

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

BOLIVIA

AGRICULTURAL HEALTH AND FOOD SAFETY PROGRAM II

(BO-L1179)

LOAN PROPOSAL

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CONTENTS

PROJECT SUMMARY

I.	DESCRIPTION AND RESULTS MONITORING	1
A.	Background, problem addressed, and rationale.....	1
B.	Objectives, components and cost	8
C.	Key results indicators	10
II.	FINANCING STRUCTURE AND MAIN RISKS	11
A.	Financing instruments	11
B.	Environmental and social risks	11
C.	Fiduciary risks	12
D.	Other project risks	12
III.	IMPLEMENTATION AND MANAGEMENT PLAN	13
A.	Summary of implementation arrangements	13
B.	Summary of arrangements for monitoring results	15

ANNEXES	
Annex I	Development Effectiveness Matrix (DEM) – Summary
Annex II	Results Matrix
Annex III	Fiduciary Agreements and Requirements

ELECTRONIC LINKS	
REQUIRED	
1.	Multiyear execution plan
2.	Annual work plan
3.	Monitoring and evaluation plan
4.	Environmental and Social Management Report (ESMR)
5.	Procurement plan
OPTIONAL	
1.	Economic analysis of the program
2.	Institutional capacity assessment
3.	Draft Operating Regulations for the program

ABBREVIATIONS

BSE	Bovine spongiform encephalopathy
CAO	Cámara Agropecuaria del Oriente
DALY	Disability-adjusted life year
EGDI	E-Government Development Index
FMD	Foot and mouth disease
GDP	Gross domestic product
IBCE	Instituto Boliviano de Comercio Exterior [Bolivian Foreign Trade Institute]
ICAS	Institutional Capacity Assessment System
ICB	International competitive bidding
IICA	Inter-American Institute for Cooperation on Agriculture
INE	Instituto Nacional de Estadística [National Statistics Institute]
IPPC	International Plant Protection Convention
IRR	Internal rate of return
NB-SABS	Normas Básicas del Sistema de Administración de Bienes y Servicios [Basic Regulations of the Goods and Services Management System]
NPV	Net present value
OIE	World Organisation for Animal Health
OVE	Office of Evaluation and Oversight
PVS	OIE Tool for the Evaluation of Performance of Veterinary Services
RASFF	Rapid Alert System for Food and Feed
SCF	Single Currency Facility
SENASAG	Servicio Nacional de Sanidad Agropecuaria e Inocuidad Alimentaria [National Service for Agricultural Health and Food Safety]
SIAP-BID	Sistema de Administración de Proyectos del Banco [Administration System for Bank Projects]
SICOES	Sistema de Contrataciones Estatales [Public Procurement System]
SIGEP	Sistema Integrado de Gestión Pública [Integrated Public Management System]
UDAPE	Unidad de Análisis de Políticas Sociales y Económicas [Economic and Social Policy Analysis Unit]

PROJECT SUMMARY
BOLIVIA
AGRICULTURAL HEALTH AND FOOD SAFETY PROGRAM II
(BO-L1179)

Financial Terms and Conditions					
Borrower: Plurinational State of Bolivia				OC	FSO
			Amortization period:	30 years	40 years
Executing agency: Servicio Nacional de Sanidad Agropecuaria e Inocuidad Alimentaria [National Service for Agricultural Health and Food Safety] (SENASAG)			Disbursement period:	5 years	5 years
Source	Amount (US\$)	%	Grace period:	6 years	40 years
IDB (OC):	21,250,000	85	Inspection and supervision fee:	(a)	N/A
IDB (FSO):	3,750,000	15	Interest rate:	SCF – fixed ^(b)	0.25%
			Credit fee:	(a)	N/A
Total:	25,000,000	100	Currency of approval:	US\$	US\$
Project at a Glance					
Project objective/description: The general objective of the program is to help increase productivity in the agriculture sector. The specific objectives are: (i) to reduce production losses from pests and diseases; (ii) to facilitate access to international markets; and (iii) to enhance service to users.					
Special contractual conditions precedent to the first disbursement of the loan: (i) the borrower will sign a subsidiary agreement with the executing agency establishing the following and other elements: (a) the mechanism for transferring the loan proceeds; and (b) the commitment of the executing agency to conduct program activities in accordance with the terms of the loan contract (paragraph 3.2); (ii) the executing agency: (a) will create the program execution unit in accordance with terms and conditions previously agreed upon with the Bank; and (b) will contract specialists, through a competitive process, in at least the following areas: general coordination, planning, financial management, procurement, and environmental and social management (paragraph 3.2); (iii) the program technical board will be created and its members appointed (paragraph 3.2); and (iv) the program Operating Regulations will be approved by the executing agency and will be in force, under terms previously agreed upon with the Bank (paragraph 3.4).					
Special contractual conditions of execution: Prior to startup of the activities for the fruit fly control program in Component 3, agreements will be signed between SENASAG, the Municipio of El Torno, the Municipio of Luribay, and local producers' associations (paragraph 3.3).					
Exceptions to Bank policies: None.					
Strategic Alignment					
Challenges: ^(c)	SI	<input type="checkbox"/>	PI	<input checked="" type="checkbox"/>	EI <input checked="" type="checkbox"/>
Crosscutting topics: ^(d)	GD	<input type="checkbox"/>	CC	<input type="checkbox"/>	IC <input checked="" type="checkbox"/>

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

^(b) The borrower will pay interest on outstanding balances on this portion of the Ordinary Capital loan at a LIBOR-based rate. The rate on the outstanding balance will be set whenever such balance reaches 25% of the approved net amount or US\$3 million, whichever is greater.

^(c) SI (Social Inclusion and Equality); PI (Productivity and Innovation); and EI (Economic Integration).

^(d) GD (Gender Equality and Diversity); CC (Climate Change and Environmental Sustainability); and IC (Institutional Capacity and Rule of Law).

I. DESCRIPTION AND RESULTS MONITORING

A. Background, problem addressed, and rationale

- 1.1 **Overview of the agriculture sector.** The agriculture sector is of crucial importance to the Bolivian economy. It accounts for more than 13% of the country's GDP, contributes more than US\$1.3 billion in exports (18% of the total), and employs 35% of the economically active population (INE, 2015). The sector's GDP has been growing at an average annual rate of 4.16% (2002-2014), and its composition has undergone no substantive change over the last decade. Crop products represent 70% of agricultural GDP, livestock products account for 21%, and forestry, hunting, and fisheries products make up the remaining 9% (UDAPE, 2015). The sector is fairly diversified, with the largest areas under cultivation corresponding to industrial crops (45%)—soybeans, sunflowers, sugarcane, and sesame—followed by nonindustrial crops such as grains (30%), fruits and vegetables (8%), and tubers (7%). The livestock sector is dominated by beef and milk production and by poultry farming. Agricultural exports have grown at an average annual rate of 13% over the past decade, with soybeans, Brazil nuts, quinoa, beans, and fruits as the main agricultural exports. The main destination markets are Latin America (47%), Europe (30%), and the United States (23%).
- 1.2 Despite the recent growth and relative importance of the agriculture sector, an in-depth examination reveals low levels of productivity. According to a recent study, total factor productivity in Bolivia's agriculture sector showed an annual growth rate of 1.4% over the period 2000-2012, below the average for the region (1.7%) and far short of Brazil (3.0%), Peru (2.6%), Chile (2.3%), and Paraguay (3.2%) (Nin-Pratt et al., 2015). Among the factors contributing to the poor performance of productivity in the sector (which include lack of market information, inadequate infrastructure, scarce access to financing, and low levels of innovation and technology transfer¹), losses due to pests and diseases are especially significant. Estimates suggest that fruit growers in Bolivia lose approximately US\$113 million per year² due to the impact of the fruit fly, and it is estimated that the beef sector would lose around US\$57 million³ in the event of another outbreak of foot and mouth disease (FMD). These estimates reflect a situation in which the intensity of spending on agricultural health⁴ in Bolivia (6.7% in 2009) is much lower than in Brazil (26.1%), Uruguay (22.9%), Chile (19.8%), and Argentina (37%) ([Agrimonitor](#), 2015).
- 1.3 Recent empirical evidence shows that progress in controlling pests and diseases is key to improving the country's productivity. In this respect, a comparative evaluation of six agricultural health and food safety projects conducted by the Office of Evaluation and Supervision ([OVE](#), 2015) indicates that campaigns for controlling and eradicating pests and diseases carried out by agricultural health agencies have been effective in boosting productivity. Noteworthy here is the case of farmers participating in the fruit fly control program in Peru (loans 1025/OC-PE,

¹ Kay, C. (2011); and Hameleers, Antezana, and Paz (2011).

² SENASAG – TESA PROMOSCA (2013).

³ Due to source control costs and the closing of export markets, Mascitelli (2016).

⁴ In this case, the intensity of spending on agricultural health refers to the proportion of supports for general services (or sector public goods) that go to agricultural health services.

