

**ADMINISTRATION AGREEMENT**

**between**

**THE NORDIC DEVELOPMENT FUND**

**and**

**THE INTER-AMERICAN DEVELOPMENT BANK**

**regarding**

**Project Specific Grant to the Inter-American Development Bank for  
Project No. BO-X1012 titled, "Multipurpose Irrigation and Potable Water  
Program for the Municipalities of Batallas, Pucarani and El Alto"**

**THIS ADMINISTRATION AGREEMENT** is entered into between the Nordic Development Fund ("**NDF**"), and the Inter-American Development Bank (the "**Bank**") (together referred to as the "**Parties**", and individually either of them, a "**Party**").

**WHEREAS**, the Bank has designed Project BO-X1012 titled, "Multipurpose Irrigation and Potable Water Program for the Municipalities of Batallas, Pucarani and El Alto" (the "**Project**"), as described in the preliminary project document attached hereto as Annex A, as may be modified in a revised project document, identified by the same Bank project no. (the "**Project Document**"), to be approved by the Bank pursuant to Article 12 below;

**WHEREAS**, NDF has agreed to support the execution of the Project by providing a project specific grant contribution to be administered by the Bank; and

**WHEREAS**, the Bank is prepared to receive and administer the contribution funds to be made available by NDF.

**NOW, THEREFORE**, the Parties hereby agree as follows:

#### **TRANSFER AND MANAGEMENT OF FUNDS**

1. NDF will make available to the Bank a contribution of EUR4,000,000.00 (four million euros) (the "**Contribution**") to be administered by the Bank to finance the Project.
2. The Contribution will be solely for the purposes indicated in the Project Document, subject to the approval mentioned in Article 12 below. Any material deviations from the objectives and activities of the Project described in the Project Document will require NDF's written approval.
3. Following the signature of this Administration Agreement by the Parties, NDF shall, subject to Article 12 below, transfer the Contribution to the Bank in one single installment, upon the Bank's written request. The Contribution will be deposited in an account indicated by the Bank in writing. Upon receipt of such deposit, the Bank will convert the amount of the Contribution into United States dollars and will deposit them into an account held by the Bank in said currency for the administration of the Contribution (the "**Account**").
4. The Bank will administer the Contribution in accordance with the provisions of this Administration Agreement and the Bank's applicable policies and procedures, including those applicable for third party resources administered by the Bank. The Bank will exercise the same care in the discharge of its functions, as described in this Administration Agreement, as it exercises with respect to the administration and management of resources from other donors and will have no further liability to NDF in respect thereof.

5. a) The Contribution will be accounted for separately from the Bank's assets, and will be administered separately from other contributions received by the Bank, but may be commingled with other contributions from NDF.  
  
b) The Bank may freely exchange the Contribution funds into other currencies as may facilitate their administration and disbursement. The Bank will not be responsible for foreign exchange risk in the receipt, conversion or administration of Contribution funds. Any adverse impacts of potential foreign currency fluctuations during the implementation period shall be discussed by the Parties and appropriate remedial measures and amendments shall be negotiated if necessary. Notwithstanding the foregoing, neither NDF nor the Bank shall be obliged to contribute any additional funds as a result of any foreign currency fluctuations.  
  
c) Pending disbursement in connection with the Project, the Bank may at its discretion invest and reinvest the resources of the Contribution, following the Bank's investment policies, procedures and practices. Income earned from such investment and reinvestment shall be credited to the Account and returned to NDF, upon request from NDF or when the Account is closed, whichever occurs later.
6. To assist in the defrayment of the administrative costs in relation to the Contribution, the Bank will charge and retain a fee equal to five percent (5%) of the total amount of the Contribution, which may be withdrawn by the Bank from the Contribution, once the Contribution is converted into United States dollars. In addition, the Bank may also use the resources of the Contribution to cover the costs charged to the Bank related to the maintenance and transactions of the Account.

## IMPLEMENTATION

7. The Bank's policies and procedures will be applicable to any relevant operational, financial and fiduciary aspects of the Project, including the procurement of goods, works, and consulting and other services, carried out with the Contribution, as required by the different components of the Project. Further, NDF accepts that:
  - a) the resources of the Contribution will be completely untied; and
  - b) the consultancy services financed with the Contribution may be provided and executed by companies, specialized institutions or individuals from any Bank member country.
8. The Bank shall inform NDF of any review missions undertaken by it related to the Contribution and provide to NDF a report setting out the main findings or results of such mission. The Bank shall invite NDF to join any Project review missions, including supervision missions and the mid-term review during the implementation of the Project and upon its completion. NDF shall be responsible for its own costs and obtaining any

official approvals that may be required with respect to participation in any Project review missions.

9. NDF will not be responsible for the activities of any person or third-party engaged by the Bank as a result of this Administration Agreement, nor will NDF be liable for any costs incurred by the Bank in terminating the engagement of any such person.

#### **REPORTING AND AUDIT**

10. The Bank shall provide NDF with:

- a) reports on implementation of the activities funded under the Contribution and other reports and information as NDF may reasonably request concerning the progress of the Project that the Bank can provide in its normal course of business, and ii) promptly, no later than six months following the completion of the Project, a final Project report;
- b) non-audited activity and financial reports of the Project, [as such reports are provided by the Project's executing agency to the Bank, pursuant to the technical assistance or financing agreement entered between the executing agency and the Bank] and, ii) promptly, and no later than six months from financial closure of the Project, a terminal financial report showing the receipts, income and expenditures under the Account and the remaining balance, if any. The Bank may provide a copy of any audited reports of the Project available to the Bank; and
- c) should NDF require an external audit of the Account, NDF shall request the Bank for such an external audit in writing upon completion of the Project. The cost of this audit shall be charged against the Account, provided funds are available after settlement of all expenditures related to the Project. Alternately, upon agreement by NDF and the Bank the cost of such external audit shall be paid separately by NDF.

#### **CONSULTATIONS, AMENDMENTS, TERMINATION AND DISPUTE SETTLEMENT**

11. As soon as possible upon completion of the Project, the Bank shall return to NDF any remaining uncommitted Contribution funds, including, if applicable, any income from investment or reinvestment in accordance with Article 5(c) above, unless otherwise agreed to in writing by the Parties.
12. NDF acknowledges that the Bank's commitment to use the Contribution as contemplated herein shall be subject to the Bank's formalization of all internal approvals necessary for the Project and/or the Project Document, and the Bank acknowledges that NDF's disbursement in accordance with Article 3 above is subject to such internal approvals. Such internal approvals by the Bank include the approval of the Project Document, substantially in the form attached hereto as Annex A. Once the Project

Document has been approved, the Bank will furnish a copy of it to NDF, which will then be deemed incorporated into this Administration Agreement as Annex A. NDF accepts that the final, approved version of the Project Document may vary from the attached Annex A, in which case the approved version will prevail, and no amendment to this Administration Agreement will be required.]

13. The Bank shall endeavour to maximize opportunities to highlight the identity of NDF's contribution to the Project (e.g., through related signage, documentation and public information about the activities, including the use of NDF's logo), and invite NDF representatives to participate in key events related to the Project. NDF shall be responsible for its own costs with respect to any participation in such events, unless the NDF and the Bank agree otherwise in a case-by-case basis.

14. a) The Bank shall inform NDF promptly of any condition which significantly interferes, or threatens to interfere, with the performance by the Bank of its commitments under this Administration Agreement.

b) The Bank shall notify and consult with NDF whenever the Bank identifies a major change of scope in relation to any activities financed under the Contribution. If any such changes occur, which in the opinion of the Bank or NDF impairs significantly the developmental value of the Project, NDF and the Bank shall consult on measures to resolve the problem and possible courses of action. In the event of such changes, NDF, however, may decide to terminate this Administration Agreement or agree with the Bank on an amendment thereof.

15. The offices responsible for coordination of all matters and receiving any notice or request in writing in connection with this Administration Agreement or the Project will be the following:

a) For the Bank:

Inter-American Development Bank  
1300 New York Avenue, NW  
Washington, D.C. 20577  
UNITED STATES OF AMERICA  
Attention: Chief, Grants and Co-financing Management Unit  
Office of Outreach and Partnerships (ORP/GCM)  
Tel.: ++ 202-623-2018  
Fax: ++ 202-623-3489  
E-mail: [orp-gcm@iadb.org](mailto:orp-gcm@iadb.org)

b) For NDF:

Nordic Development Fund  
P.O Box 185, Fabianinkatu 34FIN  
00171 Helsinki

FINLAND

Attention: Managing Director  
Tel.: ++ 358 618 002  
Fax: ++ 358 9 622 1491  
E-mail: [info.ndf@ndf.fi](mailto:info.ndf@ndf.fi)

16. This Administration Agreement will come into force on the date of its signature by each of the Parties and shall remain in full force and effect until the date on which the Contribution has been fully disbursed by the Bank and all activities financed under the Contribution shall have been completed as set out in the Project Document.
17. If at any time either Party determines that the purposes of this Administration Agreement can no longer be effectively or appropriately carried out either Party may give notice of termination of this Administration Agreement. Such termination shall enter into effect three (3) months after notice has been received, subject to the settlement of any outstanding obligations made prior to the notice being received. In the event of termination by either Party, both Parties shall cooperate to ensure that all arrangements made hereunder are settled in a fair and orderly manner. Upon termination, the Bank shall return the Contribution funds to NDF in accordance with Article 11 above.
18. The Parties may amend any provision of this Administration Agreement in writing.
19. Subject to consultation with the other Party and their respective policies and procedures with respect to the disclosure of information, the Parties may make this Administration Agreement publicly available.
20. Nothing in this Administration Agreement may be construed as creating an agency relationship between the Parties.
21. The Parties acknowledge and agree that the Contribution constitutes the sole financing for the Project provided by NDF. The Administration Agreement will be considered joint financing for purposes of the provisions of the "Cooperation Agreement between the Nordic Development Fund and the Inter-American Development Bank for the Cofinancing of Programs and Projects", amended and restated as of January 26, 2010 (the "NDF-IDB Cofinancing Agreement"). For the avoidance of doubt, the provisions of NDF-IDB Cofinancing Agreement will apply to this Administration Agreement, except that in the event of conflict, the provisions of this Administration Agreement will prevail.

*(The remainder of this page is intentionally left blank.)*

22. The Parties will seek to settle amicably any disputes that may arise from or relate to this Administration Agreement.

IN WITNESS WHEREOF, the Nordic Development Fund and the Inter-American Development Bank, each acting through its duly authorized representatives, have signed this Administration Agreement in in the English language, on the dates indicated below.

**NORDIC DEVELOPMENT  
FUND**



Pasi Hellman  
Managing Director

Date: 26 Nov 2015

**NORDIC DEVELOPMENT  
FUND**



Leena Klossner  
Vice President  
Deputy Managing Director

Date: 26.11.2015

**INTER-AMERICAN  
DEVELOPMENT BANK**



Bernardo Guillamon  
Manager  
Office of Outreach and Partnerships

Date: 11/24/15

PUBLIC  
SIMULTANEOUS DISCLOSURE

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

## **BOLIVIA**

### **MULTIPURPOSE WATER SUPPLY AND IRRIGATION PROGRAM FOR THE MUNICIPIOS OF BATALLAS, PUCARANI, AND EL ALTO**

**(BO-L1080, BO-G1004, BO-X1012)**

#### **LOAN PROPOSAL**

This document was prepared by the project team consisting of Edgar Orellana (WSA/CPE), Project Team Leader; Alfred Grünwaldt, Alternate Project Team Leader (INE/CCS); Omar Garzonio (WSA/CBO); Maria Julia Bocco, Raúl Muñoz, Javier García, and Liliana López (INE/WSA); Juan Manuel Murguía (RND/CBO); Ana Ríos and Ana Iju (INE/CCS); Carolina Escudero and Abel Cuba (FMP/CBO); Escarlata Baza (LEG/SGO); María Elena Castro and Steven Collins (VPS/ESG); Georgia Peláez (CAN/CBO); Prem Jai Vidaurre (CCS/CBO); and Patricia Nardelli, (consultant).

