affect or increase the rate of road accidents.

44. Most of the significant negative environmental impacts already occurred during the first pavement of the Trinidad-Santa Cruz road, 15 years ago. Since each of the segments will have a specific EMP, measures to prevent and/or mitigate potential negative impacts will be addressed based on the geographical and environmental context of each particular road segment.

45. Each EMP will have appropriate screening criteria to ensure that (a) impacts on natural habitats are properly evaluated; (b) mitigation measures to address potential impacts of increased visitors to sensitive environmental sites expected as a result of the proposed Project are included; (c) sensitive issues such as environmental protection and proper use of available water sources along the road segment and the conservation of fauna in places of ecological interest are considered; (d) issues related to pedestrian health and safety, particularly around populated areas, are assessed and have measures to be prevented and/or mitigated; and (e) occupational health and safety considerations are duly included.

46. As a sidelight to compliance with Bank safeguards and the national legislation, it is recommended to evaluate the potential of simple actions to improve environmental management in the municipalities in the area of the three road segments such as campaigns for better management of waste, protection of sites of historical interest, better understanding of native flora and fauna, and other actions that could highlight the ecological, historical, and cultural value of the area.

47. **Bolivian environmental regulatory framework.** The Bolivian Constitution entitles citizens to a clean environment, access to information and participation, and respect for cultural diversity. The main environmental legal framework protecting the environment (water, soil, forest, and air), protected areas, flora and fauna, and cultural resources is the Environmental Law No. 1333 from April 1992. Other important legislation includes the Wildlife Law (DL 12301), Protected Area Regulations (DS 24781), and Regulations for Archeological Studies (*Reglamento de Excavaciones Arqueológicas en Bolivia. Resolución Ministerial* No. 082/97).

48. Currently, the ABC has two regional generic environmental licenses (*Certificado de Dispensa*) issued by the Ministry of Environment: (a) for routine maintenance (2004–2014) and (b) for road rehabilitation and maintenance works (2012–2022). These licenses are granted for a 10-year period. The ABC prepares annual or biannual reports for the Ministry of Environment. License (b) excludes any intervention within protected areas.

49. The ABC uses several environmental instruments to evaluate, monitor, and supervise environmental management. These instruments are listed below.

(a) Socio-environmental Manual. The ABC has developed a comprehensive instrument to guide the environmental management of road projects; the *Manual Ambiental para la Conservación Vial de la ABC* (ISO 9001) includes a detailed description of prevention and mitigation measures to reduce impacts and risks associated with ABC road interventions. It is a good publication but is not well disseminated. Its application is mandatory.
(b) *Ficha Ambiental* (Environmental Form). It is a preliminary instrument to classify a project and must be completed and presented to the Ministry of Environment.
(c) *Planteamiento de Medidas de Mitigación y Plan de Aplicación y Seguimiento Ambiental* (Mitigation and Monitoring Plan) which provides general mitigation and supervision activities for the regional license and are therefore not project specific.
(d) *Documento Base* (Bidding Document), which often includes environmental clauses and a fee of 0.2 percent in case of environmental non-compliance.
(e) *Informe Mensual Ambiental* (Supervision Monthly Reports) for rehabilitation works and *Informe Monitoreo Ambiental* (Annual Monitoring Environmental Report) which is sent to the Ministry of Environment.

50. **Monitoring of works.** Several actors participate in the monitoring of works: (a) environmental specialist from the ABC regional offices or from La Paz, who provides general oversight of the works, (b) road engineer responsible for the work, (c) engineer's assistant who supervises the supervision company, and (d) the monitoring firm to be hired to supervise the overall contract in the name of the ABC.

51. The social impacts of the proposed Project are considered to be positive. Based on the consideration that the proposed Project is supporting rehabilitation works (and maintenance) for existing roads, the most important physical impacts are existing. Identified positive impacts are mainly reduced costs and travel time and convenience of travel. In addition, households and communities will benefit from the investment through increased economic activity and employment opportunities during the contract period. However, there are also some possible negative impacts that need to be considered, especially on indigenous peoples, given possible new interactions with the drivers of heavy trucks and passenger vehicles on the route. The most vulnerable segments of the indigenous populations are the women and children.

52. The government of Bolivia has shown a commitment to gender equality as it is one of the values identified in Bolivia's political constitution. The country has already achieved some progress in reducing the gender gap, including by having met the Millennium Development Goal related to gender parity in education. However, there are still gender disparities that need to be addressed in the country, such as gender-based differences in literacy and school completion which

are larger for indigenous women. They also suffer more discrimination than non-indigenous peoples, which leads to less access to economic opportunities and resources for the former.