1647/OC-PE, and 2015/OC-PE), which increased fruit yields by 65%, and enhanced the value of production by 15% (Salazar et al., 2016). At the same time, Peru's exports of fruits and vegetables rose at an average annual rate of 22.5% (1998-2014), outpacing other exports in the sector, for which the annual growth rate was 7.4% (SUNAT, Peru). The case of Uruguay also demonstrates the international trade benefits of animal disease control. Specifically, once the country was declared FMD-free without vaccination in 1996, the value of beef exports rose by more than 50%, generating additional annual earnings on the order of US\$110 million from exports to the United States, while trade with Pacific Rim countries increased, and savings in vaccination costs came to US\$8 million per year (Knight-Jones and Rushton, 2013; Otte et al., 2004). An important point to consider in connection with the foregoing empirical evidence is that the impacts have been felt by small and medium-sized farmers.

- 1.4 To address the country's phyto-zoosanitary and food safety risks, the National Service for Agricultural Health and Food Safety (SENASAG) was created by Law 2061 in 2000, with the mandate to protect health and the safety of food.⁵ In 2016, [Law 830/2016](#) ratified SENASAG as the competent national authority in this area. For technical and operational purposes, SENASAG has organized its functions into two broad areas: (i) agricultural health; and (ii) food safety, the challenges of which are described below.
- 1.5 **Agricultural health.** In Bolivia, the fruit fly is one of the most destructive agricultural pests, damaging more than 260 crops and causing losses in the range of 20% to 60% of yields (SENASAG, Fruit Fly Control Program 2012). The area under cultivation in fruits and vegetables in the country exceeds 250,000 hectares, with citrus accounting for the greatest portion of that area (INE-CAN, 2013). The fruit fly reduces product yield, quality, and value; it increases production costs; and it diminishes opportunities for market access in light of phytosanitary restrictions in importing countries. To manage this pest, which has the potential to spread far and wide, a coordinated public-private effort is needed in which SENASAG plays a key role, defining intervention and inspection protocols, among other activities ([IICA, 2009](#)). In order for importing countries to accept Bolivian fruits, fruit-fly-free zones must be established and maintained.⁶ Experience with control in one area can contribute to the design of a strategy for eradicating the pest in other areas, or in the entire country. Another threat to fruit production, especially citrus fruit, is Huanglongbing disease, which can devastate citrus orchards.⁷ This disease has not yet been detected in Bolivia, but the vector insect is known to be present. The

⁵ The responsibilities of SENASAG include: (i) preservation of the health of agricultural and forestry resources; (ii) product certification for domestic consumption, imports and exports; (iii) accreditation of individuals and companies as service providers; (iv) control, prevention, and eradication of pests and diseases in animals and plants; (v) control and guarantee of food safety in the production and processing chains; and (vi) control of inputs used for agricultural, agroindustrial, and forestry production.

⁶ An area free from fruit fly is one in which the fruit fly is not present, as demonstrated by scientific evidence, and in which, as appropriate, that status is being officially maintained (CIPF-NIMF 26 and NIMF 5).

⁷ Huanglongbing is a bacterial disease that affects all commercial citrus species, as well as others. It is currently considered the most devastating citrus disease worldwide, given the damage it causes, the difficulty of diagnosing it, and the speed at which it spreads (Food and Agriculture Organization). The arrival of Huanglongbing in Brazil is estimated to have caused annual losses of 6% in the area under cultivation, cost increases of 10% to 20%, and an annual exit of 18% of small producers (1-4 hectares, 2015-2016) (IICA, 2015, Evaluation of the Potential Impact of Huanglongbing in Argentina).

presence of the vector combined with reports of the disease in neighboring countries makes it all the more urgent to take steps for its prevention and control.

- 1.6 In zoosanitary aspects, Bolivia has been officially recognized by the World Organisation for Animal Health (OIE) as an [FMD](#)-free country since 2014. This has been the first step in opening dialogue between the country and potential meat export markets. Since that declaration, several countries have shown interest in Bolivian beef. The next challenge in terms of gaining access to potential markets is to identify the risk of diseases of the nervous system, primarily bovine spongiform encephalopathy (BSE), for which Bolivia needs to run analyses that show a negligible risk of the disease in the country.⁸ Neighboring countries have already been recognized by the OIE as countries with a negligible BSE risk. Once these zoosanitary requirements have been met, potential buyers will give priority to those countries with the highest levels of food safety, particularly those with little or no presence of biological, physical, or chemical contaminants (including residues of pesticides and veterinary drugs) (Garzón, 2009).
- 1.7 Another fast-growing sector that has been affected by health concerns is poultry farming, with production having increased over the last 10 years by 135% (www.udape.gob.bo). This sector is an important source of employment, generating some 60,000 direct jobs and 135,000 indirect jobs, owing primarily to its multiplier effect on the production of corn, sorghum, and soybeans. Among the diseases that cause losses in poultry production, the most important is Newcastle disease (the mortality rate from respiratory infections, of which this disease is a leading cause, is 9%). Declaring areas free from this disease would help open markets for poultry products.⁹ At this time, there is no evidence in Bolivia of avian flu, which could cause major losses in production and risks to human health ([OIE, 2007](#)). Drawing on data from animal health services in 12 countries, Swayne (2011) found that the increase in the capacities of veterinary services, such as laboratory analysis, trained personnel, development of biological products, and the responsiveness of the surveillance system, are correlated with improvements in the control of avian flu. In this respect, Bolivia needs to conduct surveillance for the disease and demonstrate its absence with scientific evidence, so that it cannot be used as a sanitary barrier preventing access for the country's poultry products to international markets.
- 1.8 **Food safety.** The benefits of stronger and more effective food safety systems are increasingly important for meeting the growing demand for healthier, cleaner food. However, the country has little information on the level of contaminants in its food products. The government's network of food safety laboratories—still without ISO 17025 accreditation—are limited in their diagnostic capacities to testing for biological contaminants (e.g. salmonella) and are unable to test for chemical contaminants (metals, pesticide residues, etc.). Data on the growth of pesticide imports, rejections of exports of agricultural products, and cases or outbreaks of

⁸ BSE (known as mad cow disease) is a disease for which the OIE has established official recognition of the health status of countries and zones, based on a general risk analysis. The categories for BSE are: negligible risk, controlled risk, and undetermined risk. Bolivia is included in this last category.

⁹ The Newcastle disease status of a country, zone or division can be determined on the basis of specific criteria established by the OIE.

foodborne diseases¹⁰ highlight the problem. Between 2005 and 2013, pesticide imports grew 75% by volume (IBCE).¹¹ With respect to the rejection of food products in foreign markets, the European market notified four rejections (RASFF, 2016) during the period 2009-2013,¹² while over that same period Peru reported no cases of rejection. The cases of foodborne disease recorded between 2010 and 2015 totaled 35,850 (Ministry of Health of Bolivia, 2016). Meanwhile, the World Health Organization estimates a value of 315 disability-adjusted life years (DALY)¹³ per 100,000 inhabitants caused by foodborne illnesses in Bolivia, higher than the estimate for most Latin American countries, which is 140 DALY, and for the United States and Canada, at 35 DALY. Thus, contaminant surveillance programs and awareness-raising for all links in the country's supply chains are increasingly important for providing safer food to the Bolivian population and facilitating access to international markets.

- 1.9 Beyond the technical and operational areas described above, SENASAG has a **user services office** covering all units. A survey conducted of users (producers, companies, exporters, and importers) of SENASAG services in 2016 revealed a satisfaction index of 6.13, measured on a scale of 0 to 10. The areas in which users reported dissatisfaction included transactions times, the number of requirements imposed, and the costs. In order to improve the delivery of services to users, SENASAG has embarked on a process to systematize its transactions, and at present four of the services in greatest demand can be done by users online. These efforts by SENASAG are part of a larger process to implement e-government that the country is pursuing in accordance with the General Telecommunications, Information Technologies, and Communications Act (164/2011). Meanwhile, indicators such as the United Nations e-Government Development Index (EGDI) show that the country has much room for improving the management of its public services. According to [EGDI 2016](#), Bolivia ranks 101st of 193 countries (behind most of the countries in the region), and the [Doing Business](#) report places it 137th of 198 countries worldwide, and 30th of 32 countries in Latin America and the Caribbean (World Bank, 2015).
- 1.10 For purposes of international comparison of agricultural health and food safety services, countries' national services are subject to evaluations by the World Organisation for Animal Health (OIE) and the Inter-American Institute for Cooperation on Agriculture (IICA). In the case of Bolivia, those evaluations identified improvements in the delivery of services between 2008 and 2014 but recognized the need to strengthen them further. The evaluation of animal health and animal-source

¹⁰ Data on foodborne diseases are merely indicative of the problem, as contamination may originate at different points in the chain, not only in production. These data represent a low estimate of the real situation in the country, as only about 10% of persons who suffer a bout of gastrointestinal illness will seek medical attention (Food and Agriculture Organization, 2002).

¹¹ The Action Network on Pesticides and their Alternatives in Latin America (www.RAP-AL.com) estimates annual use of agrochemicals in Bolivia at 9.03 kg per capita, higher than in Brazil (5.2 kg) and three times higher than in Costa Rica and Panama.

