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DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

MEXICO

ANIMAL HEALTH IMPROVEMENT

(ME-L1256)

LOAN PROPOSAL

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ELECTRONIC LINKS

REQUIRED

1. Multiyear Execution Plan
2. Annual Work Plan
3. Monitoring and Evaluation Plan
4. Environmental and Social Management Report
5. Procurement Plan

OPTIONAL

1. Economic Analysis of the Project
2. Evaluation of institutional capacity and risk analysis
3. Analysis of animal health in Mexico
4. Analysis of SENASICA diagnostic laboratories*
5. SENASICA – Plan to reengineer laboratories*
6. SENASICA – Plan for CNRSA sustainability*
7. References
8. Safeguard Policy Filter and Safeguard Screening Form

(*) At the request of the borrowing country, the information contained in this document will not be disclosed. The non-disclosure of this information is in accordance with the “country-specific information” exception in paragraph 4.1 i of the Bank’s Access to Information Policy.

ABBREVIATIONS

BSE	Bovine spongiform encephalopathy
CENAPA	Centro Nacional de Servicios de Constatación en Salud Animal [National Animal Health Monitoring Services Center]
CENASA	Centro Nacional de Servicios de Diagnóstico en Salud Animal [National Animal Health Diagnostic Services Center]
CID	Country Department Central America, Mexico, Panama and the Dominican Republic
CNRSA	Centro Nacional de Referencia en Salud Animal [National Animal Health Reference Center]
CPA	Mexico-United States Commission for the Prevention of Foot-and-Mouth Disease and other Exotic Animal Diseases
DGSA	Dirección General de Salud Animal [Animal Health Directorate]
ESMP	Environmental and social management plan
ESGS	Estimated support for general services
ETS	Estimated total support
FAO	Food and Agriculture Organization of the United Nations
INEGI	Instituto Nacional de Estadística y Geografía [National Statistics and Geography Institute]
LIBOR	London Interbank Offered Rate
NAFIN	Nacional Financiera
OIE	World Organisation for Animal Health
OVE	Office of Evaluation and Oversight
SAGARPA	Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación [Department of Agriculture, Livestock, Rural Development, Fisheries, and Food]
SENASICA	Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria [National Service for Agrifood Health, Safety, and Quality]
SFP	Secretaría de la Función Pública [Civil Service Department]
SHCP	Secretaría de Hacienda y Crédito Público [Finance Department]
UISDC	Unidad Integral de Servicios de Diagnóstico y Constatación [Comprehensive Diagnostic and Monitoring Services Unit]
USDA	United States Department of Agriculture

PROJECT SUMMARY

MEXICO
ANIMAL HEALTH IMPROVEMENT
(ME-L1256)

<table>
<tr><th colspan="6">Financial Terms and Conditions</th></tr>
<tr><td colspan="3" rowspan="6">Borrower: United Mexican States