This document is being released to the public and distributed to the Bank's Board of Executive Directors simultaneously. This document has not been approved by the Board. Should the Board approve the document with amendments, a revised version will be made available to the public, thus superseding and replacing the original version.



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<b>REQUIRED</b>	
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1.	<a href="#"><u>Technical feasibility, and technical, economic, and socioenvironmental assessment (TESA) studies</u></a>
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10.	<a href="#"><u>Proposed comprehensive management plan for the Jacha Jahuirá and Khullu Cachi subbasins</u></a>
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12.	<a href="#"><u>Guide for preparing a drought management plan</u></a>
13.	<a href="#"><u>Metropolitan water supply and sanitation master plan for La Paz-El Alto and adjacent areas</u></a>
14.	<a href="#"><u>Program cost table</u></a>
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19.	<a href="#"><u>Aide-mémoire –Khullu Cachi subbasin</u></a>
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21.	<a href="#"><u>Environmental and Social Safeguards</u></a>

## ABBREVIATIONS

AAPS	Autoridad de Fiscalización y Control Social de Agua Potable y Saneamiento Básico [Water Supply and Basic Sanitation Supervision and Societal Oversight Authority]
AWP	Annual work plan
EBITDA	Earnings before interest, taxes, depreciation, and amortization
EMAGUA	Entidad Ejecutora de Medio Ambiente y Agua [Environment and Water Executing Agency]
EPSAS	Empresa Pública Social de Agua Potable y Saneamiento para La Paz y El Alto [public water and sanitation utility for La Paz and El Alto]
ESMP	Environment and Social Management Plan
ESMR	Environmental and Social Management Report
FSO	Fund for Special Operations
GAMs	Gobiernos Autónomos Municipales [autonomous municipal governments]
IAF	Independent auditing firm
ICAS	Institutional Capacity Assessment System
INE	Instituto Nacional de Estadística de Bolivia [National Statistics Bureau of Bolivia]
IPMS-IDB	Integrated project management system
MEFP	Ministry of Economic Affairs and Public Finance
MMaYA	Ministry of the Environment and Water
MPMO	Multipurpose program management office
NB-SABS	Normas Básicas del Sistema de Administración de Bienes y Servicios [basic standards of the goods and services management system]
NDF	Nordic Development Fund
O&M	Operation and maintenance
OTC	Operations Technical Committee for the multipurpose program
PPCR	Pilot Program for Climate Resilience
SCF	Strategic Climate Fund
SCMP	Social compensation and management plan
SICOES	Sistema de Contrataciones Estatales [government procurement system]
SIGEP	Sistema de Gestión Pública [public management system]
SIGMA	Sistema Integrado de Gestión y Modernización Administrativa [Integrated Administrative Modernization and Management System]
TESA	Technical, economic, and socioenvironmental assessment
W&S	Water and sanitation
WSSPs	Water and sanitation service providers [the Spanish acronym for these is EPSAs; WSSP is used in this document to avoid confusion with EPSAS.]

**PROJECT SUMMARY**  
**PLURINATIONAL STATE OF BOLIVIA**

**MULTIPURPOSE WATER SUPPLY AND IRRIGATION PROGRAM FOR THE  
MUNICIPIOS OF BATALLAS, PUCARANI, AND EL ALTO  
(BO-L1080, BO-G1004, BO-X1012)**

Financial terms and conditions					
Borrower and beneficiary: Plurinational State of Bolivia				Ordinary Capital	FSO
Executing agency: Entidad Ejecutora de Medio Ambiente y Agua [Environment and Water Executing Agency] (EMAGUA)			Amortization period:	30 years	40 years
			Disbursement period:	5 years <sup>(a)</sup>	5 years
Source	Amount (US\$)	%	Grace period:	6 years	40 years
IDB Ordinary Capital:	49,600,000	37	Inspection and supervision fee:	(b)	N/A
IDB Fund for Special Operations (FSO):	12,400,000	9	Interest rate:	LIBOR-based	0.25%
Strategic Climate Fund (SCF) - nonreimbursable:	42,500,000	32			
Nordic Development Fund (NDF): <sup>(c)</sup>	€4,000,000 (equivalent to US\$4,370,000)	3	Credit fee:	(b)	N/A
Local:	24,145,136	18	Currency of approval:	U.S. dollars from the Ordinary Capital	U.S. dollars
Total:	133,015,136	100			
Program at a glance					
<b>Program objectives/Description:</b> The general objective is to improve potable water service delivery in the municipio of El Alto and access to water in the municipios of Pucarani and Batallas, taking into account climate change resilience considerations. The specific objectives are to: (i) increase the availability of water in the system that supplies the city of El Alto and the communities in the municipio of Batallas; (ii) improve and expand the use of irrigation systems in Pucarani and Batallas; and (iii) promote integrated water resource management and the sustainable use of natural resources in a context of climate change.					
<b>Special contractual conditions precedent to the first disbursement:</b> (i) a subsidiary agreement will be signed and enter into force between the executing agency, the Ministry of the Environment and Water, the Ministry of Development Planning, and the Ministry of Economic Affairs and Public Finance, <sup>(d)</sup> for the transfer of proceeds from the loan and the nonreimbursable financing and the execution and coordination of planned program activities, in accordance with terms and conditions agreed upon in advance with the Bank; (ii) a management office for the multipurpose program will be set up and in operation and its specialized technical staff selected in accordance with terms and conditions agreed upon in advance with the Bank; (iii) the program's Operating Regulations will be approved and enter into force in accordance with terms and conditions agreed upon in advance with the Bank; and (iv) an initial report will be submitted to the Bank that includes the multiyear execution plan, the procurement plan, the financial plan, and the Results Matrix and Risk Matrix for the program (paragraph 3.3).					
<b>Special contractual conditions for execution:</b> Prior to awarding the contracts for infrastructure works in each of the participating municipios, EMAGUA will submit evidence to the effect that: (i) an interagency agreement has been signed and entered into force between EMAGUA and the corresponding autonomous municipal government covering works maintenance, counterpart contributions, and transfer of the assets, <sup>(e)</sup> in accordance with terms and conditions agreed upon in advance with the Bank; (ii) an agreement has been signed and entered into force between EMAGUA and the public water and sanitation utility for La Paz and El Alto (EPSAS) for execution of the works and operation and maintenance (O&M) of the systems; (iii) the program's environmental and social conditions established in the Operating Regulations and in the Social and Environmental Management Report have been fulfilled; and (iv) 24 months after the date of the first disbursement of the program's resources, the program's Operations Technical Committee has been established and is operational, in accordance with terms and conditions agreed upon in advance with the Bank (paragraph 3.4).					

Exceptions to Bank policy: None				
Program qualifies as: <sup>(f)</sup>	SV [x]	PR [x]	CC [x]	CI []

- (a) The execution and disbursement periods will be the same for the activities to be financed with SCF and NDF funding.
- (b) The credit fee and the 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.
- (c) Program funds received from the NDF will be provided to the Bank in the form of a Project Specific Grant (PSG). The Bank administers these operations as established in the "Report on COFABS, Ad-Hocs and CLFGS and a Proposal to Unify Them as Project Specific Grants (PSGs) (document SC-114). As provided for in those procedures and in accordance with the cooperation agreement between the NDF and the Bank, amended and reformulated on 26 January 2010, the NDF's commitment will be established in a separate administrative agreement and the Bank will administer the funds for this program and will charge an administration fee of 5% of the contribution, identified in the program's budget. This fee will be charged after the contribution is converted to U.S. dollars (see [link](#)). The project team will prepare the program reports in accordance with the provisions of the administration contract. The exchange rate effective on 1 June 2015 of 0.915 euros to the U.S. dollar was used. The rate has fluctuated less than 0.75% as of the date of distribution of this document. The final amount in U.S. dollars will be determined when the contribution in euros is converted to U.S. dollars.
- (d) Under Bolivian legislation relating to nonreimbursable resources, the Ministry of Economic Affairs and Finance is not required to be a party to the subsidiary agreement. For purposes of the nonreimbursable resources, the agreement will be referred to as the "subsidiary agreement for the grant."
- (e) The transfer of assets will be included in the interagency agreement between EMAGUA and the autonomous municipal governments and will take place once the final acceptance certificate for the works is signed.
- (f) SV = small and vulnerable countries; PR = poverty reduction and equity enhancement; CC = climate change, sustainable energy, and environmental sustainability; CI = regional cooperation and integration.

## I. PROGRAM DESCRIPTION AND RESULTS MONITORING

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

- 1.1 The metropolitan area of the city of El Alto, located 4,000 meters above sea level, is one of the main centers of Bolivian development (population of close to one million); it has become one of the country's fastest growing economic hubs, with estimated annual growth of 5.10%, according to census data,<sup>1</sup> which showed that 69% of the population (approximately 6.9 million) lives in urban areas.
- 1.2 The scarcity of El Alto's water supply sources, which is reflected in the service gaps affecting large areas,<sup>2</sup> was diagnosed in the La Paz–El Alto Metropolitan Water and Sanitation Master Plan<sup>3</sup> (OEL #13), in which the balance of supply and demand for El Alto's supply systems determined the need to expand the sources of supply to ensure service delivery in the city, whose population will grow from 849,467 (INE 2012) to 1,482,837 inhabitants by 2036,<sup>4</sup> with projected demand of 54.4 million m<sup>3</sup> of water per year. To address this problem, the Ministry of the Environment and Water (MMAyA) commissioned an identification study in 2012 to determine the best alternative for increasing capacity by at least 800 liters per second. The system is currently supplied through the El Alto and Tilata systems.<sup>5</sup> These sources, with annual average production of 38.9 million m<sup>3</sup>, were just able to cover demand up to 2012 of 38.8 million m<sup>3</sup>, but they are not sufficient to cover the population increase.
- 1.3 As a result of the identification study, the best option for increasing El Alto's water supply was determined to be the intake and conveyance of excess water (not used for irrigation or other purposes) from the Jacha Jahuirá and Khullu Cachi river basins, hereinafter the program's "basins." Eleven options were evaluated, using social (existing conflicts), environmental (pollution from mining), economic, and technical (cost and water availability) criteria. The studies were corroborated by the La Paz–El Alto Metropolitan Water and Sanitation Master Plan, which proposes the successive incorporation of additional sources, the first option being those envisaged by this program, increasing the supply by 2023 to 57.2 million m<sup>3</sup>, to cover estimated demand of 54.4 million m<sup>3</sup>. This will enable sustainable exploitation of the Tilata system, with cost savings from lower energy use. The validity of these projections is based on the continuity and deepening of the water-loss reduction program that the Empresa Pública Social de Agua y Saneamiento (EPSAS), the public utility that provides water and sanitation (W&S) services in the municipios of La Paz and El Alto, is currently carrying out, which was also evaluated in the master plan.
- 1.4 There are 56 campesino communities organized into four irrigation associations in the basins that have water use rights. The communities have asked the government, as a counterpart, for investments in irrigation systems, since the existing systems have reached the end of their useful life (30 years) and they would like to increase the area under optimum irrigation from 951 hectares to 4,931. The existing irrigation systems use open channels with an efficiency rate of 0.11. They are mainly earthen canals and, due to sedimentation and earth movements, they require coordinated maintenance by the

<sup>1</sup> National Population and Housing Census 2012, INE.

<sup>2</sup> According to the socioeconomic study by the firm PROINTEC, 37% of the population is affected.

<sup>3</sup> Approved in MMAyA Resolution 604, 16/12/2014.

<sup>4</sup> According to the Metropolitan W&S Master Plan's demographic projections.