¹² Of total rejections in RASFF, 63% are due to the presence of aflatoxins in Brazil nuts, 21% to microbiological problems, and 16% to unsuitable organoleptic characteristics. The ratio of rejections per tons of exports for Bolivia is 1 rejection for every 4,907 tons, where for Peru the figure is 0 rejections for every 4,172 tons.

¹³ A disability-adjusted life year (DALY) is equivalent to one year of healthy life lost.

food safety services by the [OIE](#)¹⁴ showed improvements in 22 of the 39 competencies assessed (the others were unchanged). The average value of the competency performance indicators for SENASAG in 2014 was 62%, below the averages achieved by Chile (2010, 82%), Uruguay (2014, 83%), and Colombia (2015, 70%).¹⁵ The plant health services evaluation conducted by [IICA in 2014](#), using a similar methodology, found performance levels averaging 47%¹⁶ in the various competencies and identified the need for improvement in all areas of plant health services. Both evaluations recommend, among other steps, improving: (i) the surveillance, inspection, and control system; (ii) the control of agricultural inputs and medications; (iii) the capacity and management of laboratories for diagnostics and analysis of residues, with proper biosafety conditions; and (iv) improvement in the services offered to users.

- 1.11 **Bank's strategy in the agriculture sector of Bolivia.** The Bolivian government, with Bank support, is implementing efforts to boost productivity. This year, it has approved: (i) the National Irrigation Program with a Watershed Approach III (3699/BL-BO) for US\$158.4 million, which will help to increase or improve areas under irrigation and will benefit more than 20,000 farmers directly; (ii) Direct Supports for the Creation of Rural Agrifood Initiatives II (3536/BL-BO) for US\$62 million, to help small-scale farmers adopt technologies that will boost agricultural yields, the value of output, and productive efficiency; and (iii) the Rural Land Regularization and Titling Program (3722/BL-BO) for US\$60 million, which will support the regularization and titling of 24.5 million hectares and the registration of more than one million rural landholdings of small and medium-sized farmers. The proposed agricultural health and food safety program will supplement these operations with support targeted at general agricultural services designed to improve productivity levels in the sector.
- 1.12 The proposed operation will help to consolidate Bank support in the area of health and safety, recognizing that SENASAG has been supported from its inception with funds from the Agricultural Services Program (1057/SF-BO), which called for investments to establish the institutional structure and set up the planning and administration systems, as well as services in the technical areas of food safety, animal health, and plant health. Achievements under that operation include: (i) central headquarters and nine district offices (one for each department) set up and open for service; (ii) coverage of 37% of the operating budget with own resources; (iii) Institutional Strategic Plan approved; (iv) website with information from the institution published; (v) national food safety unit created and providing services through a reliable management system (ISO-9000 certification); (vi) network of food safety laboratories established and running tests to identify

¹⁴ The OIE Tool for the Evaluation of Performance of Veterinary Services (PVS) measures the effectiveness of veterinary services, identifies gaps and weaknesses, and provides recommendations for 40 competencies in four groups: (i) human, technical, and financial resources; (ii) technical authority and capability; (iii) interaction with stakeholders; and (iv) access to markets. Each competency is rated on a scale from 1 to 5, with 5 being the highest score. The resulting values can be expressed as percentages. The tool used by IICA to evaluate plant health services, known as "Performance, Vision and Strategy," is similar to the PVS tool developed by the OIE.

¹⁵ <http://www.oie.int/support-to-oie-members/pvs-evaluations/>.

¹⁶ This is lower than some other countries of the region, which have values above 50%, and far short of the ideal 100%. PVS country results are not publicly available.

- biological contaminants in foods; and (vii) two areas of the country (Chiquitanía in the department of Santa Cruz and the entire department of Oruro) have been declared FMD-free by the OIE.
- 1.13 As well, in 2008 the Bank approved the Agricultural Health and Food Safety Program (2061/BL-BO) designed to strengthen systems for: (i) the administration of human, physical, and financial resources; (ii) cost recovery; (iii) integrated management of planning and monitoring; and (iv) information and management of services provided to users. In technical areas, the most pressing consideration was identified as the need to eradicate foot and mouth disease so the country could be declared FMD-free by the OIE.
- 1.14 At the close of the operation, in 2014, SENASAG had achieved the following: (i) the system for the administration of human, physical, and financial resources had been implemented; (ii) own revenue from fees for services covered 90% of the total budget; (iii) the planning and monitoring system (Planea), part of the Institutional Strategic Plan, had been installed in the central and district offices; (iv) a user services management information system (Gran Paitití)¹⁷ was in operation with 78 services systematized and 4 services available online through the institutional portal; and (v) the central office and district offices had been refurbished and improved. Lastly, the operation helped the country obtain an “FMD-free with vaccination” declaration by the OIE in 2014.
- 1.15 **Lessons learned.** Between 2002 and 2014, the Bank approved 17 investment loans to strengthen agricultural health and food safety systems in the region, for a total amount of US\$359 million, or approximately 10% of the total sector portfolio (OVE, 2015). As noted earlier, SENASAG has been supported since its creation, first with funds from the Agricultural Services Program (1057/SF-BO) and subsequently, in 2008, through the Agricultural Health and Food Safety Program (2061/BL-BO). The latter operation was selected as part of a sample of six projects (Argentina (1950/OC-AR, 2008-2015); Nicaragua (1500/SF-NI, 2003-2011); Peru (1647/OC-PE, 2005-2009, and 2045/OC-PE, 2008-2014); and Uruguay (2182/OC-UR)) that were analyzed by [OVE](#) for purposes of evaluating the interventions and identifying recommendations for the design of new operations. On the basis of the previous operations, as well as the conclusions and recommendations from the Comparative Project Evaluation of Agriculture Health and Food Safety, 2002-2014 (OVE), Table 1 below describes the main lessons learned and how these have been incorporated into the design of the proposed operation.

¹⁷ Gran Paitití is an information technology system developed to manage each of the services that SENASAG provides nationwide. It administers information on animal health, plant health, food safety, as well as information from the administrative, planning and legal areas. The system is of national scope and is used in the departmental, local and frontier offices of SENASAG.

Table 1. Recommendations incorporated into program design

Recommendations	Incorporation into program design
Involve the private sector through joint work and the incorporation of new information and communication technologies.	The program gives priority to incorporating a greater number of online services for users, in order to make their delivery more prompt and efficient. ¹⁸ The phytosanitary and zoosanitary programs will be implemented in coordination with farmers.
Make the laboratories sustainable.	The laboratories operated by SENASAG are self-funded but do not have the necessary capacity to run public programs for pest and disease control. The program will provide financing to enhance the capacity of the laboratories, which will remain self-funded.
Strengthen the food safety area.	The program will strengthen the capacity of the laboratories for analyzing contaminants, surveillance plans, and training for farmers in good agricultural practices, thereby helping to improve food safety levels in Bolivia
Evaluation and results in relation to direct beneficiaries	The program includes a monitoring and evaluation component and an impact evaluation plan that will analyze the impacts of program activities on the direct beneficiaries.

- 1.16 Program design.** The design of the program addresses the need to protect Bolivia's agricultural resources from health risks and provide the safety assurances sought by domestic consumers and foreign markets, especially high-value markets, as part of the government's bid to position Bolivia as a reliable and safe supplier of quality food products. To this end, the program will continue the work of strengthening the country's health services, which the Bank has supported (loans 1057/SF-BO and 2061/BL-BO) since the creation of SENASAG. The design of the operation takes into account achievements to date, lessons learned, and the results of evaluations by the Bank and leading international agencies working in this area. Thus, the operation focuses on: (i) strengthening the technical capacity of SENASAG to act independently and objectively, basing its decisions on scientific principles; (ii) enhancing the analytical capacity in fully equipped, internationally accredited laboratories for the diagnosis of diseases and pests, control of agricultural inputs, and detection of contaminants in agricultural and food products; (iii) implementing disease and pest prevention and control programs that will help lay the groundwork for expanding those programs to other regions or for implementing innovative work solutions (coordination mechanisms with the private sector, accreditation of professionals, etc.) that will facilitate surveillance and control of other health threats; and (iv) improving the management and increasing the efficiency of service delivery to users throughout the country.
- 1.17 Country strategy for the sector.** The program is part of the Patriotic Agenda 2025 and the Productive Economic Development Plan 2016-2020. The program will contribute primarily to Pillar 6, Productive Sovereignty with Diversification, which sets the objective for the agriculture sector of boosting productivity and enhancing market access for Bolivian products. The program will also contribute to Pillar 8, Food Sovereignty, with respect to the promotion of good agricultural practices and

¹⁸ The program is helping to enforce the supreme decree on e-government in Bolivia (Supreme Decree 1874 of 23 January 2014), as well as the 2016-2020 e-Government Plan.

ecologically sound production. Lastly, the program is aligned with the Institutional Strategic Plan of SENASAG 2014-2018.