Executing agency: Department of Agriculture, Livestock, Rural Development, Fisheries, and Food (SAGARPA) through the National Service for Agrifood Health, Safety, and Quality (SENASICA)</td><td colspan="2">Flexible Financing Facility[a]</td></tr>
<tr><td>Amortization period:</td><td>Bullet payment on 15 October 2028</td></tr>
<tr><td>Original WAL:</td><td>12 years[b]</td></tr>
<tr><td>Disbursement period:</td><td>5 years</td></tr>
<tr><td>Grace period:</td><td>Bullet payment on 15 October 2028</td></tr>
<tr><td>Inspection and supervision fee:</td><td>[c]</td></tr>
<tr><td>Source</td><td>Amount (US$)</td><td>%</td><td>Interest rate:</td><td>LIBOR</td></tr>
<tr><td>IDB (Ordinary Capital):</td><td>145 million</td><td>100</td><td>Credit fee:</td><td>[c]</td></tr>
<tr><td>Total:</td><td>145 million</td><td>100</td><td>Currency:</td><td>United States dollars from the Ordinary Capital</td></tr>
<tr><th colspan="6">Project at a Glance</th></tr>
<tr><td colspan="6">Project objective/description:
The general objective is to improve the country’s health status in order to contribute to increasing livestock productivity and access to domestic and international markets. The specific objective is to strengthen the capacity and efficiency of animal health services by updating and improving disease diagnostic services.</td></tr>
<tr><td colspan="6">Special contractual conditions precedent to the first disbursement of the financing:
Evidence will be presented that the mandate and program execution contract with the borrower via the Finance Department (SHCP), Nacional Financiera, S.N.C. (NAFIN), SAGARPA, and SENASICA has been signed (paragraph 3.1).</td></tr>
<tr><td colspan="6">Exceptions to Bank policies:
None.</td></tr>
<tr><th colspan="6">Strategic alignment</th></tr>
<tr><td colspan="2">Challenges:[d]</td><td colspan="4">SI ☐ PI ☑ EI ☑</td></tr>
<tr><td colspan="2">Crosscutting themes:[e]</td><td colspan="4">GD ☐ CC ☐ IC ☐</td></tr>
</table>

(a) Under the terms of the Flexible Financing Facility (document FN-655-1), the borrower has the option of requesting changes to the amortization schedule, and currency and interest rate conversions. When considering such requests, the Bank will take operational and risk management considerations into account.

(b) The original WAL of the loan could be shorter, depending on the actual date on which the loan contract is signed.

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

(d) SI (social inclusion and equality); PI (productivity and innovation); and EI (economic integration).

(e) 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 **General context of the agriculture sector.** The agriculture sector in Mexico is strategically important for the country's development due to its significance to the economy. In 2015, the agriculture sector accounted for 3.35% of GDP and, between 2000 and 2015, it grew an average of 1.56% per year, slower than the annual growth of the economy as a whole (2.2%) (National Statistics and Geography Institute—INEGI, 2015). Agricultural activities in 2015 employed 13.3% of the country's workforce (6.9 million people). That same year, exports of agricultural products reached US$12.97 billion, accounting for 2.5% of the country's total exports (INEGI, 2015). From 1981-2012, the annual average growth of agricultural productivity was 1.5%, slightly higher than the regional average (1.2%) but slower than that of Brazil (2.5%) and Chile (2.3%) (Nin-Pratt et al., 2015).[1] Although agricultural productivity has improved, the proportion of total support (estimated total support – ETS) provided in the form of public goods (estimated support for general services – ESGS) in Mexico is 11.7% (2013), lower than in other countries such as Uruguay (58.5%), Chile (45,6%), and Brazil (18,6%).[2] Likewise, the proportion of ESGS dedicated to agricultural health in Mexico is 10% (2014), lower than in Brazil (26.1%), Uruguay (22.9%), Chile (19.8%), and Argentina (37%) (Agrimonitor, 2015). These indicators show Mexico's level of investment in agricultural health, revealing that the country has an opportunity to increase its spending strategically and in accordance with the sector's priorities.

1.2 **Livestock activity.** Livestock activity[3] accounted for 32% of agricultural GDP in 2015. Its annual growth from 2000 to 2015 averaged 1.69%, somewhat higher than that of the agricultural sector as a whole. Its production value in 2015 was close to US$40 billion, making it the 11th largest primary livestock producer in the world. Mexico has 1.1 million production units (20% of the agricultural sector as a whole). Its main products are beef, pork, poultry, and live cattle (SAGARPA, 2015). Livestock exports have tripled from 2000 to 2015, reaching US$3.66 billion in 2015 and accounting for almost 30% of agricultural exports (the regional average is 15% (2013) (FAOSTAT, 2015)). Also during this period, livestock sector imports doubled, reaching US$6.2 billion in 2015 (INEGI, 2016). Production of fishery and aquaculture products was 1.7 million tons in 2014, compared to 1.2 million tons in 2000 (SAGARPA, 2015).