53. As indigenous women are one of the more vulnerable population groups, they are also more susceptible to suffer from any potential negative impacts of the proposed Project. Evidence from other countries has shown that long-distance truck drivers who travel on rural roads can engage in drug abuse and commercial sex with vulnerable women in the surrounding areas and this can lead to the spread of HIV/AIDS and sexually transmitted diseases. Moreover, Bolivia has been identified by the United Nations as one of the countries with a high rate of road accidents. In this sense, road safety should not be gender blind: for a proper assessment of the situation, data collection, including details of the people that suffer them (gender and age) will be collected. The differentiation of mobility patterns between men and women needs to be analyzed as well to properly address road safety issues. In this context, negative impacts on women can be identified through the participatory processes, already contemplated by the proposed Project, with indigenous peoples. However, to make these processes gender sensitive, the cultural barriers that impede women from attending community consultations need to be identified to encourage their participation and get a better sense of the issues that they might be facing as a consequence of the proposed Project.

54. An SA that was prepared shows no indications of irregular occupations within the right-of-way or informal sale-points that need to be relocated. Moreover, no involuntary resettlements or land acquisition are foreseen. However, it should be expected there may be some adjustments in the final designs, which may eventually include land acquisition or resettlement due to expansions of the road, improvements in the geometry to mitigate risks, inclusion of some detours, among others. Therefore, appropriate instruments to mitigate the impacts that may emerge have to be considered.

55. The SA identified the presence of two indigenous peoples in the work's influence areas, and they are considered during project preparation and implementation, in compliance with Bank policies. One of the indigenous peoples identified is the Guarayo, whose ancestral territory covers the *Municipality of Ascension de Guarayo, Urubichá, and El Puente*. This community has its own Guarayo language and they also speak Spanish. Organizationally, they describe themselves as part of the Central Native Guarayo Peoples Organization and at a national level they are part of the Confederation of Eastern Bolivia Indigenous Peoples. The Guarayo people are farmers, and farming is complemented by animal husbandry and in some cases hunting and fishing in the nearby rivers and lakes.

56. The other indigenous peoples identified are the Sirionó. They inhabit forests in the lowlands of Bolivia, south of Beni and Santa Cruz in the northwest. Their territory covers a part of the municipalities of Trinidad, San Andres, and San Javier. Their languages are Sirionó and Spanish. They are part of the Central of Indigenous Peoples of Beni and at the national level they are part of the Confederation of Eastern Bolivia Indigenous Peoples. Most of their Native Indigenous Territories are located in the highlands, with wooded areas that allow agriculture activities, complemented by hunting and food collection. To improve household incomes, they sell their agricultural and farm products and they join the labor force.

57. The ABC has conducted participatory consultations with civil society organizations and stakeholders during the preparation of the proposed Project. Consultations with Guarayo and Sirionó indigenous peoples included the national-level organizations. In addition, consultations with the authorities and indigenous Sirionó and Guarayo communities were developed. As a result of the consultation process, broad Guarayo and Siriono communities support was achieved. Both indigenous peoples identified that the project will benefit them by opening possibilities that promote local economic development and access to basic services. However, both Sirionó and Guarayo communities pointed out that outsider population (contractors) will increase and this determined that both groups have considered it is critical to spread their culture to external agents. The IPP was developed taking into consideration this main aspect. The ABC has an established grievance redress mechanism used in all the ABC's projects.

58. 'Social Control' is an instance of coordination generated through official communication of the ABC to the local actors of a project, to exercise their right of participation and social control in pre-investment and investment projects under the responsibility of the ABC. Each organization of the local civil society is asked to choose a representative, according to their uses and customs. Each organization officially communicates the nomination of their representative to the ABC, specifying the project that will be accompanied. The Regional ABC Offices perform the induction of the formed group, socializes institutional information, brings information on national legislation, and establishes the rules for participation and social control. The ABC also hands out credentials to each member. Thereafter, the relationship between the responsible engineer for the section, contractors, and members of Social Control is established. Then, the need of inspections and/or briefings to perform management is determined. This is done with the coordination of members of the Social Control in the specific sections of the road project. After this, a training program for Social Control members is developed, according to institutional and project needs, and Social Control itself. Monitoring is performed under the consideration of its contribution to the Regional ABC Office for compliance of certain activities, issuing periodic reports to achieve better levels of accomplishment. At the end of the year, the Regional Management ABC Office reports assessment on the implementation of activities, level of participation, and contributions of the Social Control platform in the project activities. The ABC Transparency Unit collects the results of the assessment made by the Regional Offices, consolidates the information, and reports to the executive presidency. The ABC also communicates to social organizations about the work their representatives have done during the year.