- 1.18 **Bank's country strategy with Bolivia.** The operation is consistent with the Bank's country strategy with Bolivia 2016-2020 (document GN-2843), inasmuch as it will contribute to the objective of increasing productivity in the economy through the delivery of quality public goods and services.
- 1.19 **Strategic alignment with the Update to the Institutional Strategy 2010-2020 and the Corporate Results Framework 2016-2019.** The program is consistent with the Update to the Institutional Strategy 2010-2020 (document AB-3008) and is aligned with the development challenges of productivity and innovation inasmuch as it will increase the agricultural productivity of small farmers and thereby contribute to the indicators in the Corporate Results Framework corresponding to the number of beneficiaries of improved management and sustainable use of natural capital and to the number of government agencies benefitted to improve public service delivery. The program is also aligned with the challenge of economic integration, inasmuch as it will support food safety mechanisms facilitating the participation of Bolivian producers in value chains integrated into international trade and will promote the alignment of trade integration instruments ([Integration Annex](#)). The program is aligned, as well, with the crosscutting area of institutional capacity, as it will strengthen the technological and management instruments for improving the delivery of SENASAG services, as reflected in the results indicators mentioned above.
- 1.20 In addition, with respect to the Corporate Results Framework 2016-2019 (document GN-2727-6), the program is aligned with the regional context indicators of (7) intraregional trade in goods and (12) government effectiveness, as reflected in the program impact indicator in the results matrix (i) increased exports of agricultural products and the program outcome indicators (i) fewer sanitary barriers that restrict access to export markets for agricultural and agrifood products and (ii) improved service to users with incorporation of the virtual office and electronic signature. The program will further contribute to the Corporate Results Framework by aligning itself with the country development results indicator (5) corresponding to public agencies' processing times of international trade of goods and services, as reflected in the outcome indicators mentioned above.
- 1.21 The program is also consistent with the Agriculture and Natural Resources Management Sector Framework Document (document GN-2709-5), which emphasizes the need to strengthen the provision of agricultural public goods, as well as with the Food Security Sector Framework Document (document GN-2825-3) in the dimension of access to safe and nutritious food, and also with the Integration and Trade Sector Framework Document (document GN-2715-6), which addresses the problem of logistics costs and the facilitation of international trade.

B. Objectives, components and cost

- 1.22 **Objective.** The general objective of the program is to help increase productivity in the agriculture sector. The specific objectives are: (i) to reduce production losses from pests and diseases; (ii) to facilitate access to international markets; and (iii) to enhance service to users.

- 1.23 **Components and cost.** To achieve the program's objective, investments will be made in four components, as described below. The total cost of the program will be US\$25 million.
- 1.24 **Component 1. User services system (US\$2.70 million).** This component will improve the delivery of agricultural health and food safety services to users. To this end, it will provide financing for: (i) computer equipment and the development of applications to expand the capacity of the Gran Paitití information technology system, incorporating a greater number of online services and enabling digital signature; (ii) renovation of the building housing the Santa Cruz district headquarters¹⁹ (which serves roughly 50% of the country's users), in order to incorporate new offices and refurbish public reception areas; and (iii) training for staff of SENASAG in public management and customer service.
- 1.25 **Component 2. Animal health system (US\$7.80 million).** This component will improve the zoosanitary status of the country by implementing national programs for disease prevention and control and strengthening laboratory capacity for the diagnosis of diseases and the control of veterinary inputs. It will provide financing for: (i) the program to maintain the country's FMD-free status; (ii) the BSE prevention program; (iii) the program to control Newcastle disease in poultry, with a view to declaring two zones free of the disease, in the department of Cochabamba and the department of Santa Cruz, the country's main poultry production areas; (iv) the national avian flu prevention program; and (v) the construction and equipping of a national laboratory for animal health diagnostics and control of veterinary inputs in the department of Santa Cruz.²⁰ For the four zoosanitary programs, the component will finance epidemiological surveillance, emergency simulations, and training for technical staff.
- 1.26 **Component 3. Plant health system (US\$8.10 million).** This component will improve the country's phytosanitary status through pest control programs and the creation of capacity for diagnosing agricultural diseases and pests and controlling agricultural inputs. It will provide financing for: (i) the pilot program for fruit fly control, so as to have two areas declared "low prevalence" zones, the municipio of El Torno (department of Santa Cruz) and the municipio of Luribay (department of La Paz). These two municipios have a total land area of 9,000 hectares, with 2,500 farmers producing a large share of the country's fruit supply; (ii) the prevention and control program for Huanglongbing disease that affects citrus crops; and (iii) construction and equipping of the national laboratory for diagnostics and control of agricultural inputs in the department of Santa Cruz.
- 1.27 **Component 4. Food safety system (US\$5 million).** This component will focus on training and awareness-raising for farmers and the general public with respect to greater food safety, and it will also determine the baselines for the presence of contaminants, as a way of facilitating surveillance decisions in line with scientific criteria. It will provide financing for: (i) training and certification in [good agricultural](#)

¹⁹ The department of Santa Cruz accounts for the largest share (29%) of national GDP (INE, 2006) and produces 70% of the country's food (CAO, 2014). SENASAG district headquarters in Santa Cruz serves approximately 50% of the country's users.

²⁰ Before awarding contracts for the works in question, the executing agency will present to the Bank evidence that it has legal possession of the properties. This is a required condition for all works contracts, such as those mentioned in the following paragraphs.

[practices](#) and ecological production for producers of priority farm products for local and export markets;²¹ (ii) renovation and equipping of the Cochabamba laboratory and construction and equipping of the main national laboratory, in the department of Santa Cruz, to expand its analytical capacity for identifying residues in agricultural and food products; and (iii) installation and operation of the surveillance system for chemical residues and contaminants in food, in accordance with Codex standards.

C. Key results indicators

- 1.28 The program has a results matrix (Annex II) agreed upon with SENASAG that presents impact, outcome, and output indicators with their respective baselines, targets and means of verification. The main expected outcomes are: (i) reduced losses in agricultural production caused by pests and diseases; (ii) fewer sanitary barriers that restrict access to export markets; (iii) improved zoosanitary and phytosanitary conditions in the country; and (iv) shorter processing times. The operation will generally benefit rural producers in the country (880,000 farms), the members of the main agrifood chains, and consumers of food products in the country (11.4 million) by lowering transaction costs and helping to preserve health and safety conditions while facilitating access to markets. The fruit fly pilot program is expected to benefit 2,300 producers, and 2,500 producers will receive training in best agricultural practices.
- 1.29 **Economic evaluation.** The cost-benefit methodology was used to estimate the economic benefits to be generated among the target population of beneficiaries (see [link](#)). These benefits will be seen in the reduction of production losses caused by pests and diseases, better access to external markets (due to improved sanitary conditions), and improvements in terms of internal savings and time savings for users of services owing to modernization of the processing system (e.g. electronic signature).²² Based on the incremental economic effect and considering an impact horizon of 20 years, the planned investments yield a net present value (NPV) of US\$21.1 million (at a discount rate of 12%) and an internal rate of return (IRR) of 23.5%. Under these assumptions, the benefit/cost ratio is US\$1.58 per unit invested. The indicators were subjected to a sensitivity analysis, which showed that even under pessimistic hypotheses concerning certain execution risks (a 20% increase in investment and recurrent costs combined with a 25% decrease in the rate of application of techniques, a 25% decrease in market access, and a 25% decrease in users of the virtual office system), the program would still reach the breakeven point (NPV of 0 and IRR of 12%).

²¹ This activity will provide training and certification for producers of priority products for the local and export markets, in accordance with the Economic and Social Development Plan 2016-2020. This includes the production of bananas, pineapples, quinoa, tomatoes, coffee, cocoa, chia, soybeans, sesame, wheat, potatoes, and corn. Beneficiary producers will be selected at random from each association.

²² Benefits in the form of fewer export rejections and less foodborne disease in the population due to improvements in safety were also identified but were not included in the calculations because there was no attribution mechanism or precise baseline information available.

II. FINANCING STRUCTURE AND MAIN RISKS

A. Financing instruments

- 2.1 The total cost of the program is estimated at US\$25 million, which the Bank will finance with a blend of US\$21.25 million from the Ordinary Capital (OC) and US\$3.75 million from the Fund for Special Operations (FSO). The distribution by source of financing is shown in Table 2.