1.3 **Animal health.** Protecting animal and plant health is one of the most important functions of public sector agricultural bodies, and it has the characteristics of a

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1 INEGI (2015) estimated that the agricultural sector's productivity grew annually by an average of 0.23% from 1991-2014.

2 The ETS is the estimated total support. The indicator reflects and includes all the effects of public policies that have a differentiated effect on the agricultural sector, either through support (for example, subsidies) or penalties (for example, taxes). The ESGS is the estimated support for general services. It measures the support provided to agricultural producers (as a group, not individually) through general support (such as research, agricultural health, infrastructure, etc.). Both indicators are measured at the federal level.

3 For the purposes of this program, this includes both livestock and fisheries.

public good (OVE, 2015). Failures of the animal health system, whether due to a failure to control the spread of endemic diseases or incursions and outbreaks of exotic diseases or emerging diseases, cause enormous economic losses due to reduced livestock productivity caused by the disease and/or the death of animals, as well as the loss of international markets. In the case of outbreaks of endemic zoonotic diseases[4] or the appearance of emerging zoonotic diseases, the social and economic impact is much more severe due to negative effects on human health. For example, outbreaks of exotic diseases have included cases of bovine spongiform encephalopathy (BSE) in 2003, which resulted in losses of US$1.5 billion in Canada and US$3.5 billion in the United States (Fox et al., 2005); outbreaks of foot-and-mouth disease in 2001 in the United Kingdom, which resulted in losses of more than US$10 billion (Bates, 2016) and US$80 million in losses in Uruguay (FAO, 2002); outbreaks of classic swine fever in The Netherlands in 1997, causing US$2.3 billion in losses (Terpstra and de Smit, 2000); and the highly pathogenic avian influenza epidemic in the United States, which caused US$500 million in losses in 2013 (USDA, 2016).

1.4 Given these risks, there are two main reasons to invest in animal health services: (i) maintaining and increasing productivity by avoiding production losses (to new illnesses) and reducing production losses (to existing diseases); and (ii) facilitating foreign trade by meeting health and safety standards that enable access to foreign markets. The main services are epidemiological surveillance (identification of diseases); sanitary barrier and quarantine; and control and eradication of diseases. The diagnostic function (laboratory analysis) is a critical crosscutting element that supports all three of these services, mainly via epidemiological surveillance. For example, countries free of exotic diseases must conduct epidemiological surveillance that requires samples to be processed in a laboratory to identify with a high degree of certainty the presence or absence of the infectious agents in sick animals. Without a laboratory diagnosis, surveillance cannot be conducted to demonstrate that a country remains free of an exotic disease.

1.5 The increase in the international trade of animal products, in which Mexico[5] has participated, has led to countries paying closer attention to risks to their natural heritage and the health of their consumers, by establishing health and safety requirements for accessing their markets. Of particular importance are the risks of introducing and spreading exotic animal diseases and zoonoses, as well as food contamination events. In this context, countries need to update and modernize their animal health and food safety systems to ensure these risks are detected, identified, and controlled, and to guarantee the safety of the products exported and consumed domestically.

1.6 Although investments in animal health services do not completely eliminate the risk that disease will have an impact on production, such investments yield high returns. A comparative evaluation of six agricultural health projects conducted by OVE (2015) finds evidence that disease control and eradication campaigns conducted by agricultural health institutions have successfully reduced the effects of disease and pests on production. Regarding animal health, in Peru, the

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4 Zoonosis is an infection or illness in animals that is naturally transmissible to humans, or vice versa.

