

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

**BOLIVIA**

**PROGRAM FOR THE STRENGTHENING OF ENVIRONMENTAL AND  
NATURAL RESOURCE MANAGEMENT II**

**(BO-L1199)**

**LOAN PROPOSAL**

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## ABBREVIATIONS

ABT	Autoridad de Fiscalización y Control Social de Bosques y Tierra [Forest and Land Enforcement and Societal Oversight Authority]
AFD	Agence Française de Développement [French Development Agency]
CAF	Development Bank of Latin America
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
DGGDF	Dirección General de Gestión y Desarrollo Forestal [Directorate General of Forest Management and Development]
DGP	Dirección General de Planificación [Directorate General of Planning]
EPI	Environmental performance index
FONABOSQUE	Fondo Nacional de Desarrollo Forestal [National Forest Development Fund]
INECE	International Network for Environmental Compliance and Enforcement
IMF	International Monetary Fund
INRA	Instituto Nacional de Reforma Agraria [National Institute of Agrarian Reform]
MDRyT	Ministry of Rural Development and Land
MMAyA	Ministry of Environment and Water
MPD	Ministry of Development Planning
OECD	Organization for Economic Cooperation and Development
PBP	Programmatic policy-based loan
PCR	Program completion report
PDES	Plan de Desarrollo Económico y Social [Economic and Social Development Plan]
PNFR	Programa Nacional de Forestación y Reforestación [National Afforestation and Reforestation Program]
PSDI	Plan Sectorial de Desarrollo Integral [Comprehensive Development Sector Plan]
RASP	Reglamento para Actividades con Sustancias Peligrosas [Regulation on Activities with Hazardous Substances]
RGGA	Reglamento General de Gestión Ambiental [General Regulation on Environmental Management]
RGRS	Reglamento de Gestión de Residuos Sólidos [Regulation on Solid Waste Management]
RMCA	Reglamento en Materia de Contaminación Atmosférica [Regulation on Air Pollution]
RMCH	Reglamento en Materia de Contaminación Hídrica [Regulation on Water Pollution]
RPCA	Reglamento de Prevención y Control Ambiental [Regulation on Environmental Prevention and Control]
SERNAP	Servicio Nacional de Áreas Protegidas [National Service for Protected Areas]
SNIA	Sistema Nacional de Información Ambiental [National Environmental Information System]
VAPSB	Viceministerio de Agua Potable y Saneamiento Básico [Office of the Deputy Minister of Potable Water and Basic Sanitation]

VMABCCGDF	Viceministerio de Medio Ambiente, Biodiversidad, Cambios Climáticos y de Gestión y Desarrollo Forestal [Office of the Deputy Minister of Environment, Biodiversity, Climate Change, and Forest Management and Development]
VRHR	Viceministerio de Recursos Hídricos y Riego [Office of the Deputy Minister of Water Resources and Irrigation]
WHO	World Health Organization

## PROJECT SUMMARY

### BOLIVIA PROGRAM FOR THE STRENGTHENING OF ENVIRONMENTAL AND NATURAL RESOURCE MANAGEMENT II (BO-L1199)

Financial Terms and Conditions						
Borrower: Plurinational State of Bolivia			Flexible Financing Facility <sup>(a)</sup>			
			Amortization period:		15 years	
Executing agency: Ministry of Environment and Water (MMAyA)			Disbursement period:		1 year	
			Grace period:		10 years <sup>(b)</sup>	
Source	Amount (US\$)	%	Interest rate:		LIBOR-based	
IDB (Ordinary Capital):	100 million	100%	Credit fee:		<sup>(c)</sup>	
			Inspection and supervision fee:		<sup>(c)</sup>	
Total:	100 million	100%	Weighted average life (WAL):		12.75 years <sup>(d)</sup>	
			Currency of approval:		U.S. dollars	
Program at a Glance						
<b>Program objective/description:</b> The objective is to contribute to strengthening and modernization of the policy, institutional, and budgetary framework for environmental management, to promote economic growth compatible with environmental conservation, social development, and making the country less vulnerable to climate change. This loan operation is the second of two consecutive, single-tranche operations that are technically linked but financed independently under the programmatic policy-based loan modality.						
<b>Special contractual conditions precedent to the sole disbursement of the loan proceeds:</b> The sole disbursement of the Bank loan will be subject to fulfillment of the policy reform commitments by the borrower, to the Bank's satisfaction, once the corresponding loan contract has been signed and the Special Provisions, General Conditions, and Conditions Precedent established the loan contract for this disbursement have been satisfied in accordance with the Policy Matrix (Annex II), the <a href="#">Means of Verification Matrix</a> , and the <a href="#">Policy Letter</a> (see paragraph 3.2).						
<b>Exceptions to Bank policies:</b> None.						
Strategic Alignment						
Challenges: <sup>(e)</sup>	SI	<input type="checkbox"/>	PI	<input type="checkbox"/>	EI	<input type="checkbox"/>
Crosscutting themes: <sup>(f)</sup>	GD	<input type="checkbox"/>	CC	<input checked="" type="checkbox"/>	IC	<input checked="" type="checkbox"/>

<sup>(a)</sup> Under the terms of the Flexible Financing Facility (document FN-655-1), the borrower has the option of requesting changes to the amortization schedule, as well as currency and interest rate conversions. The Bank will take operational and risk management considerations, as well as prevailing market conditions and the degree of concessionality of the loan, into account when considering such requests, in accordance with applicable Bank policies.

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

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

<sup>(d)</sup> The original WAL may be shorter depending on the signature date the loan contract.

<sup>(e)</sup> SI (Social Inclusion and Equality); PI (Productivity and Innovation); and EI (Economic Integration).

<sup>(f)</sup> GD (Gender Equality and Diversity); CC (Climate Change and Environmental Sustainability); and IC (Institutional Capacity and Rule of Law).

## I. DESCRIPTION AND RESULTS MONITORING<sup>1</sup>

### A. Background, problem to be addressed, and rationale

#### 1. Introduction

- 1.1 This program is the second operation in a series of two programmatic policy-based loans (PBPs). The first operation (loan 3921/BL-BO) was approved by the Board of Executive Directors of the Bank on 8 March 2017 and the loan contract was signed on 31 March 2017. The program supports a legal and institutional reform process with the objective of contributing to strengthening and modernization of the policy, institutional, and budgetary framework for environmental management, to promote economic growth<sup>2</sup> compatible with environmental conservation, social development, and making the country less vulnerable to climate change. The first operation was fully disbursed on 6 June 2017.
- 1.2 This operation continues the support for the policy reforms under the first operation (loan 3921/BL-BO) associated with [Law 1333 on the Environment](#), enacted in 1992; [Law 1700 on Forestry](#), enacted in 1996;<sup>3</sup> and [Law 755 on Integrated Solid Waste Management](#), enacted in 2015. The reform process is rooted in a technical and policy commitment made by the Government of the Plurinational State of Bolivia in the 2016-2020 Economic and Social Development Plan (PDES), which establishes as one of its core tenets the need to promote the environmental sustainability of national development.
- 1.3 The first operation achieved positive results, laying the technical and policy foundations institutionalizing methodologies and processes based on recognized international standards: (i) in planning, the Comprehensive Development Sector Plan (PSDI) of the Ministry of Environment and Water (MMAyA) established medium- and long-term strategic policies for the sector; (ii) in licensing, reform recommendations were prepared to improve the effectiveness and transparency of the environmental licensing system; (iii) in air quality management, a manual for the design and operation of air quality monitoring networks and a contingency plan for air pollution alerts were prepared; (iv) in water resource management, an inventory of the sources of pollution of the upper Rocha River basin, a methodology for classification of bodies of water to manage water resources, rules for managing acid waters and effluents in the mining sector, an action plan for managing the Blanco River mining microwatershed, and an analysis of the quality of water reused for irrigation were prepared; (v) in environmental liability management, a methodology for inventorying mining environmental liabilities was approved; (vi) in waste management, the implementation plan for Law 755 and its implementing regulations were approved; and (vii) in forest and biodiversity

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<sup>1</sup> References for this document are available in [optional link 1](#).

<sup>2</sup> For sections of the document that mention economic growth, note that for the Plurinational State of Bolivia this term is understood as comprehensive development, as defined in Framework Law 300 on Mother Earth and Comprehensive Development for Living Well. For sections of the document that mention ecosystem services, note that for the Plurinational State of Bolivia this term is understood as environmental functions, as defined in Framework Law 300 on Mother Earth. One of this law's principles is the noncommercialization of the environmental functions and natural processes of life systems.

<sup>3</sup> Article 16 of the 2012 Framework Law 300 on Mother Earth states that the Plurinational State of Bolivia will promote the comprehensive, sustainable management of components, areas, and life systems to ensure the sustainability of Mother Earth's ability to regenerate, including climate change trends.

management, the national strategy for the protection and management of Ramsar sites was approved, policies on the international trade in endangered species of wild fauna and flora were approved, the management plan for the Noel Kempff national park was approved, the Program to Monitor and Control Deforestation and Forest Degradation containing the regulatory basis of the Forest Information and Monitoring System was approved, and an implementation strategy for the National Afforestation and Reforestation Program (PNFR) was prepared.