<sup>5</sup> El Alto system, source Tuni reservoir; Tilata system, source Purapurani aquifer.

communities, which is not being done in practice. Apart from the lack of financing, one factor that discourages maintenance is that the current water conveyance system does not reach all the communities (1,232 hectares are irrigated suboptimally and 17 communities have no access to irrigation despite their water rights). This means that there is little activity in the management of the existing irrigation systems.

- 1.5 Because of the lack of irrigation water, the region faces limitations on production from: climate conditions (low precipitation concentrated in the rainy season, low temperatures on account of the high altitude, and a frost-free period of fewer than 200 days), edaphic factors (mainly shallow lithosols), and technologies (non-use of chemical fertilizers). These conditions significantly limit yields to levels far below the national averages for commercial agriculture. Net family income is US\$1,513, with US\$1,186 from livestock and dairy farming and US\$327 from crop farming. Because of these low income levels, investments in technology and access to credit are limited. The main crops are potatoes, quinoa, beans, barley, and alfalfa. Livestock in the high zones consists of camelids and sheep, and in the low zones, dairy cattle.
- 1.6 Each basin has its own problems stemming from limited sustainable management. According to studies by the MMAyA, (OEL #10), they include: (i) deforestation, overgrazing, unsuitable farming, and degradation of the headwaters, slopes, and banks of the basins; (ii) overuse and pollution of aquifers; (iii) increasing vulnerability of the population in the lowlands to droughts and flooding; (iv) conflicts over water and inappropriate regulatory framework for the allocation of use rights; and (v) destruction of water-dependent biodiversity. In view of the impact of this set of problems on water availability, the MMAyA has drawn up a master plan for the entire Katari basin, where the program's "basins" are located.<sup>6</sup>
- 1.7 Moreover, the potential impacts of climate change on water availability and quality in the region compound the existing demographic pressure on the water sources. This affects the capacity of the systems to guarantee a reliable supply and continuous flow to cover the needs of the multiple water users. The main sources that currently supply El Alto come from precipitation, ice (glaciers), and groundwater. The contribution from each source varies from year to year, depending on the season. It is therefore estimated<sup>7</sup> that, in an extremely critical scenario, climate change could cause a reduction of about 10% in the volume of water available in the nearby watersheds by 2040, largely because of the receding glaciers. The rapid shrinking of the tropical glaciers in the Andes region (Franco *et al.* 2007; Ramirez *et al.* 2001, 2013) and the greater variability of precipitation make it necessary to find additional sources earlier than originally planned, to ensure the resilience of the water supply for El Alto. In some microbasins in the Cordillera Real, the runoff from glaciers is an important source during the dry season. In the program's "basins," the glacial runoff currently supplies 11% and 9.2%, respectively, according to the technical, economic, social, and environmental (TESA) studies. These conditions have been taken into account in the studies cited and in the design of the infrastructure to be financed by the program.
- 1.8 In view of the foregoing, negotiations have been under way between the MMAyA and communities with existing water rights<sup>8</sup> for irrigation and direct consumption. As compensation for using a discharge of water from the "basins" to supply water for

<sup>6</sup> <http://www.cuencasbolivia.org/>

<sup>7</sup> TESA studies.

<sup>8</sup> These are the rights of the indigenous peoples in their territory, established in Article 30 of the Political Constitution of the Plurinational State of Bolivia.

El Alto, the MMAyA agreed with the communities to make investments to upgrade (more efficient conveyance of water) and expand the existing irrigation systems using modern systems, and to supply safe water for 13 communities<sup>9</sup> in the municipio of Batallas, which will benefit approximately 7,900 people.

- 1.9 In summary, El Alto and the adjacent municipios face the following challenges: (i) to increase the availability of water for a growing urban area on a sustainable basis, making it resilient to climate change; (ii) to improve the conveyance efficiency of the irrigation systems and the access to agricultural production technologies; (iii) to manage and use the resource sustainably, which includes monitoring the impact of climate change on water sources and identifying actions to respond to it.
- 1.10 **Proposed strategy.** To respond to these challenges, the proposed approach is based on: (i) water collection and regulation infrastructure that takes climate change (optimum reservoir height) into account to cover projected demand to 2025; (ii) improvement in the efficiency of water conveyance and use in existing and new irrigation systems and comprehensive technical assistance (OEL #19 and OEL #20) to eliminate technological, soil, and climate constraints; and (iii) adaptive management of the resource under a watershed management plan that facilitates: (a) reallocation of water among users in times of scarcity and comprehensive governance; and (b) implementation of activities to respond to the problems affecting watersheds, while also responding to the impacts and risks associated with climate change.
- 1.11 The elements in the strategy are based on evidence found in other regions. For areas exposed to drought in Africa, dams are being used as a mechanism to adapt to climate change (Habteyes *et al.*, 2015).<sup>10</sup> The effectiveness of improving irrigation systems<sup>11</sup> or introducing efficient ones and their impact on farmers' incomes have been demonstrated in Bolivia and in contexts similar to that of the proposed program.<sup>12</sup> Comprehensive water resource management has been recognized as one of the best tools for identifying climate change adaptation measures and incorporating the associated risk (Feroz *et al.*, 2015; Pham Quy Giang, *et al.*, 2012). In this regard, the activities included in the proposed comprehensive watershed management plan and the pilot project for modern irrigation have been identified as effective ways of responding to the impact of climate change (McCarthy 2014;<sup>13</sup> Thomas 2008;<sup>14</sup> Global Commission on the Economy and Climate 2014;<sup>15</sup> Heller and Zavaleta, 2009<sup>16</sup>).
- 1.12 **The water and sanitation sector.** Strategic planning and policy in the water and sanitation (W&S) sector are the responsibility of the MMAyA (lead agency). As to the

<sup>9</sup> Catacora, Chirapaca, Igachi, Pariri, Yaurichambi, Cullucachi, Cutusuma, Calasaya, Caluyo, Huayrocondo, Chijipata Alta, Chijipata Baja, and Huanané.

<sup>10</sup> Habteyes, Befekadu G., et al. "Mutually Beneficial and Sustainable Management of Ethiopian and Egyptian Dams in the Nile Basin." *Journal of Hydrology* (2015).

<sup>11</sup> According to PROINTEC's aide-mémoire for Jacha-Jahuira and the aide-mémoire for Khullu Cachi, the program will triple current irrigation efficiency (from 0.11 to 0.37 and 0.38 for Jacha-Jahuira and Khullu Cachi, respectively).

<sup>12</sup> According to the evaluation of the 2011-2015 Country Program with Bolivia, the evaluation of PRONAREC I found an increase in producers' incomes to an average of US\$1,341 per hectare (90% of the target) using information from 13 systems that had been completed, and an average increase of 49% in the yields of the main crops. In 61% of cases, new crops were introduced or crops for the market were expanded.

<sup>13</sup> Sustainable soil management, agro-forestry practices, and modern irrigation.

<sup>14</sup> Conservation of sources and adequate water use.

<sup>15</sup> Management of degraded areas.

<sup>16</sup> Biodiversity management in the planning exercises.



regulatory agency, the Water Supply and Basic Sanitation Supervision and Societal Oversight Authority (AAPS) has been responsible since 2009 for regulating the services<sup>17</sup> and for granting basic W&S service rights, as well as rights for use and exploitation of water sources for human consumption. The Environment and Water Executing Agency (EMAGUA) is an autonomous public institution established in 2009<sup>18</sup> to execute, monitor, and evaluate W&S projects. The delivery of W&S services is the responsibility of the autonomous municipal governments (GAMs), either directly or through water and sanitation service providers (WSSPs), which can adopt various structures such as state agencies, municipal agencies, public social enterprises, cooperatives, associations of municipios, and water boards, the latter in charge of managing and maintaining the systems, generally in rural areas. The country's main WSSPs have been covering operating costs with operating revenue.<sup>19</sup>

- 1.13 **The water resources and irrigation sector.** Bolivia's constitution establishes that water is a human right and a strategic resource and that the State has the exclusive power to regulate water resources and services. The Autonomous Regions and Decentralization Framework Law<sup>20</sup> assigns powers to establish the water resource and services regime to the central level.<sup>21</sup> The Office of the Deputy Minister for Water Resources and Irrigation is the arm of the MMayA responsible for sector policy. The autonomous departmental and municipal governments are responsible for preparing, financing, and implementing water and irrigation projects and for mapping out their plans and programs.
- 1.14 **Bank support for the sectors.**<sup>22</sup> The Bank has satisfactorily executed seven projects<sup>23</sup> in the water resources and W&S sectors. The lessons learned from these projects have been drawn on to prepare the present program (OEL #18). It is also preparing the National Irrigation Program with a Watershed Approach (BO-L1106) and the Lake Titicaca Cleanup Program (BO-L1118), focused on the Bolivian government's priorities (periurban, small localities, rural communities, and areas needing irrigation). The Bank also supported the Reform Program for the Water and Sanitation and Water Resources Sectors (2771/BL-BO); the first operation was successfully executed and the second (BO-L1100) will be approved in 2016. The objective is to help increase and improve W&S services by developing an institutional and policy framework to manage them.
- 1.15 **Country strategy.** The W&S sector is one of the Bolivian government's strategic priorities. The country's strategy, set out in the Basic Sanitation Development Sector Plan includes: (i) increasing investments, giving priority to the periurban areas of the country's main cities, to small localities, and to rural areas; (ii) consolidating the

<sup>17</sup> Oversees, controls, supervises, and regulates water and basic sanitation activities—Law 2066 of 2000 on the Provision and Use of Water and Sanitation Services.

<sup>18</sup> Supreme Decree 0163/2009.

<sup>19</sup> AAPS report on WSSP management performance indicators 2013.

<sup>20</sup> Law 031 of 2010.

<sup>21</sup> The services include: (i) regulation of comprehensive management of watersheds, investments, water resources, and their uses; (ii) formulation of sector policies and the institutional framework; (iii) conditions and restrictions on use and service in their different stages; (iv) granting and regulation of rights; (v) regulation of use and exploitation; (vi) regulations for the administration of technical assistance and strengthening services and the financial and administrative aspects of water resources; and (vii) an institutional framework that recognizes the participation of social organizations in the sector.

<sup>22</sup> Technical-cooperation projects ATN/SX-13423-BO and ATN/OC-12995-RG financed TESA studies on water supply and irrigation and complementary studies.

<sup>23</sup> 2199/BL-BO and GRT/WS-11830-BO, 2597/BL-BO and GRT/WS-12956-BO, 2440/BL-BO, 2880/BL-BO, 3091/BLBO, 2057/BL-BO, and 3060/BL-BO.

participation of the autonomous departmental and municipal governments in investments, institutional strengthening, technical assistance, and community development; (iii) prioritizing investments through the identifier for investment and basic sanitation areas; (iv) implementing actions to improve service quality and sustainability; and (v) strengthening the MMAyA and other institutions to manage sector reform in a framework of comprehensive water management and organizing support for and monitoring of investment programs. The Bolivian government established the Patriotic Agenda 2025, which contains 13 pillars of the National Development Plan, with numbers 2 and 9 being part of sector policy and relating to basic services. In addition, the Ministry of Development Planning prepared the Five-year Comprehensive Development Plan, which contains 12 proposals, with numbers 2 and 7 being part of sector policy and relating to basic services. The water resources and irrigation sector has been prioritized by the Bolivian government in the 2025 Patriotic Agenda and the Irrigation Agenda 2025. This program is consistent with the three thrusts of the agenda: (i) the use of modern irrigation techniques, revitalization of irrigation, water harvesting, and multiuse projects; (ii) strengthening of organizations, training for farmers who irrigate, consolidation of institutions, and development of standards and instruments; and (iii) higher production and productivity for food security, technology for agricultural production, generation of farming jobs, and greater adaptation to climate change. The program is also consistent with the National Climate Change Adaptation Mechanism under the Patriotic Agenda and with other aspects of the agenda that include actions to ensure access to basic services such as W&S.