Table 2. Program cost and financing (US\$ millions)

Investment category	IDB	Total	%
I. Direct costs	23.60	23.60	94.4
Component 1. User services system	2.70	2.70	10.8
Component 2. Animal health system	7.80	7.80	31.2
Component 3. Plant health system	8.10	8.10	32.4
Component 4. Food safety system	5.00	5.00	20.0
II. Administration	0.80	0.80	3.20
III. Monitoring and evaluation	0.30	0.30	1.20
IV. External audits	0.30	0.30	1.20
Total	25.00	25.00	100.00

- 2.2 The program is structured as a specific investment operation, to be executed over five years, with the following disbursement schedule, in accordance with preliminary financial plan:

Table 3. Program costs and financing (US\$ millions)

Source	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Total IDB	1.46	8.94	6.03	6.24	2.33	25.00
%	5.9%	35.8%	24.1%	24.9%	9.3%	100%

B. Environmental and social risks

- 2.3 In accordance with the Environment and Safeguards Compliance Policy (OP-703), the program has been classified as a category "B" operation. During program preparation, an Environmental and Social Analysis found that the program will primarily have positive social and environmental impacts. The program will contribute to the following and other positive impacts: (i) more rational use of pesticides through implementation of integrated pest management and plant protection activities and training in good agricultural practices and ecological production; (ii) control of animal diseases that can affect human health; and (iii) a safer food supply. Potential adverse environmental impacts will be isolated and of limited scope. They will be linked to the construction and remodeling of infrastructure (4,000 square meters of new construction and refurbished space at two locations), the operation of laboratories (with a marginal increase in the use of toxic and biological substances as test reagents, samples of pesticides and veterinary products, and biological samples), and pest and disease control activities. To mitigate these adverse risks and impacts, an [Environmental and Social Management Plan](#) (ESMP) has been prepared that includes procedures for

handling toxic substances in the laboratories, steps for disposing of waste in accordance with national and international standards for the management, control, and disposal of biological and hazardous solid and liquid wastes, measures to ensure hygiene and safety in the workplace, and a monitoring plan that includes environmental indicators. The program also calls for activities to communicate with the general public and disclose information on the objectives and scope of the investments, through the publication and dissemination of information. The ESMP has been incorporated into the program Operating Regulations.

C. Fiduciary risks

- 2.4 Based on the results of the institutional assessment, SENASAG has the institutional capacity needed to properly carry out the responsibilities of the executing agency for the program. The results of the [Institutional Capacity Assessment System](#) (ICAS) exercise show strengths in organization, execution, and control capacities, and thus a weighted satisfactory development level and a low level of risk. Nevertheless, the risk analysis indicated the possibility of delays in procurement and contracting processes and hence the need to mitigate that risk by strengthening the institution's team with fiduciary consultants in financial management and procurement, working exclusively on program implementation. This is due to the large number of financial and procurement transactions involved in the program, compared with the current levels of administrative and accounting activity at SENASAG.

D. Other project risks

- 2.5 The principal challenges facing SENASAG, as revealed by the risk analysis, lie in building and modernizing the laboratory infrastructure for animal health, plant health, and food safety, as well as in running and managing it. To mitigate those risks, the program includes specialized consulting assignments for infrastructure design, equipment and outfitting, and specialized technical training for laboratory personnel and for the technical areas responsible for running the laboratories. The investments financed by the program, both for infrastructure construction and for equipping SENASAG laboratories, entail a series of medium- and long-term institutional challenges involving the maintenance and sustainability of those assets. In this context, the project team analyzed a series of factors that will contribute directly to mitigating this risk. First, with enactment of the new Agricultural Health and Food Safety Act, there will be an estimated 22% annual increase in the current fee-based revenues of SENASAG, and this will contribute directly to the institution's budgetary capacity, including the coverage of incremental operating costs associated with the operation and maintenance of those assets. Second, with respect to laboratory services, SENASAG will introduce fees directly associated with the costs of providing technical services, including the cost of maintenance and asset depreciation or replacement. Third, the program includes specific training activities for personnel, including aspects directly related to operation of the new infrastructure, equipment, and other assets. Lastly, SENASAG will be able to reinforce its human resources with respect to management of goods, services, and assets, thanks to the new legal and budgetary framework contained in the new law, as well as enhancing cost recovery management, among other aspects.

- 2.6 Another risk is that SENASAG services will not meet the expectations generated by the program. To mitigate this risk, the program will implement a monitoring and evaluation plan covering the activities of the program execution unit as well as external evaluations, training, and instruction in institutional management by results. Risks have also been identified with respect to the contractual status of SENASAG staff, who now carry out their functions as temporary employees under short-term contracts. On this point, SENASAG has initiated a structural process with the Ministry of Rural Development and Lands and the Ministry of Economy and Public Finance for the gradual institutionalization of positions and their corresponding conversion to permanent positions financed from the General Treasury of the Nation. As well, with enactment of the new Agricultural Health and Food Safety Act and the anticipated growth in SENASAG's own revenues, the institution will have greater financial capacity that will allow sound management of the conversion of staff contracts and thereby mitigate the risks associated with labor conditions. Lastly, risks have been identified in relation to the interest of potential beneficiaries and their participation in the program's planned activities and services. To mitigate these risks, the program includes specific institutional strengthening measures designed to improve the quality of services provided by SENASAG and its capacity to respond to its clients, as well as training in good agricultural practices and other activities that will yield private benefits for producers.
- 2.7 Finally, with respect to sustainability and scalability of the fruit fly project, this pilot project constitutes a learning phase in the framework of a national strategy for attacking the pest. Priority has been given to two zones (in the departments of Santa Cruz and La Paz), which have the largest concentration of farmers, a major share in the total production of the sector, the presence of producers' organizations and associations, large markets in close proximity, and high incidences of the pest. The two zones together cover a total of 9,000 hectares (12% of the total area—currently 75,000 hectares—planted in orchards that are susceptible to the fruit fly), and they have different geographic, ecological, and productive characteristics, which will provide detailed information, now lacking, in order to design a national program that will ultimately serve all areas of production in the country.

III. IMPLEMENTATION AND MANAGEMENT PLAN

A. Summary of implementation arrangements

- 3.1 The borrower will be the Plurinational State of Bolivia, and the executing agency will be the National Service for Agricultural Health and Food Safety (SENASAG). SENASAG was created by Law 2061 of 16 March 2000 as a deconcentrated agency of what is now the Ministry of Rural Development and Lands, with its own structure and legal, technical, and administrative capacity. It has nationwide responsibility for administering the agricultural health and food safety regime. It will handle coordination, planning and monitoring, technical and administrative management, procurements and contracting, and financial administration of the program. It will also implement the environmental and social safeguards for the program, contained in the ESMP.
- 3.2 To implement the program, a program execution unit will be created; it will report directly to the national director of SENASAG, as the senior executive authority.

- Staffing of the program execution unit will consist of a general coordinator and personnel responsible for legal, planning, accounting and financial, procurement, and environmental matters. These personnel will work in direct coordination with the support and control areas of SENASAG with respect to fiduciary management and with the national head offices for plant health, animal health, and food safety, which will be responsible for technical management of activities in each of these areas. SENASAG will also establish a technical board for program coordination, comprising the national technical directors of SENASAG, and it will serve as a mechanism for ongoing monitoring and evaluation of program implementation. **As special contractual conditions precedent to the first disbursement of the loan: (i) the borrower will sign a subsidiary agreement with the executing agency establishing the following and other elements: (a) the mechanism for transferring the loan proceeds; and (b) the commitment of the executing agency to conduct program activities in accordance with the terms of the loan contract; (ii) the executing agency: (a) will create the program execution unit in accordance with terms and conditions previously agreed upon with the Bank; and (b) will contract specialists, through a competitive process, in at least the following areas: general coordination, planning, financial management, procurement, and environmental and social management; and (iii) the program technical board will be created and its members appointed.**
- 3.3 During program preparation, plans were made for SENASAG to be able to sign agreements with autonomous territorial entities²³ and producers' associations. Those agreements will lay the basis for mutual cooperation among those involved and will spell out the activities covered by the agreements, the commitments of the parties, including mechanisms for cooperation between them, and other terms and conditions necessary for execution. Among other matters, the agreements will define: (i) the number of producers and land area to be covered or incorporated/used in the program technical activities; (ii) the times to be spent on specific areas and producers; (iii) the geographic location of farms and of agricultural activities; (iv) the inputs and the scope of technical assistance and training to be provided by the program; and (v) the dissemination of practices and results. As a special condition of execution, prior to startup of the activities for the fruit fly control program in Component 3, agreements will be signed between SENASAG, the Municipio of El Torno, the Municipio of Luribay, and local producers' associations.
- 3.4 **Program Operating Regulations.** Program execution will be governed by program [Operating Regulations](#), which will establish guidelines and operating procedures relating to: (i) the execution structure of the program and the responsibilities of the program executing agency; (ii) the responsibilities of other entities involved in program implementation; (iii) the procedures for planning and programming the activities to be financed; (iv) the procedures and processes for technical management and financial and procurement administration; (v) the procedures for environmental and social management of the program; and (vi) operating instructions for monitoring and evaluation of the program's impact. **As a special contractual condition precedent to the first disbursement of the loan, the program Operating Regulations will be approved by the executing**

²³ This encompasses departmental, municipal, regional, and rural indigenous autonomous governments.

agency and will be in force, under terms previously agreed upon with the Bank.