## **2. Macroeconomic conditions**

- 1.4 The Bolivian economy grew steadily at rates above 4% until 2014, fueled by hydrocarbon exports. After commodity prices began falling in 2014, economic growth continued at similar levels supported by a countercyclical economic policy that focused on increased public investment. This economic performance, coupled with income redistribution policies, has significantly reduced Bolivia's poverty levels. For example, the percentage of the population living in moderate poverty fell from 51.3% in 2009 to 36.4% in 2017. During the same period, the extreme poverty indicator decreased by nine percentage points, from 26.1% to 17.1%. The government's efforts to maintain the pace of growth have been associated with reductions in the buffers accumulated during the boom and increases in the fiscal deficit and public borrowing. Bolivia's economy continues to demonstrate macroeconomic stability, with low inflation at 4.5%<sup>4</sup> in 2018, higher than observed in 2016 and 2017 (4.3% and 4.2%, respectively). As a consequence of economic policy implemented since 2014, domestic demand grew through increased public investment that averaged 13% of GDP in recent years, one of the region's highest rates. However, despite keeping the growth rate above 4%, these measures also resulted in widening of the fiscal deficit (-7.8% of GDP in 2017) and current account deficit (-6.3% of GDP in 2017), coupled with increases in imports related to capital goods. Moreover, the exchange rate has remained fixed since 2011, contributing to a decrease in reserves from a high of US\$15.477 billion in November 2014 (almost 50% of GDP) to US\$8.955 billion in December 2018 (22% of GDP).
- 1.5 The expansionary fiscal policy has led the government to increase its debt stock in recent years, albeit to sustainable levels based on IMF analyses. Bolivia's public debt rose from US\$11 billion in 2014 (33% of GDP) to approximately US\$15.265 billion in November 2018 (37% of GDP). Most of the debt is from multilateral sources (43%) with tenors longer than 10 years. The main creditor is the IDB with 43% of the total.
- 1.6 The economy's growth outlook is good. For example, agencies such as the IMF and the World Bank have raised their growth projections to around 4.3% in 2019. The recovery in oil prices since 2017 has yielded higher fiscal revenues, which could help reduce the fiscal deficit, as well as improve external indicators. Despite the thinning of international reserves in recent years, Bolivia still has one of the highest levels in the region (approximately 22% of GDP), representing nearly 11 months of imports and offering a safeguard against external shocks.

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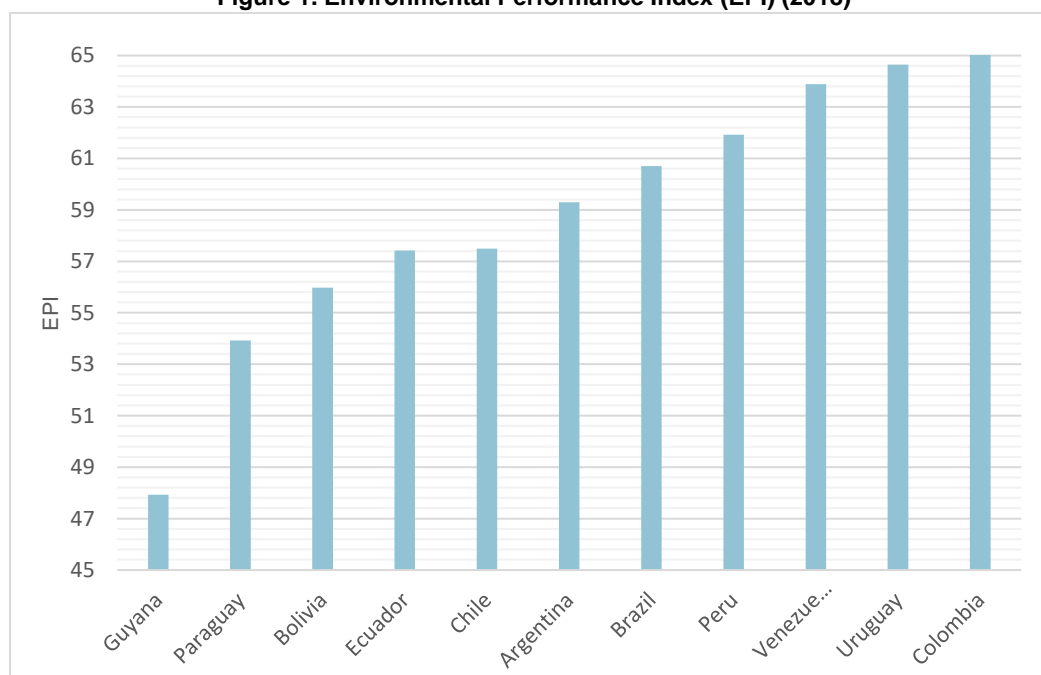
<sup>4</sup> Preliminary data from the Government of Bolivia.



### 3. Diagnostic assessment of the problem

- 1.7 In recent decades, Bolivia's economic and social development has been largely driven by the exploitation of natural resources, especially minerals, energy, water, and soil (World Bank, 2015). The Government of Bolivia thus began a reform process to improve environmental management and regulations, seeking to diminish the cost of environmental degradation—estimated at 6.2% of GDP in 2005 (World Bank, 2006)—associated with water access and quality, the effects of air and water quality on public health (approximately 170,000 and 49,000 disability adjusted life years, respectively), impacts of natural disasters, soil erosion, and poor management of forest resources.
- 1.8 According to Yale University's Environmental Performance Index (EPI), Bolivia's performance in 2018 trailed that of the majority of South American countries, except Paraguay and Guyana (see Figure 1). Bolivia has improved its performance on environmental health issues (air and water quality, sanitation, and heavy metals) and has sustained its performance in the management of biodiversity and habitat, as well as water resources. However, its management of forests has declined.<sup>5</sup>

Figure 1. Environmental Performance Index (EPI) (2018)



Source: 2018 EPI, Yale University.

- 1.9 In addition, climate change scenarios in Bolivia show a trend of rising temperatures and changes in precipitation patterns (later start and shorter duration of the rainy

<sup>5</sup> To evaluate a country's performance over time, the EPI assesses performance based on the most recent data compared with how it would score with the same methodology for 2018, using historical baseline data. The base year varies depending on the indicator.

season), and more frequent extreme events (hail and torrential rainfall).<sup>6</sup> According to data from the document on the Intended Nationally Determined Contribution of the Plurinational State of Bolivia, by 2030, an estimated 27% of the national territory could be affected by persistent drought, and 24% by high-recurrence floods.

- 1.10 **Regulatory and institutional framework for environmental management for pollution control.** Bolivia's environmental legal framework is governed by Law 1333 on the Environment, enacted in 1992. This law establishes the principles of protection and conservation of the environment and natural resources, to improve the quality of life for the population. It encompasses six sets of regulations enacted in 1995: (i) General Regulation on Environmental Management (RGGA); (ii) Regulation on Environmental Prevention and Control (RPCA); (iii) Regulation on Air Pollution (RMCA); (iv) Regulation on Activities with Hazardous Substances (RASP); (v) Regulation on Solid Waste Management (RGRS), subsequently replaced by the General Regulation of Law 755 on Integrated Waste Management; and (vi) Regulation on Water Pollution (RMCH). These regulations comprise the sector's environmental legal framework.
- 1.11 The Ministry of Environment and Water (MMAyA) has most of the institutional jurisdiction over environmental management. In turn, it has three deputy ministers with differentiated environmental management roles. The Office of the Deputy Minister of Environment, Biodiversity, Climate Change, and Forest Management and Development (VMABCCGDF) is the national authority with jurisdiction over the environment and the lead agency for environmental quality management (air and water quality, environmental liability management, biodiversity, and forests) and the environmental licensing system. The Office of the Deputy Minister of Water Resources and Irrigation (VRHR) works with the VMABCCGDF to manage water quality. The Office of the Deputy Minister of Potable Water and Basic Sanitation (VAPSB) works with the VMABCCGDF to manage solid waste. Under Framework Law 031 on Autonomous Entities and Decentralization, autonomous municipal governments and autonomous departmental governments also have jurisdiction to protect and contribute to protecting the environment.
- 1.12 **Status of environmental management for pollution control.** The legal and institutional framework is undergoing a reform to modernize and make it more effective. In some cases, the regulations need to be adapted to current socioeconomic realities and problems. In others, management instruments need to be developed in order to implement existing regulations, assisting in meeting the government's goals related to environmental sustainability and climate change. The determining factors and specific problems to be addressed with the support of the reforms proposed under this operation are described below.
- 1.13 **Sector planning.** The Government of Bolivia faces the following challenges to effectively implement actions aimed at achieving targets for pollution reduction and mitigation of climate change in the country: (i) the many different sector entities responsible for policy-making, project execution, and environmental monitoring and supervision make it difficult to coordinate actions and set clear targets at the institutional level; (ii) the absence of systematically documented information for

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<sup>6</sup> Baseline from climate model scenarios for the Plurinational State of Bolivia (2014).

project evaluation and inspections leads makes the system less efficient and transparent, and environmental data less accessible; and (iii) the lack of guidelines for preparation of investment projects on environmental management and climate change results in a large number of projects that do not apply best practices and very often do not obtain public financing. To address these challenges, during the first operation the government made progress on preparing a strategic plan known as the Comprehensive Development Sector Plan (PSDI).<sup>7</sup> The PSDI includes: (i) actions to be taken and expected outcomes; (ii) budget requirements; and (iii) distribution of responsibilities to contribute to meeting the country's environmental protection objectives. For the second operation, the government is planning to create interagency platforms in strategic watersheds, approve the Electronic Government Implementation Sector Plan, and approve investment project formulation guidelines for environmental management.