- 1.16 **Bank strategy.** The program is consistent with the Bank's strategy with Bolivia 2011-2015 (document GN-2631-1), since it will contribute to the strategic objectives of increasing water supply coverage in urban areas, with priority on cross-cutting climate change adaptation actions, and to the financing priorities of the Ninth General Increase in the Resources of the Inter-American Development Bank (GCI-9) (document AB-2764) of (i) financing for small and vulnerable countries, (ii) poverty reduction and equity enhancement, and (iii) climate change, sustainable (including renewable) energy, and environmental sustainability, since the intervention will focus on: (a) increasing water supply coverage in periurban and rural areas that are vulnerable to climate change, by introducing tools and mechanisms for effective water resource management that facilitate adaptation in the medium and long terms; and (b) increasing the efficiency of existing irrigation systems, taking into account the impacts of climate change on water sources. It will also contribute to the regional goals of "infrastructure for competitiveness and social welfare" and "protection of the environment, responses to climate change, promotion of renewable energy, and food security" and to the outputs "households with improved access to water supply" and "pilot projects on climate change in agriculture, energy, health, water and sanitation, transportation, and housing" as defined in the Results Matrix. The program is aligned with: (i) the Sustainable Infrastructure Strategy for Competitiveness and Inclusive Growth (document GN-2710-5), since it helps to: (a) promote access to infrastructure services; and (b) support the construction and maintenance of socially and environmentally sustainable infrastructure; (ii) the Integrated Strategy for Climate Change Adaptation and Mitigation, and Sustainable and Renewable Energy (document GN-2609-1), particularly with strategy lines A, B, and D; and (iii) the dimensions of success and lines of action of the Water and Sanitation Sector Framework Document (document GN-2781-3) relating to universal access and better quality services, and social and environmental sustainability.
- 1.17 **Consistency with Bank policies.** The program and Bolivia's sector objectives are consistent with the principles of the Public Utilities Policy (document GN-2716-6)

(OEL #16) and satisfy the financial sustainability and economic evaluation conditions. The operating and maintenance (O&M) costs of the WSSPs are covered by their operating income (paragraph 2.11). Moreover, the works to be financed are feasible from the socioeconomic standpoint (paragraph 2.8). There is also a separation of roles and functions in the sector that promotes efficiency (paragraph 1.12). The program is also aligned with the Gender Equality in Development Operational Policy (OP-761), in that it promotes gender equality, and with the Indigenous Peoples Operational Policy (OP-765), in that it establishes written agreements with indigenous communities throughout the project cycle, to define the interventions and implementation mechanisms (paragraph 2.3).

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

- 1.18 **Objectives.** The general objective of the program is to improve potable water service delivery in the municipio of El Alto and access to water in the municipios of Pucarani and Batallas, taking into account climate change resilience considerations. The specific objectives are to: (i) increase the availability of water in the system that supplies the city of El Alto and the communities in the municipio of Batallas; (ii) improve and expand the use of irrigation systems in Pucarani and Batallas; and (iii) promote integrated water resource management and the sustainable use of natural resources in a context of climate change.
- 1.19 **Component I. Increase in the availability of potable water for the municipios of El Alto and Batallas (US\$75,357,000).** The component will finance: (i) the construction, upgrading, and expansion of potable water systems; (ii) works supervision; (iii) implementation and supervision of social management measures; and (iv) support for the development of EPSAS<sup>24</sup> and other service providers in the communities.<sup>25</sup> The following infrastructure will be financed: dams, intake works, reservoirs, potable water treatment plant, supply, conveyance, and distribution systems, and residential water connections (OEL #1). In social and environmental management, sanitary and environmental education activities will be financed, among other activities. Contingencies resulting from possible cost escalation will also be financed.
- 1.20 **Component II. Improvement and expansion of the irrigation systems for the municipios of Batallas and Pucarani (US\$48,950,000).** The component will finance two irrigation projects, one for the Jacha Jahuira basin and the other for the Khullu Cachi basin. The following will be financed for both projects: (i) construction of new piped systems, improving the efficiency of the current form of conveyance; (ii) repair of existing irrigation ditches; (iii) repair, expansion, and construction of water intakes; (iv) works supervision; (v) modern irrigation system for Alto Peñas, (vi) distribution works and pressure reduction valves; (vii) forebays; and (viii) comprehensive technical assistance (OEL #19 and OEL #20) for 6,663 families receiving the irrigation systems at the community level, for the efficient use of water and increased agricultural productivity with adaptation to climate change (OEL #5).
- 1.21 **Component III: Comprehensive basin management and land-use planning with a climate change perspective (US\$4,370,000).** The component will finance the implementation of management plans for the program's basins with a climate change perspective, based on the initial proposal (OEL #10). Implementation of those plans will

<sup>24</sup> Steps will be taken to support the design of the entity's new management model.

<sup>25</sup> Feasibility studies will be conducted in connection with providing potable water systems for, among others, the communities of Antapata and Haurisuyo and the population of Pucarani.

be aligned with the Sector Platform of the National Watershed Plan<sup>26</sup> established by the Batallas and Pucarani GAMs, the MMAyA, the communities, and the producers' organizations in the watershed. The plans will include the following activities to benefit the communities of Batallas and Pucarani through: sustainable management of soil and degraded areas, agro-forestry practices, management and recovery of native grasslands, conservation of water sources and efficient use of water, awareness raising, and research for biodiversity management. A system for hydrological monitoring and observation of the watershed will be financed to generate information to support effective planning of the use of water resources, contributing to their sustainable use. Lastly, institutional capacity to manage climate change will be strengthened through the formulation of municipal adaptation plans and adaptation briefs at the community level. The lessons learned for integrating the climate-change approach into planning tools of this kind will be duly documented and reported.

- 1.22 **Monitoring, evaluation, and audits.** Support for the institutional strengthening of EMAGUA, audits, monitoring, evaluation, and program administration will be financed.

**C. Key results indicators**

- 1.23 The most relevant indicators and expected targets are:

**Table 1. Key Indicators of the Results Matrix\***

Number of households with better access to potable water in El Alto	128,400					183,437
Number of farmers with access to better irrigation services	0					6,500

\* Given that it will be possible to achieve the results once the works have been completed, which is expected towards the end of the program, no annual progress indicators have been included.

## II. FINANCING STRUCTURE AND MAIN RISKS

### A. Financing instruments

- 2.1 **Financing structure.** The program will cost US\$133,015,136, which will be financed by a specific investment loan from the Bank in the amount of up to US\$62 million, composed of US\$49.6 million from the Bank's Ordinary Capital and US\$12.4 million from the Fund for Special Operations. The Bank will also provide nonreimbursable financing in the amount of US\$42.5 million from the Strategic Climate Fund (SCF) and up to €4 million (equivalent to US\$4.37 million) will come from the Nordic Development Fund (NDF).<sup>27</sup> The local counterpart estimated at the equivalent of US\$24,145,136 will be provided by the Bolivian government.

<sup>26</sup> <http://www.cuencasbolivia.org/>

<sup>27</sup> The exchange rate effective on 1 June 2015 of 0.915 euros to the U.S. dollar was used. The rate has fluctuated less than 0.75% as of the date of distribution of this document. The final amount in U.S. dollars will be determined when the contribution in euros is converted to U.S. dollars.

**Table 2. Program costs and sources of financing**

Component	Total	IDB	SCF*	NDF**	Local contribution
Component I	75,357,087	57,660,034	0	0	17,697,053
Component II	48,948,083	0	42,500,000	0	6,448,083
Component III	4,370,000	218,500	0	4,151,500	0
Admin. and institutional strengthening	3,508,966	3,290,466	0	218,500	0
Monitoring, evaluation, and audits	831,000	831,000	0	0	0
<b>Total</b>	<b>133,015,136</b>	<b>62,000,000</b>	<b>42,500,000</b>	<b>4,370,000</b>	<b>24,145,136</b>

\* The SCF funds from the Pilot Program for Climate Resilience (PPACC) window will be subject to approval of the loan by the SCF Trust Fund Committee.

\*\* These nonreimbursable funds have already been approved by the NDF's board of directors ([link](#)).

## 2.2 Disbursement schedule. A disbursement period of five years is planned.

**Table 3. Disbursement schedule**

Table 6: Disbursement Schedule						
Bank loan	1,144,003	25,676,627	18,172,728	12,276,850	4,729,792	62,000,000
Local contribution	500,000	1,000,000	9,346,254	10,757,199	2,541,683	24,145,136
SCF+ NDF	1,115,730	13,298,227	13,298,227	9,668,977	9,488,839	46,870,000
Total	2,759,733	39,974,854	40,817,209	32,703,026	16,760,314	133,015,136

## B. Safeguards and environmental and social risks

**2.3 Environment and Safeguards Compliance Policy (OP-703).** According to the policy, the program is classified as a "Category A" risk and triggers the following guidelines: B.1. Bank Policies; B.2. Country Laws and Regulations; B.3. Screening and Classification; B.5. Environmental Assessment Requirements; B.6. Consultation; B.7. Supervision and Compliance; B.9. Natural Habitats and Cultural Sites; B.11. Pollution Prevention and Abatement; and B.15. Cofinancing Operations. It also triggers the following policies: OP-102, Access to Information; OP-765, Indigenous Peoples, since the affected communities are Aymara; OP-761, Gender Equality in Development, ensuring that women are not excluded from the program and its benefits; OP-704, Disaster Risk Management, given the risks associated with climate change as it affects water availability in the area; and OP-710, Involuntary Resettlement. According to the documentation available (REL#3) (OEL #5) and observations made during the field visits, there will be no physical resettlement as a result of the program, but several communities will experience varying degrees of economic displacement during construction and operation.

**2.4 Environmental and social risks.** The environmental and social impact assessment identified several environmental and social risks, including impacts on habitats and natural resources (water availability), economic displacement, and impacts on the livelihoods of some indigenous communities. To address these risks, an environmental and social management plan (ESMP), a social compensation and management plan (SCMP), and a comprehensive watershed management plan, including climate change considerations, have been prepared. A resettlement plan was developed through a community participation process to address economic displacement, and agreements have been signed with the affected communities. Effective implementation of the ESMP,

the SCMP, the comprehensive watershed management plan, and the resettlement plan, coupled with continuous communication with the communities, will significantly minimize the program's potential environmental and social risks and impacts, while providing numerous benefits.<sup>28</sup>

**C. Fiduciary and execution risks**

- 2.5 The evaluation performed using the institutional capacity assessment system (ICAS) (OEL #4) concluded that EMAGUA has the capacity to carry out the procurement processes, disbursements, reporting, and monitoring. However, one potential fiduciary risk was identified: "higher costs and longer time to implement the program." The following mitigation actions have therefore been envisaged for greater efficiency and expeditiousness in execution: (i) creation of a multipurpose program management office (MPMO) in EMAGUA's organizational structure; (ii) use of a simplified procedure for budget recording between EMAGUA and the MMAYA; (iii) a process to explain and publicize the Operating Regulations among program stakeholders; and (iv) a workshop for EMAGUA on the Bank's fiduciary management (procurement and finances).

**D. Other program risks**

- 2.6 Other risks identified and their mitigation measures include: (i) limited adoption of irrigation technologies by the communities. To mitigate it, comprehensive technical assistance has been included for irrigation users. (ii) lack of water for the city of El Alto. Regulations will be issued for the plan to manage droughts and ensure adequate water distribution for human consumption and irrigation. (iii) inadequate O&M of the potable water works built by the program. Support will be provided to devise a model for the management, financial performance monitoring, and institutional strengthening of the operator. (iv) noncompliance with or delays in honoring works execution commitments. Implementation of the SCMP will be monitored during the program cycle. (v) delay in program execution. An MPMO will be established in EMAGUA's organizational structure. (vi) tensions in the communities over water use rights. Community organizations will be strengthened and an Operations Technical Committee (OTC) for the multipurpose program will be set up (OEL #17). (vii) fluctuations in water flow availability may adversely affect distribution. Implementation of agreements by the aforementioned OTC is envisaged. (viii) obstruction of system operation by nonbeneficiary communities. The following comprehensive watershed management projects will be implemented: sustainable management of soils, crops, and livestock; management of native grasslands; training for the sustainable use of surface water; and initiatives to support women (OEL #5 and OEL #10).