59. **OP 4.12 - Resettlement Policy.** Although the proposed Project characteristics have not raised the need for new works requiring land acquisitions, OP 4.12 on Involuntary Resettlement of active populations is triggered to anticipate possible future needs (and unforeseen). Consequently, the ABC has prepared an RPF, consistent with Bolivian laws and in compliance with the Bank safeguards. The RPF considers the protocol needed to develop an RAP if required, according to possible changes to the project designs that could consider impacts on lands, properties, or involuntary resettlement of populations.

60. **OP 4.10 - Indigenous Peoples.** The policy is triggered and an IPP for Guarayo and Siriono indigenous peoples has been prepared by the ABC. Following approval by the WBG of the IPP, it was published on the ABC website on September 10, 2015 and by the Bank on its InfoShop website on September 11, 2015. Sirionó and Guarayo indigenous peoples will participate in the proposed Project benefits. The result is acceptance of the proposed Project and interest in participating in

the proposed Project benefits through the IPP. The three main strategies for the IPP, defined by the Sirionó and Guarayo people are:

(a) intercultural dialogue and knowledge rescue to strengthen Sirionó and Guarayo cultures;
(b) mechanisms to promote respect for Sirionó and Guarayo people and cultures; and
(c) education on roads usage and garbage management for indigenous Sirionó and Guarayo communities.

61. During the assessment of the ABC's capacity, some weaknesses in the ABC's Socio-environmental Manual were identified. Therefore Component A of the proposed Project incorporates activities to support updating guidelines and procedures for involuntary resettlement and indigenous peoples.

Monitoring and Evaluation

62. The ABC's existing M&E framework will be strengthened through implementation of the integrated FM information system, in particular through an improvement of fiduciary systems and technical planning. The M&E of Component A activities will be the responsibility of the office of the director of Technical Management of the ABC, supported by staff dedicated to facilitate the preparation and implementation of capacity-development activities. Progress and results reached under Component B will be gathered through contractually required reporting by the CReCE contractors and monitoring consultants and overseen by the ABC Preservation Unit. The ABC will prepare quarterly reports detailing financial and physical progress of all activities. Also, through citizen engagement, the ABC supports a system where the beneficiary population in road works are organized to undertake a formal monitoring of the works.

63. Meanwhile, the WBG, especially at the beginning of implementation, will support the ABC in ensuring adequate monitoring progress and achievement of the proposed Project indicators and results by undertaking technical assessments at two different execution stages of the CReCE as implementation support and by supporting additional assessment and consultation to better understand possible gender dynamics of the contracting methodology and work interventions. Capacity-development activities will be administered and monitored directly by the office of the director of Technical Management. Midterm review will be held around June 2018.

DLIs, Disbursement Arrangements and Verification Protocols
DLI Matrix

	Total Financing Allocated to DLI	US$ millions Allocated	DLI Baseline	Indicative Timeline for DLI Achievement				
				Y1	Y2	Y3	Y4	Y5
DLI 1 Implementation of an integrated FM information system in the ABC	**US$2.5 million**							
DLI 1.1 ABC has approved the design of an integrated FM information system based on revised operational procedures, acceptable to the WBG	-	0.5	-	-	Conceptual design approved by the ABC's management	-	-	-
DLI 1.2 ABC has installed and operationalized the approved integrated FM information system in the ABC's central office and in at least five of its regional offices, in a manner acceptable to the WBG	-	1.5	-	-	-	Integrated FM information system installed and operationalized in the ABC's central office and in at least five of its regional offices	-	
DLI 1.3 At least 75% of ABC technical staff with responsibilities related to operational tasks in the	-	0.5	-	-	-	-	75% of technical staff with responsibilities related to	-