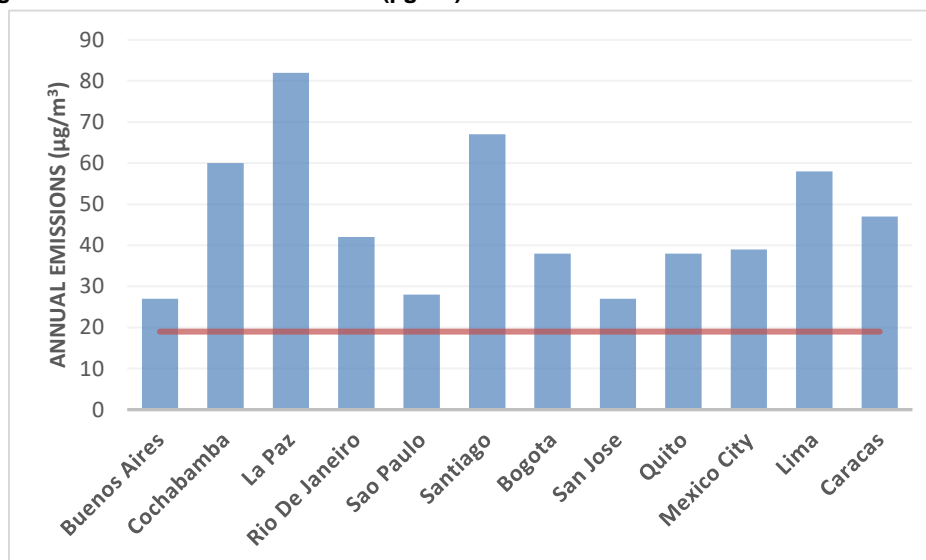
- 1.14 **Environmental licensing.** In Bolivia, the environmental licensing system was established in the Regulation on Environmental Prevention and Control (RPCA) under Law 1333. During the first operation, a diagnostic assessment of the system's functioning was prepared and approved, and identified three reasons why this system is not being effective or efficient: (i) discretionality is allowed in classifying economic activities that require licensing; (ii) a license is required for productive activities with minimal environmental impact (category 4), overwhelming staff with application processing (more than 30% of licenses from 2012 to 2016 were in this category, see [optional link 7](#)), and reducing the staff time available for monitoring and supervision of productive activities with greater environmental impact; and (iii) no mechanisms are provided to coordinate environmental evaluation criteria among the State's various management levels (sector agencies, departments, and municipios). Recommendations for the modification of the environmental licensing system regulations were made based on this diagnostic assessment. Specifically, some of the recommendations adopted were: (i) adjust the time frames for obtaining and reviewing licenses; (ii) standardize the procedure for preexisting activities; (iii) involve and consult the public on the scope of the environmental impact assessments to be completed by the developer; (iv) make the system flexible, issuing licenses or certificates during preliminary design stages to be able to access resources; and (v) require licenses in protected areas. The second operation includes approval of the policy overhauling the environmental licensing system.
- 1.15 **Air pollution.** The Regulation on Air Pollution (RMCA) under Law 1333 proposes the use of instruments to prevent and control air pollution. It establishes air quality standards, and instruments have been developed for monitoring air quality. In 2001, the Government of Bolivia, with support from the Swiss Agency for Development and Cooperation (SDC), began implementation of the Air Quality Monitoring Network to measure the air pollution levels to which the population is exposed. This network was implemented in 12 priority municipios, and results are published annually in air quality status reports (MMAyA, 2014). These reports show that air quality levels are below the standards required in the RMCA and those recommended by the World Health Organization (WHO). The cities with the

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<sup>7</sup> The PSDIs were established under Law 777 of 25 January 2016 on the State Comprehensive Planning System, which establishes both the relationship between the various planning levels of the government and the content of development plans.

largest populations, such as Cochabamba and La Paz, have median annual concentrations of contaminants that are harmful to health, like particulate matter (PM<sub>10</sub>), that are well above the 20 micrograms/cubic meter (µg/m<sup>3</sup>) recommended by the WHO (see Figure 2).

**Figure 2. Annual emissions of PM<sub>10</sub> (µg/m<sup>3</sup>) in cities in Latin America and the Caribbean**



Source: WHO (2018). The years when the data were collected vary from city to city.<sup>8</sup>

- 1.16 To protect the population from air pollution, the following actions were completed during the first operation: (i) design and operation manuals for monitoring networks were prepared, to standardize the collection and real-time public dissemination of air quality data; and (ii) a regulatory proposal was prepared, to implement contingency plans for public health alerts whenever pollution levels are high. The regulatory proposal contains maximum permissible levels and alert thresholds, protocols to declare and lift states of alert, coordination mechanisms, and measures to be implemented to reduce exposure for the population. These regulations will be enacted during the second operation. In addition, the operation will seek to promote interagency coordination and increase environmental data by: (i) promoting the daily online publication of air quality levels for Cochabamba in the National Environmental Information System (SNIA); and (ii) inventorying air pollution sources in Cochabamba and Potosí, in order to establish measures for their mitigation and subsequent control.
- 1.17 **Water pollution.** The Regulation on Water Pollution (RMCH) under Law 1333, enacted in 1995, specifies the instruments to be used to control river pollution, which have been only partially developed. In some cases, this pollution has led to social conflicts by making the water unusable in communities that depend on these

<sup>8</sup> Data years for WHO: 2016 Buenos Aires; 2014 Cochabamba; 2013 La Paz; 2015 Rio de Janeiro; 2016 São Paulo; 2016 Santiago; 2016 Bogotá; 2013 San José; 2016 Quito; 2016 Mexico City; 2016 Lima; and 2012 Caracas.

resources for human consumption or irrigation.<sup>9</sup> In others, high concentrations of heavy metals have caused public health problems. Rivers that cross the main urban centers contain high levels of organic contamination due to the discharge of domestic sewage, industrial pollutants, runoff from mining activities, and waste from other sources, like agriculture.

- a. **Inventory of pollution sources.** The National Watershed Plan identifies several priority watersheds with serious water pollution problems, such as the watersheds of the Rocha and Katari Rivers, where two of the country's main population centers are located. In the Rocha River basin, only 32% of the water intended to supply the city of Cochabamba meets potability requirements (Comptroller's Office Report, 2010).<sup>10</sup> Discharge into the river channel is more than twice the volume for which the city's wastewater treatment plant was designed. In the Katari River basin and Cohana Bay, where the cities of La Paz and El Alto are located, a high level of pollution from organic matter and heavy metals was discovered, well above tolerable levels for human health (see [optional link 5](#)). The lack of information about the sources of water pollution and the type and amount of discharge into rivers makes it difficult to oversee and enforce water quality regulations. To address this, an inventory of the sources of pollution in three municipios of the upper Rocha River basin was prepared during the first operation. The inventory identified the water pollution level, the main sources of pollution, their location, and the characteristics of the materials discharged. The inventory served as input for the National Watershed Plan. During the second operation, inventories of pollution sources will be prepared for the remaining municipios of the Rocha River and the Katari-Lake Titicaca watersheds.
- b. **Classification of water bodies.** The RMCH, enacted in 1995, establishes four types of bodies of water with different environmental quality standards depending on their end use, setting maximum allowable limits applicable to each one for discharging into river channels. Despite this, a methodology still needs to be established for classifying Bolivia's water bodies. Without such classification, departmental and municipal administrations are unable to require waste dischargers to observe discharge limits for each type of water body.<sup>11</sup> During the first operation, a regulatory proposal was prepared with the classification methodology, establishing geographical criteria, hydrological and geomorphological characteristics, and water quality parameters. This methodology bases the classification on the four types of water bodies set forth in the RMCH. During the second operation, the regulations will be approved and implemented for the Piraí and Rocha water bodies.

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<sup>9</sup> In 2018, at least seven social conflicts were recorded due to water quality from mining and hydrocarbon operations in the Desaguadero, Huanuni, Samora, and Colquiri Rivers, the Muñeca and Quebrada streams, and the town of Uncía, along with conflicts due to wastewater from the cities of El Alto and Viacha that impacted the tributaries of Lake Titicaca.

<sup>10</sup> High levels of organic and inorganic matter (chemical oxygen demand) have been recorded at the Rocha River basin, with values of nearly 1,000 mg/l at the sampling point with the highest value, and turbidity of 1,160 nephelometric turbidity units.

<sup>11</sup> Bolivia has 25 systems for monitoring and control of water quality with active social involvement from municipal technical specialists, community authorities, and other stakeholders in the watershed to ensure the sustainability of the actions implemented. Four MMAyA professional staff plan and implement monitoring campaigns, and at least two technical staff per system perform the measurements.

- c. **Mining pollution.** Mining extraction activities are a major source of water pollution caused by heavy metals and arsenic. The RMCH has no specific provisions for the management of water pollution caused by mining but does establish that rules may be issued to prevent and control pollution, in coordination with sector agencies. Given the lack of regulatory development, during the first operation a regulatory proposal was prepared for the management of acid waters and effluents in the mining sector. This resulted in a technical/administrative procedure for the management of polluting effluents and acid waters, which calls for all mining activities to prepare a technical/environmental analysis and take any necessary corrective measures. During the second operation, these regulations will be approved, and a design proposal will be prepared for a clean technology pilot project to treat acid waters from mining activity. Additionally, the first operation included the preparation of an action plan for water quality management in the Blanco River mining microwatershed; this second operation will support implement of that plan.
  - d. **Reusing water for irrigation.** In Bolivia, wastewater (raw or treated) is used to irrigate approximately 7,000 hectares, which are located mostly in the departments of La Paz and Cochabamba. Currently, there are no specific guidelines on quality standards for wastewater to be used for agricultural purposes or for the type of treatment wastewater must undergo to be used in irrigation systems. Accordingly, during the first operation, a technical study was done to determine the quality parameters for water to be reused for irrigation. During the second operation, guidelines will be developed for reusing water (raw or treated) for irrigation.
- 1.18 **Environmental liabilities.** Mining activities also generate water and soil pollution after their useful life. Bolivia has a large number of mining environmental liabilities that are polluting bodies of water, including 44 in protected areas. Given the absence of a regulatory framework for the management of mining environmental liabilities, a methodology for their inventorying and classification based on international best practices, which standardizes inventory methods, was approved during the first operation. During the second operation, the Government of Bolivia will apply the methodology to prepare an inventory of mining environmental liabilities in protected areas with mining activity, develop an interagency platform to coordinate an action plan for liability remediation, and publish maps of mining environmental liabilities in the SNIA.
- 1.19 **Solid waste.** According to the 2016-2020 Basic Sanitation Development Sector Plan, 32% of the total waste generated is disposed of in sanitary landfills (per regulatory requirements), and 63% is dumped under conditions that are neither sanitary nor environmentally sound. To manage hazardous and special solid waste, only 4% of municipios have collection and final disposal service for hospital waste.
- 1.20 The first operation contributed to addressing this through approval of the implementation plan for Law 755 on Integrated Solid Waste Management and approval of its implementing regulations. This plan coordinates actions for implementing policies and strategies aimed at the reduction, treatment, and safe disposal of solid waste. The regulations include the classification of waste

generators based on tons of waste generated (large, medium, small, and micro), their responsibilities, public participation, and the system of administrative penalties. They also govern facilities for final waste disposal and the registration and authorization process for operators. The second operation will focus on developing and approving the regulations on hazardous waste management.<sup>12</sup>