**E. Feasibility analysis**

- 2.7 **Technical feasibility.** The designs for the potable water supply projects, prepared by a specialized firm contracted by the Bank, were reviewed. On that basis, the proposed works are a response to a process that compared the technical options available and reflect a medium- and long-term vision (OEL #1). The projects were developed in accordance with generally-accepted engineering standards and principles. The irrigation projects also envisaged social requirements (OEL #5) for approval by the communities where they will be located. Based on the studies, it has been possible to estimate each project's investment costs and to establish the requirements for its effective operation. With respect to the wastewater that the project's new flows will generate, the MMAYA

<sup>28</sup> The benefits include better access to potable water, increase in sustainable irrigation in crop and grazing areas, and restoration of highly degraded wetlands.

and the Bank—as provided for in the Metropolitan Water and Sanitation Master Plan for La Paz–El Alto—have given priority to a Lake Titicaca Cleanup Program in 2016 (BO-L1118), which includes treatment of those effluents.

- 2.8 **Socioeconomic viability.** An overall cost-benefit analysis was performed of the program, which was found to be socioeconomically viable with an economic internal rate of return (EIRR) of 15.73%. Using a discount rate of 12%, the program has a net present value (NPV) of US\$29.2 million (OEL #2). All the costs and benefits of supplying potable water to the city of El Alto and of the irrigation systems were taken into account, since the irrigation projects are an essential part of the project, given that they will make it possible for water to be available for the El Alto supply system. Furthermore, the communities in the municipios of Batallas and Pucarani have priority in the use of that water by custom and practice. The study complemented by a sensitivity analysis indicates that the results are robust. Lastly, according to information provided by EPSAS, the payment for water use in El Alto is US\$2.30 per month for the average household, representing 0.3% of average monthly household income. There is a social rate for poor households, which pay about US\$1.80 per month, i.e. 0.7% of average monthly household income. These values are acceptable by international standards.
- 2.9 Although the investments in irrigation projects form part of the costs of obtaining the resource for use in potable water supply, the irrigation projects have been designed optimally from the technical standpoint, subject to layout constraints required by communities with rights over the resource. Efforts will be made to minimize those layout constraints in agreement with the communities, to generate savings in the investment and thus make it possible to reduce the cost per irrigated hectare and simultaneously finance the adoption of on-farm technology, in order to remove any liquidity constraints that the communities might have, since the project irrigation systems are off-farm (except in the case of Alto Peñas).
- 2.10 **Institutional feasibility.** The results of the expanded ICAS applied to EMAGUA demonstrate that it is qualified to take on the program's management responsibilities (paragraph 2.5). Institutional strengthening measures have been identified that will be included in the program (OEL #4).
- 2.11 **Financial feasibility.** The financial analysis of EPSAS was based on the company's operational and financial information. EPSAS has been covering its O&M costs from its operating income (average EBITDA margin of 28.6% in the last three years). Its collection levels exceed 90% and financial projections indicate that it will continue to have positive operating margins in the coming years. The company has been audited by the AAPS since 2013 on account of its low investment levels and coverage shortfalls in some areas. The objectives of the intervention, of reorganizing the entity<sup>29</sup> and designing a new management model, are being attained. The process is expected to be completed in the coming months with the establishment of a metropolitan WSSP. Program resources will be used to complement the design and implementation of this new management model. In the coming months, resources from GRT/WS-11830-BO will be used to carry out additional institutional strengthening activities<sup>30</sup> in the company, supporting an improvement in its performance (OEL #3). The interagency agreement to be signed between the executing agency and EPSAS for proper O&M of the potable

<sup>29</sup> Supported by ATN/OC-13769-BO-2.

<sup>30</sup> These activities will include development of an institutional strengthening plan for EPSAS and implementation of the top priorities identified in that plan. The commercial management tool developed by INE/WSA will be applied (see [link](#)) (ATN/MA-14955-RG).

water works in El Alto will include the requirement that operating income must be sufficient to cover the company's O&M at a minimum and that EPSAS will submit its audited financial statements and main operating and financial indicators to the executing agency each year, which the latter will forward to the Bank.

- 2.12 Maintenance costs will have to be recovered to ensure the financial viability of the irrigation projects. The irrigators' associations will be responsible for operating the irrigation works and the Batallas and Pucarani GAMs will be responsible for their maintenance, to which end they will sign an agreement with the MMAyA.
- 2.13 With respect to the 13 communities in the municipio of Batallas, the potable water administration boards (reporting to the GAMs) will be responsible for the systems' O&M. Institutional strengthening actions have been planned to support the sustainability of these systems. An execution condition will be included to ensure O&M of those systems (paragraph 3.4).
- 2.14 **Social management.** The social feasibility of the program is based on the agreements on flow distribution and the mitigation measures to address the impacts of the program works. To address the impacts of involuntary resettlement and economic displacement, an SCMP was prepared that includes a communication and community relations program, a plan for community management of efficient water use, and health promotion. The OTC will be responsible for obtaining agreements on water distribution during periods of scarcity and/or crisis. Two consultation processes were held in the indigenous language, adhering to the assembly procedures established by the communities, to inform them about the program's features, scope, and impacts, and the mitigation measures planned, and actions were included to benefit and strengthen women's organizations (OEL #5).

### III. IMPLEMENTATION AND MANAGEMENT PLAN

#### A. Summary of implementation arrangements

- 3.1 **Executing arrangement.** The borrower and beneficiary will be the Plurinational State of Bolivia. The executing agency will be EMAGUA, through a multipurpose program management office (MPMO) to be established in its organizational structure to work exclusively on program execution. The MPMO will be responsible for all fiduciary obligations, including program administration, coordination, planning, and execution. To this end, it will have administrative autonomy for procurement, contracting, and financial management, but in coordination with the rest of EMAGUA's management offices. The MPMO will have at least the following specialized technical staff: a manager, specialists (procurement, financial, social, environmental, and climate change); engineers (civil, hydraulic, and soil); and a monitoring and evaluation specialist. It will submit reports to the Bank every four months on progress with respect to outcomes and outputs of execution, according to the program's Results Framework, and semiannual reports on the program's progress. The MPMO will be responsible for the following functions: (i) opening separate bank accounts and keeping accounting records that identify the sources and uses of program funds by component; (ii) preparing disbursement requests, appropriate justification of eligible expenditures, and the program's audited financial statements and submitting them to the Bank; (iii) preparing the procurement processes, entering into contracts, and making the pertinent payments; (iv) preparing the required consolidated monitoring and evaluation reports and submitting them the Bank; (v) overseeing compliance with the program's environmental and social requirements; and (vi) overseeing compliance with the contractual clauses. The MMAyA, in its capacity



as lead agency in the sector, will be responsible, in the context of its functions, for charting the course and establishing strategies and guidelines to promote effective program implementation.

- 3.2 The OTC will be a technical and operational unit of the MMAyA, interagency in nature and established to administer water distribution for human consumption and irrigation, with the aim of guaranteeing compliance with the program's economic and social objectives (OEL #17).
- 3.3 The following will be special conditions precedent to the first disbursement of the financing: (i) a subsidiary agreement will be signed and in force between the executing agency, the MMAyA, the Ministry of Development Planning, and the Ministry of Economic Affairs and Public Finance,<sup>31</sup> for the purpose of transferring proceeds from the loan and the nonreimbursable financing, and for execution and coordination of planned program activities, in accordance with terms and conditions agreed upon in advance with the Bank; (ii) the MPMO will be established and its specialized technical staff selected in accordance with terms and conditions agreed upon in advance with the Bank; (iii) the program's Operating Regulations will be approved and in force in accordance with terms and conditions agreed upon in advance with the Bank; and (iv) an initial report will be submitted to the Bank that includes the multiyear execution plan, the procurement plan, the financial plan, and the Results Matrix and Risk Matrix for the program.
- 3.4 **Special contractual conditions for execution:** Prior to awarding the contracts for infrastructure works in each of the participating municipios, EMAGUA will submit evidence to the effect that: (i) an interagency agreement has been signed and entered into force between EMAGUA and the corresponding GAM for purposes of works maintenance, counterpart contributions, and transfer of the assets, in accordance with terms and conditions agreed upon in advance with the Bank; (ii) an agreement has been signed and entered into force between EMAGUA and EPSAS for executing the works and system O&M; (iii) the program's environmental and social conditions established in the Operating Regulations and in the Social and Environmental Management Report (ESMR) have been fulfilled; and (iv) 24 months after the date of the first disbursement of the program's resources, the OTC has been established and is operational, in accordance with terms and conditions agreed upon in advance with the Bank.
- 3.5 **Operating Regulations.** Program execution will be governed by the Operating Regulations, the contents of which include: (i) detailed execution plan; (ii) institutional roles and responsibilities of the entities involved; (iii) intervention strategy in the different phases of the project cycle; (iv) rules and procedures for the selection and contracting of works, goods, and services; (v) procedural rules for administrative and financial management; and (vi) monitoring procedures. The ESMP is attached to the Operating Regulations as an annex (OEL #6).
- 3.6 **Procurement of works, goods, and consulting services.** Procurements will be made in accordance with policies GN-2349-9 and GN-2350-9. No exceptions are anticipated and national preference will not apply.

<sup>31</sup> Under Bolivian legislation relating to nonreimbursable resources, the Ministry of Economic Affairs and Finance is not required to be a party to the subsidiary agreement. For purposes of the nonreimbursable resources, the agreement will be referred to as the "subsidiary agreement for the grant."

**B. Summary of results monitoring arrangements**

- 3.7 **Monitoring and evaluation.** The executing agency will prepare reports on progress and the outcomes of the activities for which it is responsible. The monitoring and evaluation arrangements will include: (i) the procurement plan; (ii) the program execution plan; (iii) the annual work plans (AWPs); (iv) annual verification of attainment of the targets established in the Results Matrix; and (v) semiannual reports that will contain: (a) activities performed during the period, progress in their execution, problems, and solutions; (b) evaluation of the Results Matrix, the procurement plan, the AWPs, and risk analysis; and (c) analysis of the project monitoring reports, for which purpose attainment of the targets in the Results Matrix will be evaluated. The executing agency will submit the semiannual reports to the MMAyA as well, so that it can consolidate the information related to execution of the strategic program for climate resilience and issue the reports required by the SCF subcommittee.
- 3.8 Consultants will be contracted to perform the following evaluations: (i) midterm evaluation of the program, to be submitted within 90 days after 50% of the loan proceeds have been disbursed; and (ii) final evaluation, to be started six months after the program has concluded.
- 3.9 **Audits.** The program's audited annual financial statements will be submitted to the Bank within 120 days after the close of the executing agency's fiscal year, every year during the loan disbursement period. The audits will be performed by independent auditors acceptable to the Bank. The scope of the audits and other related considerations will be governed by the Bank's Financial Management and Policy Guidelines (OP-273-6) and the Guidelines for Financial Reports and External Audit. Program funds will be used to cover auditing costs. EMAGUA will contract the firm of auditors.