- 3.5 **Procurement.** Works, goods, and consulting services financed with program resources will be procured in accordance with the Bank policies established in documents GN-2349-9 and GN-2350-9 and with the provisions of the loan contract and the program's fiduciary agreements and requirements (see Annex III), including the procurement plan for the first 18 months. The procurement plan includes the purchase of vehicles, operating and information processing equipment, furniture, individual consultants, consulting firms, and other items. It will be updated annually or when there are substantial changes, subject to the Bank's approval. Procurement processes may be reviewed ex post, in accordance with the provisions of Annex III.
- 3.6 **Audits.** During the loan disbursement period, within 120 days following the close of SENASAG's fiscal year, audited annual financial statements for the program will be presented to the Bank. Audits will be conducted by a firm of independent auditors acceptable to the Bank. The scope and other aspects of the audit will be governed by the Financial Management Policy for IDB-financed Projects (document OP-273-6) and the Guide for the Preparation of Financial Statements and External Audits.

B. Summary of arrangements for monitoring results

- 3.7 **Monitoring.** The program has a [monitoring and evaluation plan](#). SENASAG will prepare and send the following reports to the Bank on a regular basis: (i) no later than 60 days after the end of each six-month period during program execution, a monitoring report, focused on achievement of the output indicators and progress towards outcomes, identification of problems encountered, and the corrective measures taken; and (ii) no later than the last quarter of each year during program execution, the multiyear execution plan, the program risk matrix, and the annual work plan for the following year. In addition, SENASAG will conduct two independent evaluations financed from the loan: (i) the midterm evaluation will be presented to the Bank no later than 90 days after 50% of the loan has been disbursed (or at the end of the third year of execution, whichever occurs first); and (ii) the final evaluation, no later than 90 days after 90% of the program resources have been disbursed. These reports will include an evaluation of the quality of data from the monitoring system, the degree of achievement of the outputs, outcomes and impacts established in the results matrix, as well as the level of compliance with the ESMP.
- 3.8 **Evaluation.** The impact evaluation is designed primarily to measure the effects of the pilot program for fruit fly control, given its potential expansion at the national level. The estimates will be based on the method of differences in a panel of producers encouraged to participate randomly in a treatment group and a control group. For this purpose, two surveys are planned: a baseline survey (in two phases) and a final evaluation. The proposed sample covers two municipios located in the department of Santa Cruz: El Torno, one of the pilot areas of the intervention, and La Guardia, serving as a counterfactual (control) benchmark within the same geographical zone, where the agroecological characteristics, productive orientation, degree of organization among producers, and prevalence of the pest are very similar (70% correlation). The sample for the baseline study

comprises 386 farmers (with 248 in the treatment group and 138 in the control group), and a similar sample will be used for the final evaluation. The budget for data collection has been included in the program. The operation provides an opportunity to generate empirical evidence on the impact of pest management and control efforts on production, productivity, and incomes for individual farms and for the total area, as well as changes in land use, application of insecticides and/or fertilizers, incorporation of new technologies, and/or reorientation of crops.

Development Effectiveness Matrix			
Summary			
I. Strategic Alignment			
1. IDB Strategic Development Objectives		Aligned	
Development Challenges & Cross-cutting Themes		-Productivity and Innovation -Economic Integration -Institutional Capacity and the Rule of Law	
Regional Context Indicators		-Intraregional trade in goods (%) -Government effectiveness (average LAC percentile)	
Country Development Results Indicators		-Public agencies' processing times of international trade of goods and services -Beneficiaries of improved management and sustainable use of natural capital (#) -Government agencies benefited by projects that strengthen technological and managerial tools to improve public service delivery (#)	
2. Country Strategy Development Objectives		Aligned	
Country Strategy Results Matrix		GN-2843	Improve the provision of quality public goods and services.
Country Program Results Matrix			The intervention is not included in the 2016 Operational Program.
Relevance of this project to country development challenges (If not aligned to country strategy or country program)			
II. Development Outcomes - Evaluability		Evaluable	WeightMaximum Score
		8.7	10
3. Evidence-based Assessment & Solution		7.7	33.33%10
3.1 Program Diagnosis		1.8	
3.2 Proposed Interventions or Solutions		4.0	
3.3 Results Matrix Quality		1.9	
4. Ex ante Economic Analysis		8.5	33.33%10
4.1 The program has an ERR/NPV, a Cost-Effectiveness Analysis or a General Economic Analysis		4.0	
4.2 Identified and Quantified Benefits		1.5	
4.3 Identified and Quantified Costs		1.5	
4.4 Reasonable Assumptions		0.0	
4.5 Sensitivity Analysis		1.5	
5. Monitoring and Evaluation		10.0	33.33%10
5.1 Monitoring Mechanisms		2.5	
5.2 Evaluation Plan		7.5	
III. Risks & Mitigation Monitoring Matrix			
Overall risks rate = magnitude of risks*likelihood		Low	
Identified risks have been rated for magnitude and likelihood		Yes	
Mitigation measures have been identified for major risks		Yes	
Mitigation measures have indicators for tracking their implementation		Yes	
Environmental & social risk classification		B	
IV. IDB's Role - Additionality			
The project relies on the use of country systems			
Fiduciary (VPC/FMP 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			
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 and/or in the evaluation plan		Yes	The program will generate valuable information on the causal link between the control of the fruit fly and the increase of income of UPAS and agricultural yields.

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

The objective of the program is to increase productivity of the agricultural sector by reducing production losses due to livestock and crop diseases, facilitating access to international markets, and improving the service to users of the national animal health system. The Program will implement four components: (i) Strengthening of user services; (ii) Strengthening of the animal health system; (iii) Strengthening of the plant health system; and (iv) Strengthening the food safety system.

The documentation is well-structured, with a good diagnostic of the major challenges faced by the sector that contribute to low levels of productivity, including the significant losses of agricultural production due to animal and plant diseases, the difficulty of accessing key markets due to phytosanitary restrictions, scarce information about food safety due to limited diagnostic capabilities of national laboratories, as well as the inefficiency and low quality of service provision by the animal health system. The proposed solution is clearly related to the magnitude of the problems identified. While the results matrix (RM) reflects the objectives of the program, a clear vertical logic cannot be established due to an incomplete discussion of the current political restrictions on the exports of animal products which may inhibit market access even if domestic sanitary conditions are improved. The key outcome indicators have values that are the result of the ex-ante economic analysis; and lower-level indicators reflect the design of the four components. The RM includes SMART indicators at the levels of impact (except for one), outcomes (except for one) and outputs with their respective baseline values and targets and the means to gather information.

The economic analysis (EA) is based on a Cost-Benefit Analysis that compares the expected benefits generated by the distinct program components (reduced production losses, improved market access, improved efficiency of the animal health system) with program costs (main investments and costs of operation, personnel, and maintenance). In general, the assumptions made are reasonable; however, the analysis fails to address the concerns of export restrictions that may considerably limit expected benefits of market access. The CBA estimates an IRR of 23.5%. A sensitivity analysis presents four alternate scenarios: (i) if costs increase to 20% above budget, the IRR is reduced to 17%; (ii) if adoption rates among farmers affected by the Fruit Fly and Newcastle disease drop to 70%, the IRR is 17.3%; (iii) if only 40% of all service procedures in the animal health system are improved, the IRR drops to 20.5%; and (iv) if only 40% of all market access improving measures are achieved, the IRR drops to 18.3%.

The monitoring and evaluation plan is well designed and the impact evaluation proposes a reasonable strategy for the evaluation of the pilot program for Fruit Fly eradication. The robust identification strategy proposes both a difference-in-difference approach (with propensity score matching) using an untreated municipality as a reasonable counterfactual, as well as randomized offering within the treated municipality to increase participation and adoption rates and identify the optimal design of the program. The evaluation also allows for the quantification of potentially important spillover effects. Given the scant literature on the effectiveness of plant health interventions, the impact evaluation will make an important contribution to the knowledge base of the sector, the country, and the Bank.

The risks identified in the risk matrix seem reasonable; eight are classified as Medium and five are classified as Low. It includes mitigating actions and compliance indicators.

RESULTS MATRIX
(see detailed/complete results matrix)

Objective: The general objective of the program is to help increase productivity in the agriculture sector. The specific objectives are: (i) to reduce production losses from pests and diseases; (ii) to facilitate access to international markets; and (iii) to enhance service to users.