	Total Financing Allocated to DLI	US$ millions Allocated	DLI Baseline	Indicative Timeline for DLI Achievement				
				Y1	Y2	Y3	Y4	Y5
ABC's central office and in five of its regional offices have been trained on the revised operational procedures and the integrated FM information system, under the ToR acceptable to the WBG							operational tasks in the ABC's central office and 75% of staff in five regional offices trained on the procedures and use of the system	
DLI 2 Strengthening ABC's environmental and social management capacity concerning road works	**US$1.0 million**							
DLI 2.1 ABC's Socio-environmental Manual has been (a) updated to include guidelines for addressing involuntary resettlement in the right-of-way of roads, on terms acceptable to the IDA and (b) thereafter approved in a manner acceptable to the WBG	-	0.4	-	-	-	Guidelines approved	-	-
DLI 2.2 The ABC's Socio-environmental Manual has been (a) updated to include criteria to assess collective	-	0.4	-	-	-	Guidelines approved	-	-

	Total Financing Allocated to DLI	US$ millions Allocated	DLI Baseline	Indicative Timeline for DLI Achievement				
				Y1	Y2	Y3	Y4	Y5
vulnerability of indigenous peoples' cultures, on terms acceptable to the IDA and (b) thereafter approved, in a manner acceptable to the WBG								
DLI 2.3 All ABC social and environmental staff and at least 75% of ABC technical staff with responsibilities related to works supervision, have been trained on the description of the features of the updated ABC's Socio-environmental Manual; and at least one workshop has been organized with private sector contractors and consultants, all on terms and in a manner acceptable to the WBG	-	0.2	-	-	-	-	Training and disseminatio n completed	-
DLI 3 Development of rehabilitation planning strategy for the recipient's paved primary road network	**US$1.5 million**							
DLI 3.1 A Pavement Management System has been installed	-	1.0	No Pavement Management	-	-	(a) Pavement Management	-	-

	Total Financing Allocated to DLI	US$ millions Allocated	DLI Baseline	Indicative Timeline for DLI Achievement				
				Y1	Y2	Y3	Y4	Y5
in the ABC and populated with information on the road condition of at least 50% of the recipient's paved primary road network; and at least three ABC technical staff have received training on the use of the Pavement Management System, all on terms and in a manner acceptable to the WBG			System installed			System installed (b) populated with information related to the paved primary road network (c) three technical staff trained		
DLI 3.2 The installed Pavement Management System in ABC is operative	-	0.3	No operative Pavement Management System	-	-	-	Pavement Management System operative	-
DLI 3.3 (a) The installed and operative Pavement Management System in ABC has been fed with information on the road condition of at least 90% of the recipient's paved primary road network; (b) 20% of the information fed in the Pavement Management System under DLI 3.1 (a) has been updated, all on terms and in a manner acceptable to the WBG	-	0.2	No Pavement Management System operative	-	-	-	-	Pavement Management System operative and populated with updated information related to the paved primary road network

	Total Financing Allocated to DLI	US$ millions Allocated	DLI Baseline	Indicative Timeline for DLI Achievement				
				Y1	Y2	Y3	Y4	Y5
Total Financing Allocated:	**US$6 million**							

DLI Verification Protocol Table

DLI	Definition/ Description of achievement	Scalability of Disbursements (Yes/No)	Protocol to evaluate achievement of the DLI and data/result verification		
			Data source/agency	Verification Entity	Procedure
DLI 1 Implementation of an integrated FM information system in the ABC					
DLI 1.1 ABC has approved the design of an integrated FM information system based on revised operational procedures, acceptable to the WBG	The conceptual design of the new integrated FM information system has been approved by the ABC's National Administrative-FM office to initiate its development.	No	National Administrative-FM office - ABC	ABC	ABC will submit to the Bank: (a) a copy of the report issued by ABC's National Administrative-FM office approving the conceptual design and authorizing the initiation of the development phase; and (b) a copy of the approved conceptual design.
DLI 1.2 ABC has installed and operationalized the approved integrated FM information system in the ABC's central office and in at least five of its	(a) The system is installed and operationalized in ABC's central office. (b) The system is installed and operationalized in at	No	National Administrative-FM office - ABC	ABC	ABC will submit, to the Bank, a report on the completion of the installation at the central office and in selected regional offices (at least five), accompanied by a report issued