Development Effectiveness Matrix Summary			
1. IDB Strategic Development Objectives		Aligned	
Landing Program	<ul style="list-style-type: none"> <li>-Leading to small and vulnerable countries.</li> <li>-Leading to poverty reduction and equity enhancement.</li> <li>-Leading to support climate change initiatives, renewable energy and environmental sustainability.</li> </ul>		
Regional Development Goals	<ul style="list-style-type: none"> <li>-Incidence of waterborne diseases (per 100,000 inhabitants)</li> <li>-Countries with planning capacity in mitigation and adaptation of climate change</li> </ul>		
Bank Output Contribution (as defined in Results Framework of IDB-8)	<ul style="list-style-type: none"> <li>-Households with new or upgraded water supply</li> <li>-Climate change pilot projects in agriculture, energy, health, water and sanitation, livestock, and forestry</li> <li>-Farmers given access to improved agricultural services and investments</li> </ul>		
2. Country Strategy Development Objectives		Aligned	
Country Strategy Results Matrix	ON-2031-1	Greater coverage of water services in urban areas.	
Country Program Results Matrix		The intervention is not included in the 2016 Operations Program.	
Relevance of this project to country development challenges (if not aligned to country strategy or country program)			
B. Development Outcomes - Effectuality		Evaluability	Maximum Score
1. Evidence-based Assessment & Selection		0.25	10
3.1 Program Outcomes		1.0	
3.2 Proposed Interventions or Solutions		2.0	
3.3 Results Matrix Quality		2.0	
4. Ex ante Economic Analysis		0.5	10
4.1 The program has an EBRANPV, a Cost-Effectiveness Analysis and a General Economic Analysis		4.0	
4.2 Identified and Quantified Benefits		1.5	
4.3 Identified and Quantified Costs		0.0	
4.4 Reasonable Assumptions		1.5	
4.5 Sensitivity Analysis		1.5	
5. Monitoring and Evaluation		0.25	10
5.1 Monitoring Mechanisms		2.0	
5.2 Evaluation Plans		0.5	
6. Risks & Mitigation Monitoring Matrix			
Overall Risk Rating is in the range of High/Medium			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			Medium
IV. IDB's Role - Additivity			
The project relies on the use of country systems:			
Fiduciary (VPC/IMP Criteria)	Yes	Financial Management: Budget, Treasury, Accounting and Reporting. Procurement: Information System.	
Non-Fiduciary			
The IDB's involvement promotes additional improvements of the intended beneficiaries and/or public sector entity in the following dimensions:			
Gender Equality	Yes	During the project's preparation, the participation of indigenous women in the consultations related to the project was ensured, and specific actions for their benefit were identified. Additionally, the project incorporates actions to benefit and strengthen women's organizations.	
Labor			
Environment			
Additional (to project preparation) technical assistance was provided to the public sector entity prior to approval to increase the likelihood of success of the project			
The ex-post impact evaluation of the project will produce evidence to close knowledge gaps in the sector that were identified in the project document author in the evaluation plan.			

[illegible]

The vertical logic of the project, according to the structure of the results matrix, is adequate. Some outcome indicators are products, and not all are SMART. Overall product indicators are mostly SMART with specified impact.

The economic analysis of the possible water component uses the computational model, SIMOP, commonly used in the sector, to construct an aggregate demand curve, considering the price and consumption levels for alternatives, as well as those with the project.

For the socioeconomic analysis of the possible water project in El Alto, a cost-benefit methodology was employed, starting with the construction of the aggregate demand curve. The IDB's SAMOP program was used to obtain the economic benefits and the costs. Hydrologic modeling incorporated climate change scenarios to determine water supply and demand of the built. Costs (net of profits) of the irrigation projects, to grow the water rights, are accounted for in the project costs. Irrigation projects, as a compensatory measure for the transfer of rights, are not profitable at a discount rate of 12%, but under the assumptions used, would increase net family income. The analysis does not incorporate the costs associated with the implementation of measures for soil conservation.

The monitoring and evaluation team processes an external, cost-benefit analysis for the potable water project, and a quasi-experimental evaluation for the irrigation project.

Important risks, such as those related to potential conflicts with communities over water rights seem to be underestimated and with third mitigation measures, and others, like the potential for corruption and mismanagement of protection which is almost absent.

## RESULTS MATRIX

Project objective	The general objective is to improve potable water service delivery in the municipio of El Alto and access to water in the municipios of Pucarani and Batallas, taking into account climate change resilience considerations. The specific objectives are to: (i) increase the availability of water in the system that supplies the city of El Alto and the communities in the municipio of Batallas; (ii) improve and expand the use of irrigation systems in Pucarani and Batallas; and (iii) promote integrated water resource management and the sustainable use of natural resources in a context of climate change.									
Outcomes										
Component 1: Increase in the provision of water for the municipios of El Alto and Batallas										
Outcome 1: Better potable water service for the city of El Alto										
Indicator	Unit of measure	Baseline	Baseline year	Year 1	Year 2	Year 3	Year 4	Year 5	End of project	Comments/Mean of Verification
Households with better access to potable water in El Alto. Definition of "better:" 24-hour service every day	Household	128,400	2015					183,437	183,437	EPSAS operational management report. Final evaluation (contributes to basic performance indicator 5 of the Pilot Program for Climate Resilience -PPCR).
Amount of water stored in the dams built by the project <sup>1</sup>	Water volume (Hm3)	20.5	2015	0	0	0	0	50.6	50.6	Same as above (contributes to basic performance indicator 3 of the PPCR).
Outcome 2: Potable water service provided in 13 rural communities (contributes to basic performance indicator 5 of the PPCR)										
Indigenous households with new access to potable water in 13 communities in the municipio of Batallas	Household	0	2015					1,772	1,772	Semiannual reports and final evaluation (contributes to basic performance indicator 5 of the PPCR).
Households benefitting from access to potable water and sewerage and/or wastewater treatment, new or upgraded <sup>2</sup>	Household	0	2015					185,209	185,209	Corresponds to the sector indicator that reflects the number of households whose access to potable water was improved as a result of the program (contributes to basic performance indicator 5 of the PPCR).
Outcome 3: Water system in 13 communities in the municipios of Batallas and Pucarani operating sustainably										
Water system in 13 communities operating and maintained up to the technical design specifications <sup>3</sup>	System	0	2015					1	1	Final evaluation (contributes to basic performance indicator 3 of the PPCR).

<sup>1</sup> Considerations of the impact of climate change on the hydrology of the basin have been taken into account to optimize the height of the dams.

<sup>2</sup> Sector indicator.

<sup>3</sup> An integrated system that will supply water to 13 communities.

Outcome 4: EPSAS management model approved by sector authorities										
Indicator	Unit of measure	Baseline	Baseline year	Year 1	Year 2	Year 3	Year 4	Year 5	End of project	Comments/means of verification
EPSAS management model approved by the AAPS and the MMAyA	Model	0	2015					1	1	MMAyA and AAPS report approving the management model.
Component 2: Improvement and expansion of the irrigation systems										
Outcome 5: Income of beneficiary irrigators increases										
Number of farmers with access to improved irrigation services in the program's intervention area	Farmers	5		0	0	0	2,200	4,400	6,600	Final evaluation (contributes to basic performance indicator 4 of the PPCR).
Net family income from farming activities of the program beneficiaries measured by net family income per hectare	US\$/hectare	1,513							2,500	Final evaluation (contributes to basic performance indicator 5 of the PPCR).
Outcome 6: Irrigation systems for farm production in the Jacha Jahuirá and Khullu Cachi river basins upgraded										
Efficient use of water in modern irrigation systems	Volume of water used on the farm/total volume captured by the system	25	2015					75	75	Same as above (contributes to basic performance indicator 3 of the PPCR).
Beneficiary households' net family income from crop production	US\$/hectare	673	2015					1,158	1,158	Same as above.
Beneficiary households' net family income from livestock and dairy production	US\$/beneficiary	2,071	2015					2,491	2,491	Same as above.
Component 3: Comprehensive basin management and land-use planning with a climate change perspective										
Outcome 7: Resilience to climate change impacts in the communities in the Jacha Jahuirá and Khullu Cachi basins strengthened										
People trained in the project's area of intervention who have taken steps to improve their resilience such as: (i) sustainable soil management; (ii) management of degraded areas; (iii) management and recovery of native grasslands; (iv) conservation of sources and sound use of water	Number	0	2015						200 <sup>4</sup>	Final evaluation (contributes to basic performance indicator 4 of the PPCR).

<sup>4</sup> The target will be revised once the first comprehensive basin management activities have been carried out.

Outputs											
Component 1: Increase in the provision of water for the municipalities of El Alto and Batallas											
Output	Unit of measure	Related results	Cost (US\$)	Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	End of project	Comments/means of verification
Dams built in the Khotia-Khota and Taypichaca lagoons	Dams	1,2,5,6	3,951,640	0	0	0	0	1	1	2	Provisional acceptance of the works.
Raw water pipeline built for the El Alto system	km	1	46,340,396	0	0	0	15	30	11.2	56.2	Same as above.
Water treatment plant built for the El Alto system	Plant	1	9,643,752	0	0	0	0	0	1	1	Same as above.
Potable water interconnection pipes built in the El Alto system	km	1	11,544,531	0	0	0	2.0	8.0	2.6	12.6	Same as above.
Rural potable water system built for 13 communities in the municipio of Batallas	System	2	2,317,519	0	0	0	0	1	0	1	Same as above.
Water and sanitation committee (CAPyS) trained to operate and maintain the potable water system for 13 communities <sup>5</sup>	Committee	2,3	50,000	0	0	0	0	1	0	1	EMAGUA report.
Program to respond to and manage conflicts implemented <sup>6</sup> • Centers for community relations and complaint handling installed • Meetings held with the target population • Training events held for leaders	Program	1,2,5,6	80,678	0	0	0	0	0	1	1	Same as above.
	Centers		55,678	0	0	2	2	0	0	4	
	Meetings		15,000	0	10	20	20	20	26	96	
	Events		10,000	0	1	2	3	3	3	12	
Operator's line and planning personnel trained in the use of systems that support decision making for sustainable and resilient management of the water supply system	Individuals	1,2,5,6	20,000	0	0	5	10	10	25	25	Operator's reports (contributes to basic performance indicator 4 of the PPCR).
Training events held in water usage and health with a gender and youth focus in 13 communities in the municipio of Batallas <sup>7</sup>	Event	2	245,000	0	0	26	26	26	0	78	Same as above.
Participatory communication campaigns on sustainable water management and health held for the rural population in the project area <sup>8</sup>	Campaign	2	200,000	0	0	0	3	3	3	9	Same as above.
Resettlement plan implemented <sup>9 10</sup>	Plan	1,2,5,6	164,470	0	0	0	0	0	1	1	Same as above.
WSSP management model designed	Model	4	180,000	0	1	0	0	0	0	1	Consultant's report.

<sup>5</sup> Training for the CAPyS includes operators and chiefs with sufficient knowledge to operate and maintain the water service in sound operating conditions during the project's useful life.

<sup>6</sup> Output included in the Environmental and Social Management Plan (ESMP).

<sup>7</sup> Output included in the ESMP

<sup>8</sup> Output included in the ESMP

<sup>9</sup> Output included in the ESMP

<sup>10</sup> Implementation of the plan involves payments for flooded land and rights-of-way, and compensation for economic displacement.