Impacts	Baseline (2016)	Target (2021)	Means of verification	Observations
<p>Impact: Increased exports of agricultural products</p> <p>Indicator: Annual export value of agricultural products (US\$ millions)</p> <p>Impact: Increased economic value of livestock sector production</p> <p>Indicator: Gross value of annual production of the livestock sector (cattle, poultry, and swine) (US\$ millions)</p>	1,488 (2015)	1,963 (2021)	IBCA and INE data.	Target: Projection of the average growth rate for 2010-2015 over the period 2016-2021.
<p>Impact: Higher agricultural yields</p> <p>Indicator: Difference between average agricultural yields per hectare among beneficiaries and non-beneficiaries of the fruit fly pilot program (in kilograms per hectare).</p>	1,293 (2015)	1,815 (2021)	IBCA and INE data.	Target: gross estimate based on 2010-2015 trend and projection of sector benchmarks.
Baseline by type of product				
Mandarins	8,174	9,809	Impact evaluation to be performed under the program.	<ul style="list-style-type: none"> - The baseline value comes from departmental government and SENASAG studies. They will be revised in light of the baseline surveys. - There is no information disaggregated between baseline data for the treatment and control groups. - The target value comes from the technical estimates.
Oranges	7,630	9,156		

Agricultural Health and Food Safety Program Outcomes	Baseline (2016)	Target (2021)	Means of verification	Comments
<p>Outcome 1: Reduced losses in agricultural production caused by pests and diseases.</p> <p>Indicator:</p> <p>Difference between losses in production caused by the fruit fly (measured as percentages of harvest) among beneficiaries (B) and non-beneficiaries (NB) in the pilot project.</p> $\left(\overline{\%QP}^B_{2022} - \overline{\%QP}^B_{2017} \right) - \left(\overline{\%QP}^{NB}_{2022} - \overline{\%QP}^{NB}_{2017} \right)$	30%	15%	<p>Baseline survey of producers.</p> <p>Annual reports of SENASAG based on the technical report monitoring program execution.</p> <p>Producer survey for evaluation of impact at the end of program.</p>	<p>Production losses</p> <p>Baseline:</p> <p>30% (Santa Cruz)</p> <p>36% (La Paz)</p> <p>Target:</p> <p>15% (Santa Cruz)</p> <p>18% (La Paz)</p> <p>LB: SENASAG technical evaluation based on departmental data</p> <p>QP: production losses by volume.</p>
<p>Outcome 2: Fewer sanitary barriers that restrict access to export markets for agricultural and agrifood products.</p> <p>Indicator:</p> <ul style="list-style-type: none"> New international agreements validating health status and safety of Bolivian agricultural products (quantity). 	0	20	<p>SENASAG based on IBCA and INE sector information and statistics.</p> <p>Evidence: international agreements signed by SENASAG.</p>	<p>International agreements are instruments such as bilateral or multilateral agreements, protocols between countries, or similar instruments. They involve the opening of a new country for exportation of an agricultural product (e.g. chicken to Ecuador, citrus fruits to Brazil)</p>
<p>Outcome 3: Improved zoosanitary conditions in the country</p> <p>Indicator:</p> <ul style="list-style-type: none"> maintenance of Bolivia's FMD-free status self-declaration of zones free of Newcastle disease 	<p>1</p> <p>0</p>	<p>1</p> <p>2</p>	<p>SENASAG based on evaluations, resolutions, and OIE methodology.</p>	<p>BSE: application presented to OIE.</p>
<p>Outcome 4: Improved phytosanitary conditions in the country</p> <p>Indicator:</p> <ul style="list-style-type: none"> Declaration of zones of low prevalence of fruit fly pests 	0	2	<p>SENASAG based on technical studies of progress under the fruit fly pilot project.</p>	<p>Based on IPPC international standards for phytosanitary measures.</p>

Agricultural Health and Food Safety Program Outcomes	Baseline (2016)	Target (2021)	Means of verification	Comments
<p>Outcome 5: Improved service to users with incorporation of the Virtual Office and Electronic Signature.</p> <p>Indicator:</p> <ul style="list-style-type: none"> Average wait time for in-person service (submission of requirements and delivery of permit/certificate) in two selected services (food safety permit for importation, phytosanitary certificate for exportation) (minutes). Average processing time for approval of business registration (days) 	<p>36</p> <p>32</p>	<p>0</p> <p>20</p>	<p>Program execution unit report with details from administrative records, based on the Gran Paitití processing system and help desks.</p>	<p>Average time includes user waiting time.</p> <p>It does not include the time needed to complete the forms.</p>

FIDUCIARY AGREEMENTS AND REQUIREMENTS

Country: Plurinational State of Bolivia

Project: BO-L1179 Agricultural Health and Food Safety Program II

Executing agency: National Service for Agricultural Health and Food Safety (SENASAG)

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

I. EXECUTIVE SUMMARY

- 1.1 This annex was prepared taking into account the results of the Institutional Capacity Assessment System (ICAS) review of SENASAG.
- 1.2 Accounting activities, budgetary management, and cash management will be carried out using the Integrated Public Management System (SIGEP) and SENASAG's institutional accounting system (VISUAL). For the financial reports required by the Bank, the SIAP-BID¹ will be used. For tendering processes, the standard bidding documents of the Bank or those agreed upon with the Office of the Deputy Minister of Public Investment and External Finance (VIPFE) will be used and made available through the Public Procurement System (SICOES),² where calls for proposals and the 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 Regulations of the Goods and Services Management System (NB-SABS) in operations financed by the Bank in Bolivia. This program could apply that agreement once it is signed and in effect.

II. FIDUCIARY CONTEXT OF THE EXECUTING AGENCY

- 2.1 SENASAG was created on 16 March 2000 by Law 2061 as an operational structure of what is now the Ministry of Rural Development and Lands. It is responsible for administering the Agricultural Health and Food Safety System, in the framework of Article 9 of the Law on Organization of the Executive Branch. Supreme Decree 25729 of 7 April 2000 regulates the organization and powers of the SENASAG and also establishes its technical, administrative, and managerial independence, and its competencies, jurisdiction, and presence throughout Bolivia, in accordance with Law 1178 on Governmental Administration and Control,³ approved on 20 July 1990.

¹ Administration System for Bank Projects, developed by the Bank's Country Office in Bolivia (CAN/CBO).

² [Public Procurement System](#). A set of bidding documents agreed upon between the Bank and the VIPFE for use in processes below the threshold for international competitive bidding (ICB).

³ This law governs the systems for administration and control of funds of the Plurinational State of Bolivia and their linkages with the national planning and public investment systems.

- 2.2 For procurements, SENASAG applies the NB-SABS or the rules indicated in external financing agreements.
- 2.3 Financial transactions are handled in the SIGEP and in SENASAG's institutional system, which provides secure and reliable information on budget execution. This system produces financial information in the official currency, classified for accounting purposes by expenditure item. In addition, the entity has implemented the PLANEA system, which is the primary register for budgetary control and use of resources. The accounting records will be kept in accordance with the government accounting system. The financial reports required by the Bank will be prepared in SIAP-BID until the SIGEP accounting module for external resources enters into effect.
- 2.4 Project contracting and payments will be conducted by SENASAG, through the execution unit, which will work exclusively on program execution and will be formally created within the organizational structure of that entity.

III. FIDUCIARY RISK EVALUATION AND MITIGATION MEASURES

- 3.1 The ICAS review of SENASAG indicates an adequate degree of development and institutional capacity from the viewpoint of administrative definitions, regulations, etc. However, the analysis of risks associated with the program's fiduciary management yields a medium risk classification.
- 3.2 To mitigate the risk factors, three specific measures have been planned for program execution in order to strengthen fiduciary management: (i) the SENASAG team will be reinforced with professional personnel specialized in financial management and procurement management for program execution; (ii) administrative and internal control processes adapted to program needs for adequate financial and administrative management of procurements and contracting, including control mechanisms and targets for processing times, will be incorporated into the program Operating Regulations; (iii) SENASAG will adopt in full the national systems for integrated financial management currently used for planning, budgeting, accounting, and cash management functions, including the SIGEP, PLANEA, and VISUAL platforms, to ensure access to financial information in real time; and (iv) with respect to technical matters, staff capabilities will be strengthened in the areas of animal health, plant health, and food safety so as to ensure technical soundness in the preparation of technical specifications, terms of reference, and other basic inputs for procurement activities.

IV. CONSIDERATIONS FOR THE SPECIAL CONDITIONS OF THE CONTRACT

- 4.1 **Operating Regulations.** These will cover the execution mechanism, procedures, and information flows, as previously agreed between the executing agency and the Bank.
- 4.2 **Exchange rate agreed upon with the executing agency for financial reporting.** The exchange rate used will be the rate in effect in the country on the effective date of the conversion of funds into local currency in the executing agency's accounts.
- 4.3 **Financial statements and other audited reports.** For the duration of the program disbursement period, audited financial statements for the program will be

submitted to the Bank within 120 days after the end of each fiscal year of the executing agency. The statements will be duly audited by a firm of independent auditors acceptable to the Bank. The final report will be submitted to the Bank within 120 days following the date stipulated for the final disbursement.

- 4.4 The terms of reference for the contracting of the firm of independent auditors will be subject to the Bank's prior approval, and may include outputs stemming from the International Standards on Auditing relating to the financial audit of the program and other tasks. The scope will be governed by the Financial Management Policy for IDB-financed Projects (document OP-273-6) and the Guide for the Preparation of Financial Statements and External Audits.
- 4.5 **Procurement.** Procurement will be carried out in accordance with the policies set forth in documents GN-2349-9 and GN-2350-9, with partial use of the NB-SABS (paragraph 1.3).