- 1.21 **Rationale for policy reforms for the environmental management of pollution.** The empirical evidence shows that countries with strong environmental performance are also those that exercise their capacity to monitor and sanction infractions based on environmental harm (International Network for Environmental Compliance and Enforcement (INECE), 2009; OECD, 2009). For example, Shimshack (2014) demonstrated that economic sanctions and random inspections directly reduce pollution, deter future violations, and even encourage behavior beyond compliance.
- 1.22 Environmental licensing systems, including environmental impact assessments, require avoiding practices that make them costly tools for issuing permits (Acerbi et al., 2014; Triana and Enríquez, 2007). The efficiency level is low when: (i) public participation and interagency coordination processes occur once key decisions have been made; (ii) simplified processes are not applied to low environmental impact activities (Ahmed, 2012); and (iii) there is no policy and regulatory framework to balance the use of command and control instruments, market-based instruments, and information and disclosure tools (Acerbi et al., 2014).
- 1.23 Having the right information enables policy decision-makers, businesses, and civil society to adopt antipollution measures. For example, the policy introduced in Santiago, Chile, for communication to the public about short-term measures to address critical environmental pollution episodes resulted in a series of government policies such as implementing driving restrictions, shutting down stationary emissions sources, and prohibiting the use of biomass combustion, along with public announcements to avoid exposure. Together, these policy decisions decreased air pollution by approximately 20% on pollution alert days compared with similar days without alerts (Mullins and Bharadwaj, 2014).
- 1.24 **Regulatory and institutional framework for forest and biodiversity management.** The main laws governing forest and biodiversity management are: (i) Forestry Law 1700 of 1996;<sup>13</sup> and (ii) Framework Law 300 on Mother Earth of 2012 and Law 071 on the Rights of Mother Earth of 2010. Law 1700 governs sustainable forest development and the protection of forest lands through: (i) granting rights for forest exploitation; (ii) approving forest management plans, land management plans, and plans for clearing land; (iii) authorizing burns and land clearing; (iv) approving forest exploitation permits; and (v) rehabilitating degraded lands.
- 1.25 The Office of the Deputy Minister of Environment, Biodiversity, Climate Change, and Forest Management and Development (VMABCCGDF) of the Ministry of Environment and Water (MMAyA), as lead agency for planning and management

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<sup>12</sup> These regulations complement the RASP ([optional link 9](#)).

<sup>13</sup> Also of vital importance are Laws 1715 and 3545, which support the rural land titling and registration process, clarifying property rights for approximately 93 million hectares; and Law 1255 of 1991, ratifying the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

of forest development for biodiversity and protected areas, has most of the institutional jurisdiction over forest and biodiversity management. The Office of the Deputy Minister for Land of the Ministry of Rural Development and Land (MDRyT) is responsible for formulating policies, regulations, and strategies on the legal certainty of rural property ownership and the management of indigenous territories. Within the MDRyT, the National Institute of Agrarian Reform (INRA) has the mission of guaranteeing legal certainty as to rural property ownership. Lastly, as entities reporting to the MMAyA but with a decentralized operational structure, are the National Service for Protected Areas (SERNAP), whose purpose is to conserve the natural and cultural heritage of protected areas; the Forest and Land Enforcement and Societal Oversight Authority (ABT), whose purpose is to regulate, oversee, and ensure compliance of forestry sector activities; and the National Forest Development Fund (FONABOSQUE),<sup>14</sup> whose purpose is to protect and conserve forests.

- 1.26 **Status of forest and biodiversity management.** Despite advances in development of the policy framework, a detailed analysis of the sector identifies weaknesses that limit the sustainable management of forests and biodiversity. The following are the main challenges:
- 1.27 **Biodiversity and environmental functions.** Bolivia is one of the countries with the largest number of ecoregions on the planet (23), and is among the 15 countries with the greatest biological diversity in the world. Both the ecosystems and their biodiversity are subject to major pressures and threats, chiefly: (i) deforestation and loss of native forest due to expansion of the agricultural frontier; (ii) impacts of climate change on the country's Andean highland areas (Andersen, 2009); (iii) environmental pollution of soil, and particularly of surface water and groundwater, due to uncontrolled use of agrochemicals, mining, oil and gas, and industrial activity, and discharge of untreated wastewater; and (iv) extraction and illegal trade of species of fauna and flora.
- 1.28 The country has a regulatory and public policy framework for the conservation of biodiversity. Supreme Decree 24781/1997 approved the General Regulation on Protected Areas, which became the basis of one of the main instruments for biodiversity conservation. The National System of Protected Areas has 22 national, 25 departmental, and 83 municipal protected areas. National protected areas cover 17.4 million hectares (16% of Bolivia's territory). In addition, the country has 11 Ramsar sites, with a surface area of 14.8 million hectares (13.5% of Bolivia's territory). This makes it the country with the largest Ramsar-declared area.
- 1.29 Bolivia faces the following challenges to promoting effective conservation of biodiversity:
  - a. **Management of Ramsar areas.** Despite the progress achieved in designating protected areas, Bolivia needs to improve their management and sustainability. Forty percent of Ramsar surface area lacks legal protections and management plans. The strategy for the management of Ramsar sites was approved during the first operation. The second operation will continue

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<sup>14</sup> Supreme Decree 24759 of 31 July 1997 approved the charter of FONABOSQUE, establishing its objectives, organizational structure, functions, sources of finance, and capital.



implementation of this strategy, with the preparation of an inventory methodology for the 11 Ramsar sites and approval of management manuals.

- b. **Monitoring and control of international trade in endangered species.** Bolivia has no protocols for monitoring, control, and enforcement actions related to international trade in endangered species of wild fauna.<sup>15</sup> To address this, policies related to the international trade in endangered species of wild fauna and flora were approved during the first operation. The rules implementing these policies will be approved in the second operation.
  - c. **Financial sustainability of protected areas.** About 15%<sup>16</sup> of the 17.4 million hectares belonging to seven of the 22 national protected areas do not have a current management plan that includes climate change adaptation measures. In addition, there are no mechanisms for revenue generation based on the public use of protected areas<sup>17</sup> or for comprehensive management to reduce deforestation, increase reforestation in these areas, and narrow the budget gap estimated at 38 million bolívares. To address these challenges, a management plan for the Noel Kempff protected area and a legal instrument amending the regulation governing the FONABOSQUE, to declare reforestation projects in protected groundwater recharge areas eligible for financing, were approved during the first operation. The second operation is expected to continue to implement and issue rules under these instruments.
- 1.30 **Integrated management of forests.** As of 2016, forests accounted for 48% of Bolivia's territory (51.6 million hectares) (Directorate General of Forest Management and Development (DGGDF), 2017), with 63% devoted exclusively to forest products and a significant portion being native forest. Since 2008, deforestation has increased to nearly 250,000 hectares per year,<sup>18</sup> mainly associated with agricultural encroachment. Based on an ABT review, during the 2014-2015 period, more than two thirds of the total deforested area was used for livestock. Cumulative illegal deforestation accounted for 80% of total deforestation for the period 2012-2014. However, in 2017 illegal deforestation decreased as a percentage to 52% and in number of hectares to 134,384 hectares.
- 1.31 Deforestation is also associated with forest fires and burning of grasslands, mainly due to the use of fire as a land preparation technique for farming, a situation worsened by climate change. The surface area scarred by fires rose 28% from 23 million hectares in 2014 to 38 million hectares in 2015. These lands are quickly eroding and losing nutrients.
- 1.32 The sector diagnostic identified that: (i) policies and programs need to be developed to enable the implementation of a forestry legal and regulatory framework; (ii) the institutionalization of the deforestation monitoring system is an essential policy reform to control and prevent deforestation and forest degradation;

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<sup>15</sup> There are an estimated 193 threatened species in Bolivia, classified as critically endangered, endangered, and vulnerable.

<sup>16</sup> This number was around 25% in 2016.

<sup>17</sup> Tourism fees are projected to generate revenue of approximately 30 million bolívares by 2020. About 180,000 tourists visited Bolivia's protected areas in 2017.

<sup>18</sup> In 2016, there was a marked increase in deforestation, to almost 300,000 hectares per year. In 2017, deforestation returned to the historical average of approximately 258,000 hectares per year.