Component 2: Upgrading and expansion of irrigation systems											
Output	Unit of measure	Related results	Cost (US\$)	Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	End of project	Comments/means of verification
Conveyance pipes built for irrigation in the Jacha Jahuira basin <sup>11</sup>	km	5,6	21,685,627.93	0	0	25	40	47.8	0	112...8 <sup>12</sup>	Provisional acceptance of the works.
Conveyance pipes built for irrigation in the Khullu Cachi basin <sup>13</sup>	km	5,6	23,642,584.77	0	0	25	40	43.7	0	108.7	Same as above.
Irrigation ditches P1 and P2 rehabilitated	km	5,6	2,467,497.1	0	0	0	22.8	25	0	47.8	Same as above.
Pilot project with modern irrigation carried out in Alto Peñas	km	5,6,7	552,373.69	0	0	0	23	0	0	23	Executing agency reports.
Community leaders in the Jacha Jahuira and Khullu Cachi basins trained in dispute settlement	Number	1,2,5,6	80,678	0	0	14	14	14	14	56	Same as above.
Operations Technical Committee for the multipurpose program (OTC) established in the Jacha Jahuira and Khullu Cachi basins <sup>14</sup>	Committee	1,2,5,6	50,000	0	0	0	1	0	0	1	Same as above.
Productive incentives program for women implemented <sup>15</sup>	Program	1,2,5,6	569,570	0	0	0	0	1	0	1	EMAGUA report.
• Solar tents for food production built	Tents		382,200	0	5	8	8	5	0	26	
• Handicraft facilities built	Facilities		116,100	0	4	4	4	6	0	18	
• Training events in productive activities held	Events		71,270	0	8	8	8	8	0	32	
Comprehensive technical assistance plan for irrigation and/or agricultural production implemented in the Jacha Jahuira basin	Plan	5,6,7									Same as above.
First level											
• Phase I Familiarize users with the future irrigation system			25,000	1	0		0	0	0	1	
• Phase II Establish agreements, instruments, equipment, and personnel to begin operating the irrigation systems			50,000	0	0	0	1	0	0	1	
• Phase III Apply agreements, instruments, and other outputs obtained in the previous phase for evaluation and corrections based on field experiences and achieve self-management by the irrigators' associations and the sustainability of the irrigation systems			75,000	0	0	0	0	0	1	1	

<sup>11</sup> Includes the intake works.

<sup>12</sup> Table 61: Diameters and lengths of the pipes in the Tupac Katari system. Report on the Jacha-Jahuira Project, PROINTEC, 2015.

<sup>13</sup> Includes intake works.

<sup>14</sup> Establishment of the committee entails determining its membership and obtaining its legal status.

<sup>15</sup> Output included in the ESMP.

Output	Unit of measure	Related results	Cost (US\$)	Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	End of project	Comments/means of verification
Second level											
• Phase I: The planned activities are the same as in the first level			25,000	1	0	0	0	0	0	1	
• Phase II: Support for the associations and communities in works execution planning and monitoring			50,000	0	0	0	1	0	0	1	
• Phase III: Begins with the operation of the systems (for 14 months). The goal is to achieve self-management of the irrigation systems			75,000	0	0	0	0	0	1	1	
Comprehensive technical assistance plan for irrigation and/or agricultural production implemented in the Khullu Cachi basin											
First Level											
• Phase I: Familiarize users with the future irrigation system			25,000	1	0		0	0	0	1	
• Phase II: Establish agreements, instruments, equipment, and personnel to begin operating the irrigation systems	Plan	5,6,7	50,000	0	0	0	1	0	0	1	Same as above.
• Phase III: Apply agreements, instruments, and other outputs obtained in the previous phase for evaluation and corrections based on field experiences and achieve self-management by the irrigators' associations involved and the sustainability of the irrigation systems			75,000	0	0	0	0	0	1	1	
Second level											
• Phase I: The planned activities are the same as in the first level			25,000	1	0	0	0	0	0	1	
• Phase II: Support for the associations and communities in works execution planning and monitoring			50,000	0	0	0	1	0	0	1	
• Phase III: Begins with the operation of the systems (for 14 months) The goal is to achieve self-management of the systems			75,000	0	0	0	0	0	1	1	



Component 3: Comprehensive basin management and land-use planning with a climate change perspective											
Output	Unit of measure	Related results	Cost	Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	End of project	Comments/means of verification
Comprehensive basin management plan with a climate change perspective implemented for the Jacha Jahuira basin	Plan	7	1,669,600	0	0	0	0	0	1	1	Record of acceptance of the works and consultants' final reports.
- Management of adaptation to climate change (municipal adaptation plan for Batallas)			40,213	0	0	0	0	1	0	1	
- Community level climate resilience briefs			35,900	0	0	2	5	2	1	10	
- Training events to implement climate change responses			50,000	0	1	1	1	1	1	5	
- Investment projects by thematic area that respond to the problems in the basin implemented (including climate change responses)			1,543,494	0	1	3	10	3	1	18	
Comprehensive basin management plan with a climate change perspective implemented for the Khullu Cachi basin	Plan	7	1,818,238	0	0	0	0	0	1	1	Same as above.
- Management of adaptation to climate change (municipal adaptation plan for Batallas)			40,212	0	0	0	0	1	0	1	
- Community level climate resilience briefs			36,075	0	0	2	5	2	1	10	
- Training events to implement climate change responses			50,000	0	2	2	2	2	2	10	
- Investment projects by thematic area that respond to the problems in the basin implemented (including climate change responses)			1,691,951	0	1	4	10	4	1	20	
System for monitoring and protecting bodies of water in the program's area of intervention implemented <sup>16</sup>	System	7	810,151	0	0	0	0	0	1	1	Record of acceptance of the works and consultants' final reports.

<sup>16</sup> Implementation of the monitoring plan will include the following activities: (i) design of the monitoring systems to be implemented; (ii) monitoring of glaciers in the microbasins; (iii) monitoring of water levels, evaporation, spills, and flows dispatched from the Khara Khota dam, and monitoring of flows in the Jacha Jahuira, Chirapaca, Khullu Cachi, Yaurichambi, and Punku rivers; (iv) monitoring of natural lagoons and wetlands in the Khara Khota, Jacha Jahuira, Taypichaca, and Khullu Cachi microbasins; (v) monitoring of ecological quality in the rivers; (vi) monitoring of aquifer levels; and (vii) monitoring by processing satellite images to determine changes in the wetlands (*bofedales*) and bodies of water.

## FIDUCIARY AGREEMENTS AND REQUIREMENTS

**Country:** Plurinational State of Bolivia.

**Project:** BO-L1080, BO-G1004, BO-X1012: Multipurpose water supply and irrigation program for the municipios of Batallas, Pucarani, and El Alto.

**Executing agency:** Ministry of Environment and Water (MMAyA) through the Environment and Water Executing Agency (EMAGUA).

**Prepared by:** Carolina Escudero and Abel Cuba (FMP/CBO).

### I. EXECUTIVE SUMMARY

- 1.1 This annex was prepared bearing in mind the results of the Institutional Capacity Assessment System (ICAS) that was applied to EMAGUA which, by agreement with the MMAyA, will be the executing agency of this program.
- 1.2 Accounting, budget management, and treasury management will be carried out through the Integrated Administrative Modernization and Management System (SIGMA).<sup>1</sup> For bid solicitation processes, the Bank's standard bidding documents or documents agreed upon with the Office of the Deputy Minister for Public Investment and External Financing (VIPFE) will be used and made available through the government procurement system (SICOES),<sup>2</sup> where the invitations to bid and results of national bidding processes will be published.
- 1.3 At present, the Bolivian government and the Bank are preparing an agreement to adopt partial use of the Basic Standards of the Goods and Services Management System (NB-SABS) in Bank-financed operations in Bolivia. This program may apply that agreement once it has been signed and is in effect.

### II. FIDUCIARY CONTEXT OF THE EXECUTING AGENCY

- 2.1 EMAGUA is an institution under public law, with its own legal status and assets, and administrative, economic, financial, legal, and technical independence, of indefinite duration, governed by Law 1178 on Government Administration and Control,<sup>3</sup> which was passed on 20 July 1990. Its administrative and financial structure has been designed to execute projects with internal and external financing.
- 2.2 In conducting procurement processes, EMAGUA applies the NB-SABS or the standards established in external financing agreements.
- 2.3 Financial transactions are carried out through SIGMA, which presents secure and reliable information on budget execution. The system produces financial information in the official

<sup>1</sup> The Ministry of Economic Affairs and Public Finance has developed the public management system (SIGEP), which in the medium term will replace SIGMA. Some SIGEP modules are expected to be operational in 2016 in central level agencies.

<sup>2</sup> Sistema de Contrataciones Estatales. Package of bidding documents agreed upon by the Bank and the VIPFE to be applied in processes below the thresholds for international competitive bidding (ICB).

<sup>3</sup> Regulates the systems for the management and control of resources of the Plurinational State and their relationship to national planning and public investment systems.

currency, classified for accounting purposes by expenditure item. Accounting records will be kept in accordance with the government's accounting system. The financial reports required by the Bank will use the integrated project administration system (IPMS-BID)<sup>4</sup> until such time as the public management system (SIGEP), which includes an accounting module for external resources, comes on line.

- 2.4 Project contracting and payments will be carried out by EMAGUA through the multipurpose program management office (MPMO), which will work exclusively on execution and will be formally established within EMAGUA's organizational structure.

### III. FIDUCIARY RISK EVALUATION AND MITIGATION MEASURES

- 3.1 The ICAS evaluation of EMAGUA indicates that institutional capacity and development is medium, with fiduciary risk as MEDIUM owing to possible increases in implementation times and costs in the program, since it will be the first IDB-financed operation to be executed by EMAGUA.
- 3.2 As the main mitigation measure, EMAGUA will be strengthened by establishing the MPMO, which will have professionals in procurement, financial and accounting management, and an attorney, among others, with experience in executing projects of this kind. To ensure an adequate pace of fiduciary execution, the MPMO will be autonomous administratively and legally.
- 3.3 The actions to mitigate the risk identified are described in paragraph 2.5 of the proposal for operations development (POD).

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

- 4.1 **Operating Regulations.** Will include the execution plan, procedures, and information flows agreed upon in advance by the executing agency and the Bank.
- 4.2 **Exchange rate agreed upon with the executing agency for accounting purposes.** The rate in effect in the country on the date that funds in foreign currency are converted to local currency in the executing agency's accounts will be used.
- 4.3 **Financial statements and other audited reports.** Within 120 days following the close of the executing agency's fiscal year every year during the disbursement period, the program's financial statements will be submitted to the Bank, duly audited by an independent auditing firm acceptable to the Bank. The final report will be submitted within 120 days after the last disbursement.
- 4.4 The terms of reference for contracting the auditing firm will be approved by the Bank in advance and may include outputs stemming from the International Standards on Auditing related to the financial audits of the program and other tasks. The scope of the audits will be governed by the Financial Management Guidelines for Bank-financed Projects (OP-273-6) and the Guidelines for Financial Reports and External Auditing.
- 4.5 **Procurement.** Will be governed by policies GN-2349-9 and GN-2350-9, and in accordance with partial use of the NB-SABS (paragraph 1.3).

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<sup>4</sup> IPMS-IDB, the IDB's integrated project management system.

## V. PROCUREMENT EXECUTION AGREEMENTS AND REQUIREMENTS

- 5.1 **Procurement execution.** Procurement processes for the program will be set forth in detail in the procurement plan approved by the Bank and will be carried out under the framework of policies GN-2349-9 and GN-2350-9 (no exceptions are anticipated), or through partial use of the NB-SABS (paragraph 1.3).
- 5.2 **Procurement of works, goods, and nonconsulting services.** For contracts requiring international competitive bidding (ICB), the Bank's most recent standard bidding documents (SBD) will be used. The documents available in SICOES will be used for all other processes. Changes to those documents will require the Bank's prior no objection.
- 5.3 **Selection and hiring of consultants.** Contracts for consulting services will be implemented considering:
- (i) **Selection of consulting firms.** The current standard request for proposals (SRFP) issued by the Bank will be used. For processes under US\$200,000 the documents available in SICOES will be used. Changes to those documents will require the Bank's prior no objection.
  - (ii) **Short list of consulting firms.** May be composed entirely of local firms for contracts below the threshold of US\$200,000 established for Bolivia.
  - (iii) **Selection of individual consultants.** Will be based on qualifications to perform the work determined by comparing the curricula vitae of at least three candidates and, as a general rule, no interviews will be held. When the work involves links with other special advisory services, consulting firms should be used, unless circumstances indicate, on a case-by-case-basis, that an individual consultant with complementary support is suitable.
- 5.4 **Procurement planning.** EMAGUA will publish the procurement plan in the procurement plan execution system and will update it annually or as necessary.
- 5.5 **Advance procurements/retroactive financing.** No advance procurements that require retroactive financing are anticipated.
- 5.6 **National preference.** National preference will not be included in contracting processes.
- 5.7 **Terms of reference and technical specifications.** Reviews of the criteria for selecting short lists, terms of reference, or technical specifications will be the responsibility of the Project Team Leader and should be agreed upon with the executing agency prior to implementation of the processes.
- 5.8 **Table of thresholds.** See Table 1.