V. AGREEMENTS AND REQUIREMENTS FOR PROCUREMENT EXECUTION

- 5.1 **Procurement execution.** Procurement processes for the program will be detailed in the procurement plan approved by the Bank and will be conducted within the framework of the policies set forth in documents GN-2349-9 and GN-2350-9 (with no exceptions anticipated), or through partial use of the NB-SABS.
- 5.2 **Procurement of works, goods and nonconsulting services.** In the case of international competitive bidding (ICB), the current standard bidding documents issued by the Bank will be used. For other processes, the documents available in the SICOES will be used. Any changes to those documents will require the Bank's no objection.
- 5.3 **Selection and contracting of consultants.** Contracts for consulting services will be executed considering the following:
- (i) **Selection of consulting firms.** The Bank's standard request for proposals will be used. For contracts in amounts of less than US\$200,000, the documents available in SICOES will be used. Any changes to these documents will require the Bank's no objection.
 - (ii) **Short list of consulting firms.** This may be composed entirely of local firms for contracts where the value is less than the US\$200,000 threshold established for Bolivia.
 - (iii) **Selection of individual consultants.** This will be based on qualifications for the assignment, comparing the CVs of at least three candidates, and as a rule no interviews will be held. When the assignments are linked to other specific advisory services, consulting firms will be used, except in circumstances (to be analyzed case-by-case) where it is deemed appropriate to provide backup support to the individual consultant.
- 5.4 **Procurement planning.** Program execution will adhere to the procurement plan administered by SENASAG and agreed upon in advance with the Bank. SENASAG will publish the procurement plan in the Procurement Plan Execution System (SEPA) and will update it annually or as needed.

- 5.5 **Advance procurement/retroactive financing.** No advance procurement that would require retroactive recognition of financing is anticipated.
- 5.6 **National preference.** The application of national preference will not be considered in procurement processes.
- 5.7 **Terms of reference and technical specifications.** The Project Team Leader is responsible for reviewing the criteria for the selection of shortlists, terms of reference, and technical specifications, which will be agreed upon with the executing agency prior to execution of the processes.
- 5.8 **Table of threshold amounts.**

Table 1. Threshold amounts (US\$000)

Works			Goods			Consulting firms	
ICB	NCB	Shopping	ICB	NCB	Shopping	International publicity*	National publicity**
More than US\$3,000	Less than or equal to US\$3,000	Less than or equal to US\$1,500	More than US\$200	Less than or equal to US\$200	Less than or equal to US\$50	More than US\$200	Less than or equal to US\$200

* Shortlist with maximum of two firms of the same nationality.

** Shortlist may be 100% national.

- 5.9 **Main procurement processes.** These are detailed in Table 2.

Table 2. Planning of main procurement item

Description	Selection method	Estimated date	Estimated amount (US\$000)
Consulting firms			
3 contracts with international firms to prepare designs for the works and conduct the program impact evaluation	CQS/QCBS	TBD	359
3 contracts with local firms to develop the data warehouse, supervise the works, and perform the external financial audit of the program	CQS/QCBS	TBD	377
Works			
Construction of the food quality control module, and upgrade of infrastructure according to ISO 17025 for LIDIVET facilities (2 contracts)	Shopping	TBD	904
Refurbishment of installations and upgrade of infrastructure according to ISO 17025 for LIDIVECO facilities (2 contracts)	Shopping	TBD	215
Construction and improvements of infrastructure for the district office; diagnostic rooms; and plant health and pest control diagnostic laboratory in Santa Cruz (3 contracts)	Shopping	TBD	3,228
Installation of plant and animal health demonstration plots	Shopping	TBD	104
Installation of border control posts for entry and exit of fruit	Shopping	TBD	42
Goods			
Computer equipment (various purchases during execution)	TBD	TBD	2,101
4x4 vehicles (various purchases during execution)	TBD	TBD	2,870
Motorcycles (various purchases during execution)	TBD	TBD	1,231
Other equipment (various purchases during execution)	TBD	TBD	1,128
Laboratory equipment, materials, and inputs (various purchases during execution),	TBD	TBD	7,044
Furnishings (various purchases during execution)	TBD	TBD	154

Description	Selection method	Estimated date	Estimated amount (US\$000)
Individual consultants			
Program execution unit staff including coordination, planning, finance, procurement (2), legal, environmental and social management, and coordination with the Ministry of Rural Development and Lands, and administrative assistance in support of program execution	NICQ	TBD	766
Technical team to develop the online web applications in the framework of "Gran Paititi"	NICQ	TBD	754
13 international professionals to provide technical consulting services needed for the program	IICQ	TBD	305
10 national professionals to carry out technical consulting services needed for the program	NICQ	TBD	133
Nonconsulting services			
About 48 contracts for training services and awareness-raising workshops; equipment maintenance and calibration; validation of methods; site visits; etc.	Shopping/ NCB	TBD	2,947

*Click [here](#) for the procurement plan for the first 18 months.

- 5.10 **Procurement supervision.** Annual supervision visits will be conducted. If necessary, annual ex post review visits will be held.
- 5.11 The thresholds for ex post review are shown in Tables 3 and 4 (direct contracting and unlisted procurements will be subject to ex ante review). The external audit firm will perform the ex post review.

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

Works	Goods and nonconsulting services	Consulting firms	Individual consultants
Contracts for amounts less than or equal to US\$1,500	Contracts for amounts less than or equal to US\$200	Contracts for amounts less than or equal to US\$50	Those that are not considered key and are not part of the execution unit

- 5.12 **Operating or recurring expenses.**⁴ These 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 decline to finance these expenses if it finds that they have violated the basic principles of competition, efficiency, and economy. The external audit firm will be responsible for reviewing the supporting documentation for these expenses.
- 5.13 **Records and files.** SENASAG will be responsible for establishing the supporting documentation, procedures and controls necessary to safeguard the documentation generated by the program. The Bank may, at any time, verify the standards for organization, control, and security of files.

⁴ Operating or recurring expenses encompass leasing of premises, notifications, announcements, or communications made on radio, in the written press, or on television, translations, bank fees, office supplies, photocopies, postage, fuel, maintenance, short courses, and travel for line personnel.

VI. FINANCIAL MANAGEMENT

- 6.1 **Programming and budget.** SENASAG will handle both the formulation of the budget and any future changes, on the basis of the approved annual work plan, and will arrange to have the program recorded as an investment budget to be reported in the SIGEP. As an institutional tool, it has the PLANEA system for monitoring the institutional budget and the program.
- 6.2 **Accounting and information systems.** Program transactions will be recorded in the SIGEP. The system integrates the different accounting stages in a single file and complies with the requirements for budgeting (budget execution), accounts (allocation of assets, liabilities, equity, and results), and cash management (cash transfer), on an accrual accounting basis. In addition, for purposes of program accounts, a chart of accounts will be prepared that will identify expenditures made at each step on a cash basis, harmonizing the program's investment categories with the budgetary items and their respective accounts. In addition, the executing agency will use the SIAP-BID system on a temporary basis as a supplement for issuing the program financial reports, until the SIGEP accounting management module enters into effect.
- 6.3 **Disbursements and cash flow.** Loan proceeds will be disbursed as advances of funds and direct payments, on the basis of the financial program, which will be periodically updated by SENASAG. The Bank will process a new advance of funds once at least 80% of previous fund advances has been accounted for. Loan proceeds will be deposited in a separate account in U.S. dollars and subsequently transferred to a different account in local currency, both within the CUT.⁵
- 6.4 **Internal control and internal audit.** The financial management of the executing agency is subject to an annual reliability review by the Internal Audit Unit, and the program is expected to be included in this type of review. As a strategic activity within its mandate, the Bank will hold regular coordination meetings with the Internal Audit Unit to identify program monitoring needs.
- 6.5 **External control and reports.** The SENASAG will contract a firm of independent auditors acceptable to the Bank on an annual basis, following Bank policies. This will be a multiyear contract (covering at least three fiscal years), in order to avoid transaction costs and ensure continuity in the work of the auditors, as well as to guarantee timely interventions that will allow for preliminary reviews at semiannual intervals.
- 6.6 The terms of reference for contracting the firm of independent auditors will have the Bank's no objection.
- 6.7 **Financial supervision plan.** Activities may be adjusted on the basis of the program's risk assessment conducted by the fiduciary team with the executing agency, and the external audit reports. Expenditures will be supervised on an ex post basis. However, at a minimum, the annual supervision plan will provide for a comprehensive visit (procurement and finances) by the Bank.

⁵ Cuenta Única del Tesoro (CUT) [Single Treasury Account].

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-___/___

Bolivia. Loan ____/BL-BO to the Plurinational State of Bolivia
Agricultural Health and Food Safety Program II

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the Plurinational State of Bolivia, as Borrower, for the purpose of granting it a financing to cooperate in the execution of an agricultural health and food safety program II. Such financing will be for the amount of up to US\$21,250,000 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 __ _____ 201__)

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-___/___

Bolivia. Loan ____/BL-BO to the Plurinational State of Bolivia
Agricultural Health and Food Safety Program II

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the Plurinational State of Bolivia, as Borrower, for the purpose of granting it a financing to cooperate in the execution of an agricultural health and food safety program II. Such financing will be for the amount of up to US\$3,750,000 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 __ _____ 201__