- and (iii) the restoration of degraded areas requires developing the necessary incentives to make reforestation viable. During the first operation, the Government of Bolivia approved the National Program to Monitor and Control Deforestation and Forest Degradation and the designation the MMAyA as the entity responsible for generating and disseminating official information on forest fires and hot spots. It also prepared a strategy to implement the National Afforestation and Reforestation Program (PNFR). The second operation will support the implementation of the PNFR, approval of the guidelines for integrated and sustainable forest management in forest reserves, approval of the plurinational strategy for integrated fire management, and implementation of the Forest Information and Monitoring System.
- 1.33 **Rationale for policy reforms for forest and biodiversity management.** Regular, accurate monitoring of forest cover can reveal how it changes over time and lead to a better understanding of the factors driving these changes, providing necessary information for the sustainable management, conservation, and protection of a country's forest resources (Achard et al., 2007; Hansen, 2015; Mayaux et al., 2005; MacDicken, 2015; Romijn et al., 2015). Bolivia has made great strides in developing a forest monitoring system, which needs to be incorporated into the institutional structure as part of the process of implementation of policies to reduce deforestation and forest degradation.
- 1.34 Protected areas can reduce deforestation in certain contexts (Joppa and Pfaff, 2010; Andam et al., 2008; Nelson and Chomitz, 2011; Blackman, 2013). According to Nelson and Chomitz (2011), deforestation in Latin America and the Caribbean has decreased 3%, taking as an indicator the incidence of forest fires in strictly protected areas; 5% in areas that are not strictly protected; and 16% in protected areas in indigenous territories. Suitable financing and sound governance are crucial to ensuring the effectiveness of protected areas, regardless of their classification. Blackman et al. (2015) observed that protected areas in Mexico can yield benefits for conservation even when they lack sufficient financing. However, these areas can experience greater deforestation when the lack of management creates conditions under which there are perceptions of open access. In many countries, improving the systems to collect entry fees from tourists increased the amount of revenue available to maintain protected areas, such as in Honduras (47%), Chile (38%), Ecuador (34%), and Argentina (30%) (Bovarnick et al., 2010).
- 1.35 Policies that support the restoration of degraded areas to reverse the trend of biodiversity loss and reduction of environmental functions are essential to complement forest protection efforts (Lamb, 2005). There is evidence that reforestation of degraded areas can restore environmental functions and create a landscape that generates timber and nontimber forest products for the local population (Hassler et al., 2011; Kunert et al., 2010; Rodrigues et al., 2011; Potvin et al., 2011). Therefore, policy reforms that support the creation of government programs for reforestation promote the restoration of degraded areas through forest regeneration and forest plantation to improve environmental functions and biodiversity.
- 1.36 **Depth of the reform.** The program has generated additionality in the mainstreaming of environmental planning subnationally and in the environmental governance of pollution management and of forest and biodiversity management.

The first operation laid the policy and strategic groundwork for sector reform (see paragraph 1.14). This second operation will promote actions to ensure the sustainability of the processes already begun, including implementing policy instruments and making inroads on pending challenges. For example, some of the regulatory reforms begun with the first operation will be completed during the second operation, such as the environmental licensing system reform, and a number of instruments will be developed: (i) regulatory instruments (e.g., the “Nuestros Bosques” [“Our Forests”] Program to Monitor and Control Deforestation and Forest Degradation); (ii) management instruments (classification of water bodies for compliance enforcement with companies that discharge waste); and (iii) monitoring instruments (inventories of sources of air and water pollution, and the forest monitoring system). Additionally, during the second operation, institutional mechanisms will be developed for reform implementation (interagency platforms with municipal authorities and sectors), and further progress will be made on the implementation of programs established during the first operation (PNFR). This program benefits all of Bolivia’s population by strengthening environmental governance at the national level. Specifically, it benefits the population of municipios adjacent to the Rocha River, Katari-Lake Titicaca, Piraí, and Blanco River watersheds by providing instruments for water management. It also benefits the municipio of Cochabamba by providing online information on air quality in the area.

- 1.37 **Lessons learned.** The operation includes lessons learned from the Bank’s experience in the sector, as reflected in the Environment and Biodiversity Sector Framework Document (document GN-2827-8) and from other multilaterals (World Bank, 2011 and 2015) based on similar environmental reform processes in other countries of the region. It also incorporates the recommendations of document RE-485-6 of the Bank’s Office of Evaluation and Oversight (OVE), “Technical Note: Design and Use of Policy-based Loans at the IDB,” as well as the Bolivian government’s experience in environmental management, as reflected in the 2016-2020 PDES and the 2016 Intended Nationally Determined Contribution. The program includes the following lessons: (i) prioritize policy reform conditions to ensure the effectiveness of the reform; (ii) strengthen environmental management systems; (iii) promote environmental management public policies with a preventive approach for the productive sector to implement more sustainable practices; and (iv) guarantee the sustainability of policy reforms by ensuring that regulatory agencies possess the necessary technical capacity and expertise.
- 1.38 **Synergies with other Bank operations and donor projects.** The program is supporting a reform process that will have synergies with several Bank operations in the country with a value of US\$412 million, such as the Lake Titicaca Cleanup Program (loans 3730/BL-BO and 3731/OC-BO), which contributes to decontamination of the Katari River basin and solid waste management; the Rural Land Regularization and Titling Program (loan 3722/BL-BO), which will formalize property rights for lands where reforestation is to be promoted; the National Irrigation Programs with a Watershed Approach II and III (loans 3060/BL-BO and 3699/BL-BO), which will implement watershed management measures; the Program for Comprehensive Solid Waste Management Implementation in Bolivia (loan 2880/BL-BO), which will finance solid waste management through the construction of sanitary landfills and waste reclamation plants, and institutional

strengthening of autonomous municipal governments; and Bolivia Resilient to Climate Risks (loan 4403/BL-BO), which will implement risk reduction and climate-change-adaptation measures.

- 1.39 The program also has synergies with projects of other multilaterals, with which it coordinates through the IDB Country Office in Bolivia. The French Development Agency (AFD) approved an operation with the Government of Bolivia in June 2017 for 102 million euros to strengthen the country's management of water resources, in coordination with the thematic areas addressed in this program.<sup>19</sup> The Development Bank of Latin America (CAF) is implementing the programs My Water IV and Fire-free Amazon, related to water pollution and forest resource management. The World Bank is implementing projects for integrated management of watersheds, risk-reduction for biodiversity conservation using adaptive fire management, and a pilot program on climate resilience.
- 1.40 **Strategy of the Government of Bolivia.** A core tenet of the 2016-2020 PDES is the need to promote the environmental sustainability of national development. Its objectives and targets include: (i) decreasing air, water, and soil pollution; (ii) increasing forest cover and decreasing illegal deforestation and forest degradation; and (iii) integrated management of biodiversity and ecosystems. These priorities are consistent with the objectives and components of this operation and reinforce the commitment of the Government of Bolivia to the successful implementation of this second programmatic loan.
- 1.41 **IDB country strategy with Bolivia.** The program is aligned with the IDB country strategy with Bolivia 2016-2020 (document GN-2843) in terms of the strategic objectives of "reduction of vulnerability to natural disasters and climate change" and "improving the effectiveness of public governance." Policy reforms will strengthen pollution management and reduce vulnerability to changes in precipitation and temperature, which could worsen existing environmental pollution. At the same time, forestry sector reforms will promote effective adaptation to climate change. In addition, environmental licensing instruments will be reformed to make them more effective and efficient, which will improve the effectiveness of public management.
- 1.42 **Strategic alignment.** The program is consistent with the Update to the Institutional Strategy 2010-2020 (document AB-3008) and aligned with two of its crosscutting thematic areas: (i) climate change and environmental sustainability, which are at the heart of the policy reforms for this programmatic loan; and (ii) institutional capacity and the rule of law, since the government's ability to formulate and introduce regulations and management instruments will improve, as will the formulation of more effective investment plans. The program also contributes to the Corporate Results Framework 2016-2019 (document GN-2727-6) through the following indicators: (i) beneficiaries of improved management and sustainable use of natural capital; and (ii) government agencies benefited by projects that strengthen technological and managerial tools to improve public service delivery. The program is consistent with the Environment and Biodiversity Sector Framework Document (document GN-2827-8), contributing to its third dimension of

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<sup>19</sup> The thematic areas supported by the AFD operation are management of water demand; crisis planning and management; and improvement in the performance of water operators in the five of the country's cities under severe water stress.

success focused on promoting environmental governance systems that operate efficiently and effectively. It is also aligned with the Climate Change Sector Framework Document (document GN-2835-8), contributing to its fourth dimension of success focused on mainstreaming climate considerations in the productive sectors.

- 1.43 Under the joint [methodology](#) of the multilateral development banks for tracking climate finance, 64.28% of the operation's resources are associated with policies that will promote climate change adaptation and mitigation activities. These resources contribute toward the IDB Group's target of increasing the financing of climate-change-related projects to 30% of total approvals by end-2020.

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

- 1.44 **Program objective.** The objective is to contribute to strengthening and modernization of the policy, institutional, and budgetary framework for environmental management, to promote economic growth compatible with environmental conservation, social development, and making the country less vulnerable to climate change. The program has three components: (i) macroeconomic stability; (ii) environmental management for pollution control; and (iii) integrated management of forests and biodiversity.
- 1.45 The expected impacts of the programmatic series are to decrease the incidence of environmental factors on public health and the deforestation rate in Bolivia. The Policy Matrix establishes the sequence of program commitments, structured into the following components:
- 1.46 **Component I. Macroeconomic stability.** The objective of this component is to ensure a macroeconomic environment consistent with the program objectives.
- 1.47 **Component II. Environmental management for pollution control.** The objective of this component is to develop key regulations and public policy instruments to improve and implement environmental management in the various productive sectors, as well as to prevent and reduce environmental pollution and increase resilience to climate change. Of the 18 commitments originally planned for this component under the second operation, 5 remained unchanged,<sup>20</sup> 11 have been strengthened or specified (upgraded from proposal to rule, or from preparation to approval; locations specified where actions will take place; or horizontal logic with the first operation enhanced),<sup>21</sup> one has adjusted in number without changing the content (commitment 17), and one has been adjusted in response to design timelines.<sup>22</sup>
- 1.48 For the second operation,<sup>23</sup> the commitments of this component are to: (1) create platforms to develop environmental management according to the territorial planning model; (2) approve the Electronic Government Implementation Sector

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<sup>20</sup> Unchanged commitments based on the current classification: 1, 5, 6, 8, and 18.

<sup>21</sup> Upgraded or specified commitments: 2, 3, 4, 7, 9, 10, 11, and 13-16.