regional offices, in a manner acceptable to the WBG.	least five regional offices.				by an information systems specialist certifying the adequate operation of the system.
DLI 1.3 At least 75% of ABC technical staff with responsibilities related to operational tasks in ABC's central office and in five of its regional offices have been trained on the revised operational procedures and the integrated FM information system, under ToR acceptable to the WBG.	75% of staff with responsibilities in operational tasks in the central office and 75% of staff in five regional offices trained	No	National Administrative-FM office - ABC	ABC	ABC will submit, to the Bank, a report attaching the training schedule, training material, list of participants in different offices, and attendance record.
DLI 2 Strengthening ABC's environmental and social management capacity concerning road works					
DLI 2.1 ABC's Socio-environmental Manual has been (a) updated to include guidelines for addressing involuntary resettlement in the right-of-way of roads, on terms acceptable to the Association and (b) thereafter approved in a manner acceptable to the WBG.	Content of the guidelines to be consulted with the Bank to ensure that shortcomings identified are addressed.	No	Gerencia Nacional Técnica – GSA - ABC	ABC	ABC will prepare a report certifying that the result is achieved. The report will include the relevant documentation for Bank verification, including a copy of ABC's presidency or board resolution.

DLI 2.2 ABC's Socio-environmental Manual has been (a) updated to include criteria to assess collective vulnerability of indigenous peoples' cultures, on terms acceptable to the Association and (b) thereafter approved, in a manner acceptable to the WBG.	Content of the guidelines to be consulted with the Bank to ensure that shortcomings identified are addressed.	No	Gerencia Nacional Técnica – GSA - ABC	ABC	ABC will prepare a report certifying that the result is achieved, according with articles 30 and 31 of the Constitution and Law No. 3760. The report will include the relevant documentation for Bank verification, including a copy of ABC's presidency or board resolution.
DLI 2.3 ABC social and environmental staff and at least 75% of ABC technical staff with responsibilities related to works supervision have been trained on the description of the features of the updated ABC's Socio-environmental Manual; and at least one workshop has been organized with private sector contractors and consultants, all on terms and in a manner acceptable to the WBG.	(a) The guidelines have been disclosed on the web page of ABC. (b) Social and environmental staff of ABC have been trained. (c) At least 75% of technical staff involved in the project have been trained. (d) Two workshops for the private sector have been held, as evidenced by training materials and attendance logs.	No	Gerencia Nacional Técnica – GSA - ABC	ABC	ABC will prepare a report certifying that the result is achieved. The report will include the relevant documentation for Bank verification, including a copy of the ABC's presidency or board resolution.
DLI 3 Development of rehabilitation planning strategy for the recipient's paved primary road network					

DLI 3.1 A Pavement Management System has been installed in ABC and populated with information on the road condition of at least 50% of the recipient's paved primary paved road network and (b) at least three ABC technical staff have received training on the use of the Pavement Management System, all on terms and in a manner acceptable to the WBG.	(a) Pavement Management System installed and populated with data covering 50% of the network condition, including information about traffic, IRI, deflections, rutting depth, cracking, and potholes. (b) Three technical staff of ABC trained in the use of the Pavement Management System, certified by the firm which is providing the system and training the users.	No	Gerencia Nacional Técnica - Subgerencia Conservación Vial - ABC	ABC/WBG	ABC will submit a report certifying the system is installed and populated with data for 50% of the network condition, including information about traffic, IRI, deflections, rutting depth, cracking, and potholes. The report will also contain evidence of the training of at least three technical staff of ABC duly certified.
DLI 3.2 The installed Pavement Management System in ABC is operative.	Rehabilitation planning strategy of intervention and prioritization and an Investment Plan generated through the Pavement Management System	No	Gerencia Nacional Técnica - Subgerencia Conservación Vial - ABC	ABC	ABC will submit, to the Bank, a copy of the Investment Plan generated through the Pavement Management System, including evidence of its submission for ABC's board approval.
DLI 3.3 (a) The installed and operative Pavement Management System in ABC has been fed with information on the road	(a) System populated with 90% of the network condition information (b) 20% of portion of the network populated	No	Gerencia Nacional Técnica - Subgerencia Conservación Vial - ABC	ABC	ABC will submit, to the Bank, a copy of the Investment Plan generated through the Pavement Management System, including evidence of its submission for ABC's board

condition of at least 90% of the recipient's paved primary road network and (b) 20% of the information fed in the Pavement Management System under DLI 3.1 (a) has been updated; all on terms and in a manner acceptable to the WBG.	on year three has been updated (c) Rehabilitation planning strategy of intervention and prioritization and an Investment Plan generated through the Pavement Management System				approval. The report will also include evidence that the system has been properly populated with the information required.