5 Mexico participates in 12 free-trade agreements covering 46 countries.

implementation of a program to control mange in camelids reduced the prevalence of the illness in treated versus non-treated animals significantly (1.8% versus 16%), as well as the incidence (3.6% versus 12%) (OVE, 2009). The case of Uruguay also demonstrates the benefits for international commerce of controlling disease in animals. Specifically, once it obtained the status of foot-and-mouth disease-free area without vaccination in 1996, the value of its beef exports to the U.S. increased by more than 50%, trade with the countries of the Pacific increased, and it saved more than US$8 million a year on vaccinations (Knight-Jones and Rushton, 2013; Otte et al., 2004). There is also evidence that the price of beef exported from foot-and-mouth disease-free countries is approximately 93% higher than from countries that have it (ICA and CID, 2008).

1.7 Similarly, Carter (2007) estimated losses for the State of Michigan at US$2 billion as a result of not having a new veterinary diagnostic laboratory to support the livestock sector there. Ankers and Harris (2011) conducted an analysis of global activities to control pandemic diseases. They found that improvements to avian influenza diagnostic capacity in a network of laboratories in West and Central Africa reduced the time it took to confirm the presence of the virus from 30 days to one day. Likewise, improvements to the capacity of a network of laboratories in southeast Asia to detect avian influenza enabled analysis of the epidemiology of the disease in real time and at regional scale. Using data on animal health services in 12 countries, Swayne (2011) found that an increase in the capacities of veterinary services such as laboratory analysis, staff proficiency, biological product development, and the surveillance system response correlate with improved control of avian influenza. Following outbreaks of BSE in 2003, the United States lost its access to international markets for its beef products. Through surveillance and diagnostic support from a national network of government laboratories, the United States was able to demonstrate to the World Organisation for Animal Health (OIE) that it was BSE-free. It was granted the status of a country with negligible risk and recovered its beef export markets (USDA, 2013; OIE, 2016).

1.8 **Animal health services in Mexico.** The National Service for Agrifood Health, Safety, and Quality (SENASICA) will head up the national agricultural health system in Mexico. A deconcentrated entity of SAGARPA, it is responsible for protecting food health and safety. SENASICA's Animal Health Directorate (DGSA) is in charge of maintaining and improving animal health in the country via four main functions: surveillance, sanitary barrier, control and eradication, and response and diagnostics.[6] Diagnostic duties are performed by three DGSA entities and a network of private laboratories:

- The National Animal Health Diagnostic Services Center (CENASA), built in 1969 and located in the Comprehensive Diagnostic and Monitoring Services Unit (UISDC) complex, is responsible for diagnosing endemic or existing animal diseases in Mexico and monitoring biological veterinary products used to support animal health in Mexico.
- The Mexico-United States Commission for the Prevention of Foot-and-Mouth Disease and other Exotic Animal Diseases (CPA) operates a series of

[6] Other directorates include: (i) plant health: (ii) agrifood safety; (iii) animal and plant health inspection; (iv) legal matters; and (v) administration and information technology.

laboratories across the country to detect and respond to potential outbreaks of exotic animal diseases and/or emerging diseases not present in Mexico. This network includes: (i) a BSL-3 laboratory,[7] which serves as a national reference laboratory for the CPA; (ii) seven regional laboratories; and (iii) 13 BSL-2 molecular biology laboratories that use rapid diagnostic techniques.

- The National Animal Health Monitoring Services Center (CENAPA) is responsible for: (i) diagnosing parasitic diseases; (ii) monitoring antiparasitic and pharmaceutical products; (iii) conducting food safety studies; and (iv) providing DNA sequencing services and diagnostic reagents for SENASICA's laboratory network.
- The network of 127 SENASICA-licensed laboratories provides diagnostic services for endemic animal diseases, particularly diseases being surveilled by official programs. These laboratories are operated by state governments, universities, and commercial entities. The diagnostic work done by private laboratories is vital to advancing campaigns for controlling animal disease. More than 85% of the diagnostic analyses carried out by the laboratory network in 2015 were performed by private laboratories. These laboratories are indispensable for the success of surveillance activities and campaigns to control and eradicate livestock diseases (Torres and Grimaldo, 2016).