<sup>22</sup> Commitment 12 regarding acid waters from mining activity originally included the implementation of a clean technology project. The Government of Bolivia has worked with the sector on the design for this project, which will require private resources for execution.

<sup>23</sup> The titles of the commitments listed on this document are summaries. See Annex II for a complete description of each commitment.

- Plan for the Ministry of Environment and Water (MMAyA); (3) approve investment project formulation guidelines for environmental management; (4) approve the regulations to reform the environmental licensing system; (5) publish air quality levels for Cochabamba online in the SNIA on a daily basis; (6) prepare an inventory of air pollution sources in Cochabamba and Potosí; (7) approve the rules for the contingency plan for air pollution alerts; (8) raise awareness of the plan; (9) prepare an inventory of the main pollution sources in the Rocha River basin; (10) prepare an inventory of the main pollution sources in the Katari-Lake Titicaca watersheds; (11) approve classification rules for bodies of water and their implementation in Piraí and Rocha; (12) approve rules for managing acid waters and effluents in the mining sector and design a clean technology pilot project; (13) implement an action plan for water quality management in the Blanco River mining microwatershed; (14) approve guidelines for reusing water (raw or treated) for irrigation by type of crop; (15) implement a methodology for inventorying and describing mining environmental liabilities in eight protected areas, and develop an interagency platform to prepare an action plan for liability remediation; (16) publish maps of environmental liabilities in the SNIA; (17) submit the draft supreme decree for the identification of hazardous waste to the Ministry of the Presidency pursuant to Law 755 on Integrated Solid Waste Management; and (18) approve the regulation for operational management of hazardous waste.
- 1.49 **Component III. Integrated management of forests and biodiversity.** The objective of this component is to develop priority regulations and public policy instruments for the remediation of degraded life systems and sustainable, climate-change-resilient integrated management of forests and biodiversity.
- 1.50 **Subcomponent I. Biodiversity and environmental functions.** The objective of this subcomponent is to develop regulations and public policy instruments for conservation of the country's biodiversity and environmental functions. Of the four commitments originally planned for this subcomponent under the second operation, two remain unchanged (CITES policies and approval of regulations for tourism operations for the Noel Kempff protected area), and two have modified scopes (19 and 22). The scope of Policy Matrix commitment 19, regarding wetlands management, has been expanded to all activities under the strategy approved in the first operation. The first operation also included: (i) preparation of a Ramsar wetland inventory, but the Government of Bolivia deemed it necessary to prepare a methodology for describing the wetlands before moving forward with the inventory; and (ii) amendment of the regulation governing the FONABOSQUE for the protection of water sources in protected areas, which was originally commitment 22, but for this commitment to be workable, the regulation would have to cover multiple stakeholders involved in protecting water sources in protected areas, in addition to FONABOSQUE.
- 1.51 For the second operation, the policy commitments of this subcomponent are to: (19) implement the strategy for integrated management of wetlands, prepare an inventory methodology, and approve wetlands management manuals; (20) prepare a regulation for implementation of the policies on international trade in endangered species of wild fauna and flora; (21) approve the regulations for tourism operations authorizing entry fees for the Noel Kempff protected area; and (22) approve the proposed regulation for water conservation in protected areas and strategic ecosystems.

- 1.52 **Subcomponent II. Sustainable and integrated management of forests.** The objective of this subcomponent is to develop regulations and public policy instruments to reduce, prevent, and control deforestation and forest degradation, as well as remediate degraded areas through reforestation. Of the five commitments originally planned, three remain unchanged (commitments 23, 26, and 27), one has a different name but the same content (commitment 24), and one no longer includes the establishment of the legal framework for the Forest Monitoring System (commitment 25), since that condition was met with the regulations for the Program to Monitor and Control Deforestation and Forest Degradation.
- 1.53 For the second operation, the policy commitments of this subcomponent are to: (23) approve the Plurinational Strategy for Integrated Fire Management; (24) approve the regulations for Supreme Decree 2914, “Nuestros Bosques” Program to Monitor and Control Deforestation and Forest Degradation; (25) implement the Forest Information and Monitoring System; (26) approve the proposal on technical instruments for the implementation of integrated forest management and remediation of degraded areas in forest reserves; and (27) implement the PNFR.

### C. Key results indicators

- 1.54 The program’s expected outcomes are indicated in the [Results Matrix](#). The impact indicators are: (i) national environmental risks to public health exposure index; and (ii) deforestation rate (% of hectares). The outcome indicators are: (i) number of environmental inspections performed; (ii) number of beneficiaries of improved sustainable management and use of natural capital (includes management of the water and air quality); (iii) households with solid waste discarded in a sanitary landfill (number); (iv) protected areas with a current management plan (hectares); and (v) number of hectares reforested in degraded areas. With implementation of the reforms, the national environmental risks to public health exposure index is expected to remain around 19%, and the deforestation rate is expected to remain around 0.38.

**Table 3. Key results indicators**

Description of indicator	Baseline	Target
<b>Impact indicator</b>		
National environmental risks to public health exposure index	0.196	0.193
Deforestation rate	0.38	0.38
<b>Outcome indicator</b>		
Number of environmental inspections performed per year by the Ministry of Environment and the departments	144	216
Number of beneficiaries of improved management of water quality in priority watersheds	0	2,244,280
Population with access to real-time information on air quality	0	632,013
Additional tons disposed of in sanitary landfills (tons/day)	0	174
Surface area of protected areas with a current management plan (millions of hectares)	13.17	15.17
Number of additional hectares reforested in degraded areas	0	30,000

- 1.55 **Economic evaluation.** Based on the recommendations of the Office of Evaluation and Oversight (OVE) in its 2011 Evaluability Review of Bank Projects<sup>24</sup> and the results of the review of practices and standards for the evaluation of policy-based loans prepared by the Evaluation Cooperation Group (made up of the independent evaluation offices of the multilateral development banks),<sup>25</sup> included in paragraph 1.3 of document GN-2489-5, “Review of the Development Effectiveness Matrix for Sovereign Guaranteed and Non-Sovereign Guaranteed Operations,” which state that it is not necessary to prepare an efficiency analysis of the use of financial resources,<sup>26</sup> the determination was made that no economic analysis is to be performed for this type of loan, and the Board of Executive Directors was notified to that effect. Accordingly, this loan operation does not include an economic analysis, and, consequently, the economic analysis is not taken into account in measuring the evaluability score in the Development Effectiveness Matrix (DEM) for this program.

## II. FINANCING STRUCTURE AND MAIN RISKS

### A. Financing instruments

- 2.1 This loan operation is the second of two consecutive, single-tranche operations that are technically linked but financed independently under the programmatic policy-based loan modality. This modality has been selected pursuant to document CS-3633-2, “Policy-based Loans: Guidelines for Preparation and Implementation,” since it offers the flexibility to adapt to changing circumstances during execution and revise the program’s scope as time goes on. The objective set for the programmatic series will be achieved by fulfilling the commitments established for the two operations.
- 2.2 **Dimensioning.** The financing for this second programmatic policy-based loan (PBP) will be up to US\$100 million from regular Ordinary Capital resources, which is expected to be disbursed in the first half of 2019. The amount represents 2.7% of the total financing requirements of Bolivia for 2019 (US\$3.691 billion or 8.4% of GDP). The amount was based on the fiscal resources required by the country. Since this is a PBP operation, there will be a single disbursement, once the corresponding loan contract has been signed and the policy conditions have been met, according to the agreed means of verification (see [required link 2](#)).

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<sup>24</sup> RE-397-1: Currently, the economic analysis section is computed as the maximum between the cost-benefit analysis and the cost-effectiveness analysis. Yet neither a cost-benefit analysis nor a cost-effectiveness analysis is applicable to policy-based loans and programmatic policy-based loans.

<sup>25</sup> Good Practice Standards for the Evaluation of Public Sector Operations. Evaluation Cooperation Group, Working Group on Public Sector Evaluation, 2012 Revised Edition. February 2012.

<sup>26</sup> According to the Evaluation Cooperation Group, policy-based loans should be evaluated based on relevance, effectiveness, and sustainability. Efficiency was not included as a criterion, since the dimensioning of policy-based loans is associated with a country’s financing gap, regardless of the benefits of the operation.



**B. Environmental and social safeguard risks**

- 2.3 This operation will have no adverse environmental impacts, and includes environmental sustainability as an intrinsic requirement of the program. Under Directive B.13 of the Environment and Safeguards Compliance Policy (Operational Policy OP-703), this operation, as a PBP, requires no classification.

**C. Fiduciary risks**

- 2.4 The operation does not pose fiduciary risks, since it provides unrestricted funds for budgetary support within a sound fiscal policy framework. Bolivia has an extensive track record in managing external lending resources, and no financial management risks are foreseen.

**D. Other risks**

- 2.5 Two risks have been identified in public management and governance, related to delays in the timely completion of reforms, and have been rated as medium. The mitigation measures involve close monitoring of progress on commitments, providing specific financial support through technical cooperation operation ATN/OC-16008-BO, approved in 2017 for US\$257,250 from the Ordinary Capital Strategic Development Program for Countries. The consulting engagements financed include: (i) preparation of the inventory of air pollution sources in Cochabamba and Potosí; (ii) approval of the regulation for operational management of hazardous waste; (iii) preparation of an inventory methodology for the 11 Ramsar wetland sites and preparation of wetlands management manuals; and (iv) design of the third phase of the Forest Information and Monitoring System.
- 2.6 **Sustainability of reforms.** The policy reforms proposed in the program are accompanied by an increase of both financial and human resources available for environmental and natural resource management. From 2012 to 2017, environmental public spending<sup>27</sup> at the different levels of government (national government agencies, autonomous municipal governments, and autonomous departmental governments) increased at an annual average of 6% to a total of US\$343 million, accounting for 1.4% of total public expenditure. The Ministry of Environment and Water (MMAyA) and decentralized management units increased their staffing 15% from 2014 to 2017. With its 2016-2020 Economic and Social Development Plan (PDES), the government has set national budget objectives to continue increasing resources allocated to management activities associated with the proposed reforms. To support and strengthen these processes, the first programmatic loan included the approval of the Comprehensive Development Sector Plan (PSDI), which allocated budget resources and objectives among various environmental institutions to ensure the effectiveness of their activities. Under this second operation, the Government of Bolivia will continue its intersector and intergovernmental coordination work by offering workshops to raise awareness of the PSDI and integrating it with the Comprehensive Development Territorial Plans of departmental governments. Also under this operation, the Electronic Government Plan of the MMAyA will be approved, enabling the efficient use of budget resources for environmental management.