Bank Disbursement Table

DLI	**Bank financing allocated to the DLI** (US$, millions)	**Of which Financing available for**		**Deadline for DLI Achievement[1]**	**Minimum DLI value to be achieved to trigger disbursements of Bank Financing [2]**	**Maximum DLI value(s) expected to be achieved for Bank disbursements purposes [3]**	**Determination of Financing Amount to be disbursed against achieved and verified DLI value(s) [4]**
		Prior results	***Advances***				
DLI 1 Implementation of an integrated FM information system in ABC	**2.5**						
DLI 1.1 ABC has approved the design of an integrated FM information system based on revised operational procedures, acceptable to the WBG.	0.5	-	-	December 31, Y2	n.a	n.a	100% disbursement once achievement verified by the Bank
DLI 1.2 ABC has installed and operationalized the approved integrated FM	1.5	-	-	December 31, Y3	n.a	n.a	100% disbursement once achievement verified by the Bank

information system in the ABC's central office and in at least five of its regional offices, in a manner acceptable to the WBG.							
DLI 1.3 At least 75% of ABC technical staff with responsibilities related to operational tasks in ABC's central office and in five of its regional offices have been trained on the revised operational procedures and the integrated FM information system, under ToR acceptable to the WBG.	0.5	-	-	December 31, Y4	n.a	n.a	100% disbursement once achievement verified by the Bank
DLI 2 Strengthening ABC's environmental and social management capacity concerning road works	**1.0**						
DLI 2.1 ABC's Socio-environmental Manual has been (a) updated to include guidelines for addressing involuntary resettlement in the right-of-way of roads, on terms acceptable to the Association and (b) thereafter approved in a manner acceptable to the WBG.	0.4	-	-	December 31, Y3	Not applicable (n.a.)	n.a.	100% disbursement once achievement verified by the Bank

DLI 2.2 ABC's Socio-environmental Manual has been (a) updated to include criteria to assess collective vulnerability of indigenous peoples' cultures, on terms acceptable to the Association and (b) thereafter approved, in a manner acceptable to the WBG.	0.4	-	-	December 31, Y3	n.a.	n.a.	100% disbursement once achievement verified by the Bank
DLI 2.3 All ABC social and environmental staff and at least 75% of ABC technical staff with responsibilities related to works supervision, have been trained on the description of the features of the updated ABC's Socio-environmental Manual; and at least one workshop has been organized with private sector contractors and consultants, all on terms and in a manner acceptable to the WBG.	0.2	-	-	December 31, Y4	n.a.	n.a.	100% disbursement once achievement verified by the Bank
DLI 3 Development of rehabilitation planning strategy for the recipient's paved primary road network	**1.5**						

DLI 3.1 A Pavement Management System has been installed in ABC and populated with information on the road condition of at least 50% of the recipient's primary paved road network and (b) at least three ABC technical staff have received training on the use of the Pavement Management System, all on terms and in a manner acceptable to the WBG.	1.0	-	-	December 31, Y3	n.a.	n.a.	100% disbursement once achievement verified by the Bank
DLI 3.2 The installed Pavement Management System in ABC is operative.	0.3	-	-	December 31. Y4	n.a.	n.a.	100% disbursement once achievement verified by the Bank
DLI 3.3 (a) The installed and operative Pavement Management System in ABC has been fed with information on the road condition of at least 90% of the recipient's primary paved road network and (b) 20% of the information fed in the Pavement Management System under DLI 3.1 (a) has been updated; all on terms and in a manner acceptable to the WBG.	0.2	-	-	December 31. Y5	n.a.	n.a.	100% disbursement once achievement verified by the Bank

Annex 4: Implementation Support Plan

PLURINATIONAL STATE OF BOLIVIA: Road Sector Capacity Development Project

Strategy and Approach for Implementation Support

1. As the proposed Project is introducing a new (for Bolivia) results-based contracting methodology and given the Project's risk profile, the WBG implementation strategy envisions intense support to the client in the initial 24 months after board approval with the aim of (a) rapidly advancing toward implementation of capacity-development activities and (ii) establishing sound CReCE contracting arrangements and contract execution from the start, with lessons quickly learned and adapted in future CReCE contracting by the ABC.

2. The maturity in policy and strategy dialogue between the ABC and the WBG, along with clarity and consensus in tactical discussions, holds the promise that both will work together to ensure successful implementation of the proposed Project.