Table 1. Thresholds (US\$000)

Works			Goods			Consulting firms	
ICB	NCB	Shopping	ICB	NCB	Shopping	International publicity	National publicity**
Over US\$3,000	US\$3,000 and under	US\$250 and under	Over US\$200	US\$200 and under	US\$50 and under	Over US\$200	US\$200 and under

\* Short list: maximum two firms of the same nationality.

\*\* Short list may be 100% national.

5.9 Major procurement processes. See Table 2

**Table 2. Major procurement planning**

Description	Selection method	Estimated date	Estimated amount (US\$000)
<b>Consulting firm contracts</b>			
Works supervision for the potable water system for the municipios of El Alto, Batallas, and Pucarani	QCBS	TBD	2,245
Implementation of the social management plan	QCBS	TBD	1,360
Comprehensive technical assistance for the Jacha Jahuira and Kullu Cachi irrigation system (two contracts)	QCBS	TBD	600
Works supervision of the Jacha Jahuira and Kullu Cachi irrigation system (two contracts)	QCBS	TBD	1,490
Preparation and implementation of the comprehensive basin management plans for the Jacha Jahuira and Kullu Cachi basins	QCBS	TBD	3,488
Implementation of the bodies of water monitoring system	QCBS	TBD	882
<b>Contracts for works</b>			
Potable water system for the municipios of El Alto, Batallas, and Pucarani; Jacha Jahuira river irrigation system; and Kullu Cachi irrigation system (3 ICB processes)	ICB	TBD	115,400
<b>Individual consulting contracts</b>			
17 professionals to staff the MPMO.	NICQ	TBD	1,905

\* Click here to consult the procurement plan for the first 18 months.

QCBS: Quality- and cost-based selection, NICQ: National individual consultant selection based on qualifications

- 5.10 **Procurement supervision.** Annual supervision visits will be made and, if necessary, annual ex post review visits as well.
- 5.11 The thresholds for ex post reviews are presented in Table 3 (direct contracts and procurement not appearing here will be subject to ex ante review). The external audit firm will perform the ex post reviews.

**Table 3. Thresholds for ex post reviews of procurement (US\$000)**

Works	Goods and nonconsulting services	Consulting firms	Individual consultants
Contracts for US\$3,000 and under	Contracts for US\$200 and under	Contracts for US\$200 and under	Consultants not employed by the MPMO. No threshold for amounts.

- 5.12 **Operating or recurring expenses.**<sup>5</sup> Such expenses will be agreed upon with the Project Team Leader, recorded in the project budget, and included in the procurement plan. They will be contracted using the NB-SABS. The Bank may refrain from financing these expenses if it determines that they have violated the fundamental principles of competition, efficiency, and economy. The external auditing firm will be responsible for reviewing the supporting documentation for these expenses.

<sup>5</sup> Operating or recurring expenses cover rental of premises, notifications, announcements or communications made on radio, in the written press, or on television, translations, bank fees, basic office supplies, photocopies, postage, fuel, maintenance, short courses, and travel for line personnel.

- 5.13 **Records and files.** EMAGUA will be responsible for establishing the supporting documents, procedures, and controls necessary for safeguarding the documentation generated by the program. The Bank may, at any time, verify the standards used to organize and control the files and to ensure their security.

## VI. FINANCIAL MANAGEMENT

- 6.1 **Programming and budget.** The MPMO, in coordination with the Administration and Finance Office and the pertinent MMayA unit, will be responsible for programming and formulation based on the agreed annual work plan, and will arrange to have the program registered as an investment budget to be reported in SIGMA. When external resources are involved, the country's laws and budget rules allow changes to be made to the budget at any time in the year, if approved by the Ministry of Development Planning.
- 6.2 **Accounting and information systems.** EMAGUA will record the transactions in SIGMA, which integrates the different accounting stages such as budgeting, assets, and treasury recordkeeping, into a master file using accrual basis accounting. For accounting purposes, a chart of accounts will be prepared that identifies management expenses on a cash basis, harmonizing the program's investment categories with the respective budget items and accounts. SIGEP, which will replace SIGMA, is expected to come on line in 2016 and has an accounting management module for projects, which will enable the executing agency to issue financial reports in the currency of the loan and in accordance with the defined budget.
- 6.3 Should SIGEP's operational startup be delayed, EMAGUA will adopt the IPMS-IDB for recording and accounting control of program transactions.
- 6.4 **Disbursements and cash flow.** Loan proceeds will be disbursed using the methods of advances of funds and direct payments, on the basis of the financial programming, which will be periodically updated by the executing agency. The Bank will make a new advance of funds when at least 80% of the cumulative balance of advances has been justified. The funds will be deposited in an independent account in U.S. dollars and subsequently transferred to a different account in local currency, both in the CUT.<sup>6</sup>
- 6.5 Reimbursements may be used to recognize expenses incurred by EMAGUA before the operation is declared eligible for disbursement.
- 6.6 **Internal control and internal audit.** Each year, EMAGUA's financial management will be subject to reliability reviews by the internal audit unit (IAU) and the program is expected to be included in reviews of this kind. In turn, the Bank, in coordination with the Office of the Comptroller General (CGE), will hold workshops targeted to this IAU to consolidate its understanding of project execution and control and monitoring mechanisms. It will support the strengthening of the internal control system.
- 6.7 **External control and reports.** EMAGUA will contract an independent auditing firm (IAF) acceptable to the Bank. The contract will be multiyear (minimum of three fiscal years) to avoid transactional costs and provide continuity for the auditors' work, in addition to ensuring timely interventions that allow for preliminary reviews at semiannual intervals. The IAF that is currently auditing the other projects being carried out by the executing agency could possibly audit this operation as well.

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<sup>6</sup> CUT = Treasury Single Account.

6.8 The Bank's no objection will be obtained for the terms of reference for contracting the IAF, which will define the scope of the audits<sup>7</sup> based on the program's status and execution level.

6.9 **Financial supervision plan.** The activities can be adjusted on the basis of the evaluation of the program's risks by the fiduciary team and the executing agency, and the external audit reports. Supervision of expenditures will be performed ex post. However, the annual supervision plan will include at least one comprehensive visit per year (procurement and finances) by the Bank.

**Execution mechanism.** The MPMO will be responsible for program coordination, planning, and execution. It will have administrative and legal autonomy to carry out the procurement, contracting, and financial management processes, but in coordination with the rest of EMAGUA's offices and the MMAyA. Relations, levels of coordination, and responsibilities will be established in the Operating Regulations.

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<sup>7</sup> The IDB's Country Office in Bolivia has determined that the IAF will direct assurance tasks on the ex post reviews of procurement processes, and other types of work may also be considered.

**MULTIPURPOSE PROGRAM FOR POTABLE WATER AND IRRIGATION FOR THE  
MUNICIPALITIES OF BATALLAS, PUCARANI AND EL ALTO**

**BO-G1004**

**FINAL CERTIFICATION**

I hereby certify that this operation was approved for financing under the Strategic Climate Fund (**SCX**), Pilot Program for Climate Resilience (PPCR) through a communication dated October 14, 2015 and signed by Goritza Ninova ORP/GCM. Also, I certify that resources from said fund are available for up to **US\$42,500,000** per commitment of funds by the SCX Trustee dated October 19, 2015, in order to finance the activities described and budgeted in this document.

The commitment and disbursement of these resources shall be made only by the Bank in US dollars. The same currency shall be used to stipulate the remuneration and payments to consultants, except in the case of local consultants working in their own borrowing member country who shall have their remuneration defined and paid in the currency of such country. No resources of the Fund shall be made available to cover amounts greater than the amount certified herein above for the implementation of this operation. Amounts greater than the certified amount may arise from commitments on contracts denominated in a currency other than the Fund currency, resulting in currency exchange rate differences, for which the Fund is not at risk.

(original signed)

10/28/2015

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Sonia M. Rivera  
Chief

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Date

Grants and Co-Financing Management Unit  
ORP/GCM



DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-\_\_\_/15

Bolivia. Loan \_\_\_\_/BL-BO to the Plurinational State of Bolivia  
Multipurpose Drinking Water and Irrigation Program for the  
Municipios of Batallas, Pucarani, and El Alto

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 a multipurpose drinking water and irrigation program for the Municipios of Batallas, Pucarani, and El Alto. Such financing will be for the amount of up to US\$49,600,000 from the resources of the Single Currency Facility of the Bank's Ordinary Capital, corresponds to a parallel loan within the framework of the multilateral debt relief and concessional finance reform of the Bank, 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 \_\_\_\_ 2015)

BO-L1080  
LEG/SGO/CAN/IDBDOCS#39930307-15

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-\_\_\_/15

Bolivia. Loan \_\_\_/BL-BO to the Plurinational State of Bolivia  
Multipurpose Drinking Water and Irrigation Program for the  
Municipios of Batallas, Pucarani, and El Alto

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 a multipurpose drinking water and irrigation program for the Municipios of Batallas, Pucarani, and El Alto. Such financing will be for the amount of up to US\$12,400,000 from the resources of the Bank's Fund for Special Operations, corresponds to a parallel loan within the framework of the multilateral debt relief and concessional finance reform of the Bank, 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 \_\_\_\_\_ 2015)

BO-L1080  
LEG/SGO/CAN/IDBDOCS#39930278-15

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-\_\_\_/15

Bolivia. GRT/SX-\_\_\_-BO. Nonreimbursable Investment Financing  
Multipurpose Drinking Water and Irrigation Program for the  
Municipios of Batallas, Pucarani, and El Alto

The Board of Executive Directors

RESOLVES:

1. That the President of the Bank, or such representative as he shall designate, is authorized in the name and on behalf of the Bank, in its capacity as implementing entity of the Strategic Climate Fund, to enter into such agreement or agreements as may be necessary with the Plurinational State of Bolivia, and to adopt such other measures as may be pertinent for the financing and execution of the nonreimbursable investment financing proposal contained in document PR-\_\_\_ with respect to a Multipurpose Drinking Water and Irrigation Program for the Municipios of Batallas, Pucarani, and El Alto.
2. That up to the sum of US\$42,500,000 is authorized for the purposes of this resolution chargeable to the resources of the Strategic Climate Fund.
3. That the above-mentioned sum is to be provided on a nonreimbursable basis.

(Adopted on \_\_\_\_\_ 2015)

BO-G1004  
LEG/SGO/CAN/IDBDOCS#39931347-15

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-\_\_\_/15

Bolivia. GRT/NV-\_\_\_-BO. Nonreimbursable Investment Financing  
Multipurpose Drinking Water and Irrigation Program for the  
Municipios of Batallas, Pucarani, and El Alto

The Board of Executive Directors

RESOLVES:

1. 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 agreement or agreements as may be necessary with the Plurinational State of Bolivia, and to adopt such other measures as may be pertinent for the financing and execution of the nonreimbursable investment financing proposal contained in document PR-\_\_\_ with respect to a multipurpose drinking water and irrigation program for the Municipios of Batallás, Pucarani and El Alto.
2. That up to the sum of €4,000,000 is authorized for the purposes of this resolution chargeable to the resources of the Nordic Development Fund.
3. That the above-mentioned sum is to be provided on a nonreimbursable basis.

(Adopted on \_\_\_\_\_ 2015)

BO-X1012  
LEG/SGO/CAN/IDBDOCS#39931208-15