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<sup>27</sup> The methodology used for estimates is included in the [Analysis of Bolivia's Environmental Public Spending](#), chapter 4.

### III. IMPLEMENTATION AND MANAGEMENT PLAN

#### A. Summary of implementation arrangements

- 3.1 The borrower is the Plurinational State of Bolivia, represented by the Ministry of Development Planning (MPD). The executing agency will be the Ministry of Environment and Water (MMAyA), which will be responsible for tracking fulfillment of the Policy Matrix commitments made by various government institutions (see Annex II). The MMAyA will have the following responsibilities: (i) maintain official communication with the Bank and provide evidence of fulfillment of the operation's conditions and all other reports requested by the Bank under the agreed terms and conditions; (ii) promote actions to achieve the policy objectives set, particularly the conditions included as triggers for this program; and (iii) collect and deliver to the Bank all information and indicators enabling the Government of Bolivia and the Bank to monitor, measure, and evaluate the program outcomes. The MMAyA's Directorate General of Planning (DGP) will have the role of coordinator, establishing a Strategic Committee made up of key representatives from the deputy ministers' offices (Environment, Potable Water and Basic Sanitation, Water Resources and Irrigation) and other government institutions involved (MPD, SERNAP), and providing evidence of the commitments assumed by each responsible unit, as specified in the [Means of Verification Matrix](#).
- 3.2 **Special contractual conditions precedent to the sole disbursement of the loan proceeds: The sole disbursement of the Bank loan will be subject to fulfillment of the policy reform commitments by the borrower, to the Bank's satisfaction, once the corresponding loan contract has been signed and the Special Provisions, General Conditions, and Conditions Precedent established the loan contract for this disbursement have been satisfied in accordance with the Policy Matrix (Annex II), the Policy Matrix (Annex II), the [Means of Verification Matrix](#), and the [Policy Letter](#).**

#### B. Summary of arrangements for monitoring results

- 3.3 The MMAyA will coordinate the timely fulfillment of the commitments and scope of the reform. It will also be responsible for providing information on progress with respect to the [Policy Matrix](#) (Annex II) and [Results Matrix](#), as well as provide evidence of the means of verification to the Bank. The Results Matrix indicators will guide the evaluation of program implementation progress and will be used for program evaluation upon completion of the programmatic series.
- 3.4 The program completion report (PCR) will be approved within six months after the end of this second operation and will follow the guidelines in effect (document GN-2489-10). The evaluation of program impacts and outcomes will employ a reflexive methodology that measures the respective indicators before and after the program. The budget and the schedule of activities for this evaluation are detailed in the [monitoring and impact evaluation plan](#). The borrower has agreed on the indicators and baseline with the Bank ([required link 3](#)) and will gather all information necessary for program monitoring and evaluation, and for preparation of the PCR.

#### **IV. POLICY LETTER**

- 4.1 The Bank has reached agreement with the Government of Bolivia on the [Policy Letter](#), which describes the planned objectives and actions for the entire programmatic series and reaffirms the government's commitment to the reforms and activities agreed upon with the Bank. The Bank has also reached agreement with the Government of Bolivia on the Policy Matrix (Annex II), which describes the policy commitments for this program, and the [Results Matrix](#) and [Means of Verification Matrix](#).

Development Effectiveness Matrix		
Summary		BO-L1199
I. Corporate and Country Priorities		
1. IDB Development Objectives	Yes	
Development Challenges & Cross-cutting Themes	-Climate Change and Environmental Sustainability -Institutional Capacity and the Rule of Law	
Country Development Results Indicators	-Reduction of emissions with support of IDBG financing (annual million tons CO2 e)* -Beneficiaries of improved management and sustainable use of natural capital (#)* -Government agencies benefited by projects that strengthen technological and managerial tools to improve public service delivery (#)* -Households with solid waste disposed in a sanitary landfill (#)* -Terrestrial and marine areas with improved management (ha)*	
2. Country Development Objectives	Yes	
Country Strategy Results Matrix	GN-2843	Reduction of vulnerability to natural disasters and climate change; improve the effectiveness of public management
Country Program Results Matrix		The intervention is included in the 2019 Operational Program.
Relevance of this project to country development challenges (If not aligned to country strategy or country program)		
II. Development Outcomes - Evaluability		Evaluable
3. Evidence-based Assessment & Solution		9.0
3.1 Program Diagnosis		3.0
3.2 Proposed Interventions or Solutions		3.6
3.3 Results Matrix Quality		2.4
4. Ex ante Economic Analysis		N/A
5. Monitoring and Evaluation		8.5
5.1 Monitoring Mechanisms		2.5
5.2 Evaluation Plan		6.0
III. Risks & Mitigation Monitoring Matrix		
Overall risks rate = magnitude of risks*likelihood		Medium
Identified risks have been rated for magnitude and likelihood		Yes
Mitigation measures have been identified for major risks		Yes
Mitigation measures have indicators for tracking their implementation		Yes
Environmental & social risk classification		B.13
IV. IDB's Role - Additionality		
The project relies on the use of country systems		
Fiduciary (VPC/FMP Criteria)		
Non-Fiduciary		
The IDB's involvement promotes additional improvements of the intended beneficiaries and/or public sector entity in the following dimensions:		
Additional (to project preparation) technical assistance was provided to the public sector entity prior to approval to increase the likelihood of success of the project	Yes	Technical assistance was provided to support the revision of existing policies and comply of new policies to be implemented with the PBP

Note: (\*) Indicates contribution to the corresponding CRF's Country Development Results Indicator.

*This is the second of two operations under the modality of Programmatic Loans in Support of Policy Reforms (PBP) whose objective is to contribute to the strengthening and modernization of the regulatory, institutional and budgetary framework for environmental management.*

*An adequate diagnosis of the current situation of the normative and institutional environmental framework is presented as it pertains to the control of pollution and the integral management of forests and biodiversity, as well as its main challenges.*

*The results matrix reflects the objectives of the program and shows a clear vertical logic. Not all indicators at the outcome level are SMART or have means to verify their achievement. Empirical evidence on the effectiveness of the proposed type of interventions is presented and discussed.*

*The monitoring and evaluation plan proposes a before and after evaluation for the impact indicators, as well as an ex post CBA for relevant subcomponents.*

## POLICY MATRIX

Component and specific objective	Fulfilled policy conditions, Programmatic loan I (2017)	Agreed policy conditions, Programmatic loan II (2019) <sup>1</sup>	Responsible party	Fulfillment status <sup>2</sup>
<b>Component I. Macroeconomic stability</b>				
1.1. Stability of the general macroeconomic policy framework.	Maintain a stable macroeconomic framework consistent with the objectives of the program and the Policy Letter.	0. Maintain a stable macroeconomic framework consistent with the objectives of the program and the Policy Letter.	IDB – Ministry of Economy and Finance.	Fulfilled
<b>Component II. Environmental management for pollution control</b>				
2.1. Improve the capacity for strategic and institutional planning and improve the efficiency and effectiveness of key environmental management instruments	Prepare a strategic plan to identify the actions to be taken, budgetary needs, distribution of environmental management and climate change responsibilities, and expected outcomes contributing to the country's environmental protection objectives.	1. Prepare interagency agreements for environmental management according to the territorial planning model established in the planning instruments for at least two autonomous departmental governments	Directorate General of Planning (DGP), Ministry of Environment and Water (MMAyA).	Fulfilled (Q4 2018)
		2. Approve the Electronic Government Implementation Sector Plan for the MMAyA, which connects to the Comprehensive Development Sector Plan of the MMAyA and creates guidelines for regular observation networks and information management. Approve the Environmental Information and Water Resources System, where all water resource data will be recorded, maintained, and can be looked up, in order to optimize tracking, monitoring, and evaluation processes.	DGP, MMAyA.	Fulfilled (Q3 2018)

<sup>1</sup> The Policy Matrix contains changes in the conditions for the second operation in comparison with what was included in the first operation, BO-L1183. These changes reflect the program's horizontal logic and implementation of measures under the first operation.

<sup>2</sup> This information is solely of an indicative nature as of the date this document was prepared. Pursuant to the provisions of document CS-3633-2 (Policy-Based Loans: Guidelines for Preparation and Implementation), the Bank will verify compliance with any specified tranche disbursement conditions, including the maintenance of an appropriate macroeconomic policy framework, when the borrower submits the applicable disbursement request. This will be reflected in a timely manner in the disbursement eligibility memorandum.