Implementation Support Plan

3. As it is evident that good preparation upstream mitigates risks and undesirable implementation issues downstream, the focus of the initial months of implementation support will be on ensuring good quality of technical and procurement documents before tendering starts. For a successful start of the CReCE, the WBG has shared good experiences in similar contracting from other countries. The Bank procurement specialist is and will work closely with client and technical team members to ensure bid documents are of high quality; to support this process, the Bank will provide the ABC with targeted procurement and contract management training early on.

4. During the bidding processes, the WBG will support and advise the ABC to improve the prospect that the selection of consultants and contractors is of good quality and brings value to the client.

5. During the implementation of project activities, the Bank plans to conduct three formal support missions per year, aimed at reviewing progress with the client and promptly addressing any deviations from good project implementation.

6. Throughout the proposed Project lifetime, the WBG expects to have road sector policy and strategy discussions with the client and occasionally consult other financial partners working in the sector.

What would be the main focus in terms of support to implementation during?

Time	Focus	Skills Needed	Resource Estimate	Partner Role
First 12 months				
	Launching capacity-development activities	• FM specialist • Infrastructure specialist • Social/environment • Procurement specialist	Staff and consultant time; missions; WBG training provided	Develop and execute
	Successful CReCE contracting	• Procurement specialist • CReCE expert team leader	Staff and consultant time; missions; WBG training provided	Execution and marketing
	Set stage for ongoing consultations	• Social/environment • Gender specialist • Transport economist	Staff and consultant time; field work	Facilitate and participate
12–48 months				
	Contract execution and contract management	• Procurement specialist • CReCE expert • Infrastructure specialist • Team leader	Staff and consultant time; missions; field work	Training/Execute
	Social and environment management	• Social/environment • Gender specialist	Staff time	Develop and execute; training
	Capacity Development	• FM specialist • Infrastructure specialist • Social/environment • Transport economist	Staff time	Training/Execute

Skills Mix Required

Skills Needed	Number of Staff Weeks	Number of Trips	Comments
Team leader	10	4	Headquarters
CReCE expert	10	4	Buenos Aires
Infrastructure specialist	15	3	La Paz/Tegucigalpa
Transport economist	5	2	Headquarters
Social specialist	10	3	La Paz/Bogotá
Environment specialist	5	n.a.	La Paz
Gender specialist	5	2	Headquarters
Procurement specialist	10	n.a.	La Paz
FM specialist	6	2	Headquarters
Legal counsel	1	0	Headquarters

Partners

Name	Institution/Country	Role
ABC Management	ABC/Bolivia	Project execution
Ministry of Planning Development/Vice-ministry of Public Investment and External Finance	Bolivia	Policy and strategy

Annex 5: Economic Evaluation

PLURINATIONAL STATE OF BOLIVIA: Road Sector Capacity Development Project

Economic Evaluation

27. The Santa Cruz -Trinidad road corridor will be implemented through three CReCE models of the PBCs. As only the 183 km section covering the middle of the corridor, *Yotaú-Nueva Cotoca*, has been prepared, it has been appraised for economic evaluation purposes. Once the remaining sections are technically prepared, the WBG will ascertain if their IRR is at least 12 percent.

28. A four-year old design existed for this section as well as for most of the remainder of the corridor, and the ABC has assessed the current condition of the road and updated the design as appropriate for the purposes of the CReCE. Rehabilitation works identified for this section are based on annual traffic densities, varying from 890 to 560 ADT, with estimated traffic growth of 5.5 percent for small vehicles and 4.2 percent for freight vehicles.

29. The proposed Project's economic evaluation was carried out on the HDM-4 model, which simulates life cycle conditions and costs and provides economic decision criteria for multiple road design and maintenance alternatives. Based on the current conditions (initial situation) of the roads, traffic data, and the characteristics of the vehicles fleet and the unitary costs, HDM-4 simulated deterioration of pavements and variations in vehicle operating costs, travel times, and other parameters (for instance decrease in road traffic accidents). Under the current economic evaluation, only two benefits were quantified: savings due to decreases in vehicle operating costs and decrease in travel time costs.

30. Using HDM-4, comparisons were made to estimate benefits from several alternatives for rehabilitation of the road sections, as compared to a base scenario. Scenarios for the analysis, with a total evaluation period of 20 years, were defined as follows:

(a) Base scenario: Road reconstruction when the IRI >8 m per km with later rehabilitations of minimum thickness
(b) Alternative scenarios: Road rehabilitations with different thicknesses of AC (4 cm, 5 cm, 6 cm, and 7 cm) and later renovations applied when the IRI reaches a value >4 m per km

31. The economic analysis yields an NPV of US$8.9 million, at 12.67 percent discount rate, and an economic rate of return of 18.1 percent.