1.9 The DGSA has two coordinated approaches to diagnosing exotic and endemic disease. For exotic diseases, the CPA has 70 field veterinarians located throughout the country and supported by 20 regional laboratories. All the activities in the field and the regional laboratories are supported by the CPA's reference laboratory, which works on specialized diagnostics and confirming the diagnoses made in regional laboratories. For endemic diseases, the entities in charge are CENASA and CENAPA. Diagnosing and/or surveilling diseases under control programs begins with the collection of samples by private veterinarians licensed by SENASICA. The samples are sent to private laboratories for analysis via epidemiological monitoring using simple techniques. In special cases where confirmation of suspected outbreaks is required, the private laboratories send the samples to CENASA. For aquaculture and parasitic diseases, the samples are sent to CENAPA. Across the entire laboratory network, 95% of analyses performed are in support of surveillance activities and campaigns to control and eradicate diseases (Torres and Grimaldo, 2016).

1.10 The credibility and effectiveness of the comprehensive animal health diagnostic system in Mexico depends fundamentally on the functioning of SENASICA's national reference laboratories. In addition to its critical role in detecting and responding to potential outbreaks of exotic animal diseases and/or emergent diseases not found in Mexico, these reference functions include: (i) preparing standardized and validated diagnostic protocols; (ii) preparing and distributing the

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[7] Laboratories are classified by biosafety levels (BSLs) according to the biological agent and the risk level involved. There are four levels, ranging from the lowest (BSL-1) to levels that employ more robust and restrictive mechanisms. The highest level is BSL-4, which is exclusively for diseases that are lethal to humans. The BSL-3(Ag) classification applies specifically to laboratories that can infect animals with exotic agents that cause diseases that have a severe impact on production animals. This level involves many of the same security requirements as a BSL-4 laboratory.

necessary reagents for conducting diagnostic analysis; (iii) preparing, distributing, and analyzing interlaboratory aptitude tests to verify the reproducibility and accuracy of the results of the laboratories in the network; and (iv) verifying and/or confirming the diagnoses of positive or suspicious results made by SENASICA and private laboratories. From 2012-2015, the reference laboratories performed a total of 173,000 diagnostic analyses, of which 55% supported surveillance services (Torres and Grimaldo, 2016).

1.11 In 2007, the OIE conducted a performance evaluation of animal health services in Mexico and found the results to be acceptable (58%). Based on the recommendations of the evaluation, improvements have been made in four main areas: (i) human and financial resources, with a plan for ongoing training of technical staff and resource sustainability for control and eradication campaigns; (ii) technical, with improved emergency response and analytic capacity of laboratories to serve as a reference for the OIE; (iii) increased participation in review of OIE standards; and (iv) market access. These improvements are embodied in the results of SENASICA's recent self-assessment of its veterinary service, which, following OIE methodology, returned an indicator of 74%.[8] This progress has helped Mexico gain OIE recognition as free of three economically important diseases: foot-and-mouth disease, classic swine fever, and BSE (Estupiñan, 2016). It has also been able to eradicate seven livestock, avian, and equine diseases and been declared free of them. Improvements to the country's health status have also contributed to achieving greater access to international markets for Mexican livestock products. Mexico currently has access to 1,179 export markets for livestock products (compared to 1,077 markets in 2011) (SENASICA, 2016).[9]

1.12 Despite this effort, diseases persist that affect the livestock sector's productivity, such as porcine reproductive and respiratory syndrome, porcine epidemic diarrhea, and zoonotic diseases that affect humans such as bovine rabies, highly pathogenic avian influenza, brucellosis, and bovine tuberculosis (SENASICA, 2016). Regarding brucellosis, only 9% of the country is free of it, while 21% is in the eradication phase. For tuberculosis, 83% of the country is in the eradication phase (SENASICA, 2016). In addition, the United States Department of Agriculture still has not licensed 34% of Mexican states to export live cattle. A major challenge is the risk that eradicated diseases and other exotic diseases will be introduced. For example, in Mexico, the highly pathogenic avian influenza epidemic in 1994 and 1995 cost US$49 million, while the epidemic that started in 2012 resulted in losses of more than US$90 million (SENASICA, 2016). Likewise, SAGARPA (2015) has estimated that the introduction of foot-and-mouth disease, BSE, or the screwworm could affect the primary sector jobs of 1.2 million, 190,000, and six million people, respectively. The risk of introducing the principal exotic diseases