Component and specific objective	Fulfilled policy conditions, Programmatic loan I (2017)	Agreed policy conditions, Programmatic loan II (2019) <sup>1</sup>	Responsible party	Fulfillment status <sup>2</sup>
		3. Approve investment project formulation guidelines to facilitate access to resources for environmental management projects with a climate-change focus.	DGP, MMAyA.	Fulfilled (Q1 2019)
	Approve a diagnostic study and recommendations to reform the environmental licensing system, in order to optimize the procedure and increase the transparency, objectiveness, and effectiveness of environmental management, as well as strengthen the participatory process and its financial sustainability.	4. Approve the regulation to reform the environmental licensing system, in order to optimize the procedure and increase the transparency, objectiveness, and effectiveness of environmental management, as well as strengthen the participatory process and its financial sustainability.	Office of the Deputy Minister of Environment, Biodiversity, Climate Change, and Forest Management and Development (VMABCCGDF), MMAyA.	Fulfilled (Q2 2018)
2.2. Strengthen air quality management.	Prepare and approve a manual for the design and operation of air quality monitoring networks that standardizes measuring methods and data interchange protocols.	5. Publish air quality levels for Cochabamba online in the National Environmental Information System (SNIA) on a daily basis, comparing them with maximum permissible levels.	VMABCCGDF, MMAyA.	Fulfilled (Q4 2018)
		6. Prepare an inventory of the main air pollution sources in Cochabamba and Potosí and make recommendations for its continuity.	VMABCCGDF, MMAyA,	Fulfilled (Q4 2018)
	Prepare a proposal for a contingency plan for air pollution alerts containing maximum permissible levels and alert thresholds, protocols to declare and lift states of alert, coordination mechanisms, and measures to be implemented to reduce exposure for the population.	7. Approve a set of technical rules to implement the contingency plan for air pollution alerts.	VMABCCGDF, MMAyA.	Fulfilled (Q4 2018)
		8. Raise awareness and disseminate the contingency plan for air pollution alerts at the municipal level.	VMABCCGDF, MMAyA.	Fulfilled (Q2 2018)

Component and specific objective	Fulfilled policy conditions, Programmatic loan I (2017)	Agreed policy conditions, Programmatic loan II (2019) <sup>1</sup>	Responsible party	Fulfillment status <sup>2</sup>
2.3. Improve the country's water resource quality management.	Prepare an inventory of the main sources of water resource pollution (companies, agribusiness, etc.) in the three municipios of the upper Rocha River basin.	9. Prepare an inventory of the main sources of water resource pollution (companies, agribusiness, etc.) in all the municipios of the Rocha River and recommendations for incorporating it into the watershed master plan.	Office of the Deputy Minister of Water Resources and Irrigation (VRHR), MMAyA.	Fulfilled (Q2 2018)
		10. Prepare an inventory of the main sources of water resource pollution (companies, agribusiness, etc.) in priority areas of the Katari-Lake Titicaca watershed and recommendations for the Katari basin management unit.	VRHR, MMAyA.	Fulfilled (Q4 2018)
	Prepare rules on the methodology for classification of bodies of water, establishing geographical criteria, hydrological and geomorphological characteristics, and water quality parameters.	11. Approve classification rules for bodies of water and implement the rules for the Pirai and Rocha water bodies.	VRHR, MMAyA.	Fulfilled (Q4 2018)
	Prepare rules for managing acid waters and effluents in the mining sector.	12. Approve rules for managing acid waters and effluents in the mining sector and design a clean technology pilot project for the treatment of acid waters from mining activity.	VRHR, MMAyA.	Fulfilled (Q4 2018)
	Prepare an action plan for the water quality management strategy in at least one vulnerable microwatershed, seeking to bring the mining industry into compliance with the maximum permissible levels.	13. Implement an action plan for water quality management in the Blanco River mining microwatershed.	VRHR, MMAyA.	Fulfilled (Q4 2018)
	Prepare a technical study to determine the parameters for the quality of water reused for irrigation in at least one crop.	14. Approve guidelines for reusing raw or treated water for irrigation by type of crop.	VRHR, MMAyA.	Fulfilled (Q4 2018)

Component and specific objective	Fulfilled policy conditions, Programmatic loan I (2017)	Agreed policy conditions, Programmatic loan II (2019) <sup>1</sup>	Responsible party	Fulfillment status <sup>2</sup>
2.4. Strengthen the process of environmental liability management.	Prepare and approve a field work methodology for inventorying and describing mining environmental liabilities according to international best practices.	15. Apply the approved methodology for inventorying and describing mining environmental liabilities in eight protected areas, and prepare the founding charter for an interagency platform intended to prepare an action plan for liability remediation.	VMABCCGDF, MMAyA.	To be fulfilled (Q1 2019)
		16. Prepare and publish maps of environmental liabilities for eight priority zones in the SNIA.	VMABCCGDF, MMAyA.	Fulfilled (Q4 2018)
2.5. Improve the status of solid waste in the country.	Approve the implementation plan for the Integrated Solid Waste Management Law addressing climate change considerations, establishing guidelines to strengthen the sector within the policy framework under this law.	17. Submit the draft supreme decree for the identification of hazardous waste to the Ministry of the Presidency pursuant to Law 755 on Integrated Solid Waste Management.	VAPSB, MMAyA.	Fulfilled (Q1 2019)
	Approve the regulation implementing the Integrated Solid Waste Management Law addressing climate change considerations, containing the classification of municipios according to the amount generated and assigning responsibilities for management.	18. Approve the regulation for operational management of hazardous waste.	VAPSB, MMAyA.	Fulfilled (Q1 2019)
	Approve municipal programs for integrated management of urban solid waste in the municipios of Sucre and El Puente.	N/A	VAPSB, MMAyA.	N/A



Component and specific objective	Fulfilled policy conditions, Programmatic loan I (2017)	Agreed policy conditions, Programmatic loan II (2019) <sup>1</sup>	Responsible party	Fulfillment status <sup>2</sup>
<b>Component III. Integrated management of forests and biodiversity</b>				
<b>Subcomponent I. Biodiversity and environmental functions</b>				
3.1. Increase the number of hectares protected with management and financial sustainability plans.	Approve the strategy for management of Ramsar sites based on international best practices, coordinated with the objectives of the Economic and Social Development Plan (PDES) related to climate change, biodiversity, and wetlands.	19. Implement the strategy for integrated management of wetlands, including Ramsar sites. Prepare an inventory methodology for the 11 Ramsar wetland sites. Approve wetlands management manuals.	VMABCCGDF, MMAyA.	To be fulfilled (Q1 2019)
	Approve policies on international trade in endangered species of wild fauna and flora based on international best practices.	20. Prepare a regulation for implementation of the policies on international trade in endangered species of wild fauna and flora.	VMABCCGDF, MMAyA.	Fulfilled (Q2 2017)
	Sign an agreement for monitoring, control, and supervision of activities related to international trade in endangered species of wild fauna with the Cochabamba Governor's Office.	N/A	VMABCCGDF, MMAyA.	N/A
	Approve a management plan for at least one priority protected area.	21. Approve the specific regulations for tourism operations authorizing entry fees for the Noel Kempff protected area.	VMABCCGDF, MMAyA.	Fulfilled (Q3 2018)

Component and specific objective	Fulfilled policy conditions, Programmatic loan I (2017)	Agreed policy conditions, Programmatic loan II (2019) <sup>1</sup>	Responsible party	Fulfillment status <sup>2</sup>
	Approve the legal instrument amending the regulation governing the National Forest Development Fund (FONABOSQUE), to declare reforestation projects in protected groundwater recharge areas eligible for financing.	22. Approve proposed internal rules and regulations, as well as institutional and regulatory arrangements, to get the financial mechanism for integrated management up and running for the protection of water sources in protected areas and strategic ecosystems.	VMABCCGDF, MMAyA.	To be fulfilled (Q1 2019)
<b>Subcomponent II. Sustainable and integrated management of forests</b>				
3.2. Support the implementation of sustainable and integrated management of forests.	Approve the Program to Monitor and Control Deforestation and Forest Degradation for the sustainable and integrated management of forests addressing climate change considerations, with the following components: (i) monitoring and control of deforestation (Forest Information and Monitoring System); (ii) monitoring, control, and fighting of forest fires; (iii) integrated fire management (prevention); and (iv) remediation of forests in degraded areas.	23. Approve the Plurinational Strategy for Integrated Fire Management.	VMABCCGDF, MMAyA.	Fulfilled (Q2 2018)
		24. Approve the regulations for Supreme Decree 2914, "Nuestros Bosques" Program to Monitor and Control Deforestation and Forest Degradation	VMABCCGDF, MMAyA,	Fulfilled (Q3 2018)
	Approve rules identifying the public entity responsible for generating and disseminating official information on forest fires and hot spots in a systematic and ongoing manner for administrative purposes, as well as to be shared with society.	25. Implement the Forest Information and Monitoring System.	VMABCCGDF, MMAyA.	Fulfilled (Q4 2018)

Component and specific objective	Fulfilled policy conditions, Programmatic loan I (2017)	Agreed policy conditions, Programmatic loan II (2019) <sup>1</sup>	Responsible party	Fulfillment status <sup>2</sup>
	Prepare an implementation strategy, scopes of work, public institutions involved in national and subnational execution, private organizations, coordination mechanisms, promotion mechanisms, and the dissemination, evaluation, and monitoring strategy for implementation of the National Afforestation and Reforestation Program (PNFR) addressing climate change considerations.	26. Approve the proposal on technical instruments for the implementation of integrated forest management and remediation of degraded areas in forest reserves.	VMABCCGDF, MMAyA.	Fulfilled (Q4 2018)
	Prepare and approve a work plan to prioritize land titling in areas served by the PNFR.	27. Implement the PNFR.	VMABCCGDF, MMAyA.	Fulfilled (Q4 2018)

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-\_\_\_/19

Bolivia. Loan \_\_\_\_/OC-BO to the Plurinational State of Bolivia  
Program for the Strengthening of Environmental and Natural  
Resource Management II

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the Plurinational State of Bolivia, as Borrower, for the purpose of granting it a financing to cooperate in the execution of the Program for the Strengthening of Environmental and Natural Resource Management II. Such financing will be for the amount of up to US\$100,000,000 from the resources of the Bank's Ordinary Capital, and will be subject to the Financial Terms and Conditions and the Special Contractual Conditions of the Project Summary of the Loan Proposal.

(Adopted on \_\_\_\_ 2019)