32. Table 2.3 indicates the unit economic costs of vehicle traffic and assumptions used.

Table 2.4. Vehicles Fleet Characteristics and Unitary Costs

	Car	Pick up	Small Bus	Medium Bus	Large Bus	Medium Truck	Large Truck	Articulated Truck
Unitary Costs								
New Vehicle Cost (US$/veh.)	22,632	28,697	25,553	61,120	284,604	37,536	120,293	160,937
New Tire Cost (US$/veh.)	40.11	120.29	120.29	310.77	310.77	310.77	310.77	310.77

Fuel Cost (US$/liter)	0.87	0.87	0.87	0.87	0.88	0.88	0.88	0.88
Lubricant Cost (US$/liter)	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25
Maintenance Labor Cost (US$/hour)	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56
Crew Cost (US$/hour)	0.46	0.46	1.18	1.18	1.93	1.41	2.46	2.46
General Costs (US$)	350	400	750	750	1,000	750	950	1,200
Interest Rate (%)	12	12	12	12	12	12	12	12
Passenger Time (US$/hour)	1.22	1.22	0.83	0.83	0.83	0.01	0.01	0.01
Cargo Delay (US$/hour)	0.01	0.01	0.02	0.01	0.01	0.02	0.10	0.14
Utilization and Loading								
Kilometers Driven per Year	30,000	45,000	30,000	70,000	55,000	50,000	70,000	85,000
Hours Driven per Year	500	750	750	1,750	1,000	1,000	1,900	2,050
Service Life (years)	10	10	8	7	10	10	10	10
Percent of Time for Private Use	100	100	0	0	0	0	0	0
Number of Passengers	4	5	10	30	40	0	0	0
Gross Vehicle Weight (tons)	1.4	2.3	1.5	6.0	10.0	7.5	18.0	40.0
ESA Loading Factor	0.0	0.02	0.01	0.70	1.60	3,0	7.0	8.0
Typical Composition of Vehicle Fleet								
Yotaú- Ascención de Guarayos	889 vehicles /day	17.9 %	18.3 %	18.2 %	1.4%	8.8%	8.8%	19.0%	7.6%
A. de Guarayos – Nueva Cotoca	559 vehicles /day	22.4 %	16.4 %	15.9 %	3.5%	10.3%	9.3%	14.1%	8.1%

Sensitivity Analysis of Critical Items

33. A sensitivity analysis of the proposed Project's main risks was conducted. With up to a 20 percent increase in investment costs, NPV decreases to US$0.8 million and yields an IRR of 13.1 percent. The proposed Project can simultaneously allow an increase of up to 10 percent of costs and a decrease of 10 percent on the users benefits, reaching an NPV of US$1.8 million yielding an IRR of 13.7 percent.

GHG Accounting Analysis

34. The greenhouse gases accounting evaluation was conducted to assess the impact of the proposed Project on CO_2 emissions. Following the economic evaluation, the analysis focuses on the 183 km section of Yotaú-Nueva Cotoca. The assessment period is 20 years, the same as the one for the economic appraisal. Considering methodological challenges on CO_2 emission assessment in the transport sector including (a) difficulties in definition of project boundaries and reference (base) scenario to specify project's contributions in CO_2 emission and (b) unavailability of data and information, particularly related to civil works, the analysis was limited to vehicle emissions on roads under the proposed Project which are known to be substantially more than ones generated by road works. The proposed Project's impact on emissions was defined as the

difference in emission between project and reference scenarios which is generally same as the ones envisaged for the economic evaluation.

35. Vehicle emissions are assessed by using the HDM-4 simulation together with the economic evaluation. The HDM-4 model calculates CO_2 emission through the following steps: (a) estimation of average vehicle speed based on road conditions, traffic level, and vehicle characteristics and (b) estimation of CO_2 emissions from vehicles through the formula as a function of vehicle speed, which is defined in HDM-4. The total emissions in the base and project scenarios are 753.7 thousand t-CO_2 and 754.5 thousand t-CO_2, respectively over 20 years, resulting in an emission increase of 0.8 thousand t-CO_2 or 0.1 percent as compared with the reference scenario.

Annex 6: Map (IBRD-41741)