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[8] For comparison, results of this evaluation in: Chile (2010-82%), Uruguay (2014-83%), and Colombia (2015-70%) (http://www.oie.int/support-to-oie-members/pvs-evaluations).

[9] An export market is defined as a particular product exported to a particular country. For example, bulk limes with access to 10 countries would count as 10 markets, while lime juice to the same 10 countries would count as 10 more markets.

in Mexico has increased along with the country's increasing trade.[10] For example, classic swine fever could be introduced through trade with bordering Central American countries where outbreaks have taken place recently.

1.13 **The problems involved in diagnosing animal disease.** Despite the country's significant progress in animal health and the evidence that public investment in the sector is highly beneficial for the country, SENASICA's diagnostic capacity to meet the sector's various demands for surveillance, sanitary barrier, and control and eradication are limited by the infrastructure and technology available to it (Torres and Grimaldo, 2016).

1.14 The infrastructure of the central reference laboratories tends to be crowded and inadequate compared to modern biocontainment standards, limiting its diagnostic and biosecurity capacity. The CPA reference laboratory was built in 1947 and renovated in 2006, extending its useful life by 10 years. The laboratory does not have space for expansion, and has limited capacity for physical expansion due to the age of the buildings. This situation prevents work with medium-sized and large animals and limits the type of diagnostics it can conduct and the number of samples it can process, particularly during health emergencies. Based on the growth of the sector, projections are that the CPA alone must increase its capacity to conduct analysis over the next 10 years from 28,475 procedures in 2015 to more than 187,000 in 2025 (SENASICA, 2016). CENASA was built in 1974 and renovated in 2012. It is running at full capacity and risks not being able to maintain the biocontainment level required to conduct its diagnostic work. SENASICA's laboratories currently only have capacity to diagnose 23% of illnesses considered highly important and whose presence in the country requires immediate notification. These limitations have also contributed to delays in delivering the analysis results. SENASICA has service standards in place that establish delivery times for the different diagnostic analyses it offers. However, in 2015, the response time for monitoring avian, hog, and equine illnesses was 15 days, compared to four days established in the service standards (Torres and Grimaldo, 2016). That year, in 84% of cases, the diagnostic analyses were delivered in compliance with SENASICA's standards.

1.15 Mexico does not have a high biosafety laboratory (BSL-3(Ag)) for work on exotic or emerging diseases that require the use of animals for diagnosis. There are also limitations on diagnosing illnesses caused by zoonotic bacteria, which require a high level of biosafety. Mexico therefore must depend on reference laboratories in other countries, delaying the results of a diagnosis by 4 to 16 weeks and putting early disease detection in jeopardy.

1.16 A key component of a diagnostic service is capacity to collect, classify, maintain, and store animal or plant pathogens in a central building dedicated to this operation that is oriented toward flexibly, promptly, and efficiently meeting the need for microbiological cultures for research, confirmation, standardization, and control of laboratory tests. The government thereby provides better services for improving agricultural health. Strain collections are currently scattered throughout the country

[10] Retrospective studies on the origin of foot-and-mouth disease introduced to countries free of it find that 70% were caused by the legal or illegal introduction of animals or animal products infected with the foot and mouth disease virus (USDA Animal and Plant Health Inspection Service, 1994).

in the hands of universities, private institutions, and SENASICA laboratories. Failure to maintain these biological agents under strict physical control means that their escape presents a risk to the country's agricultural health. The lack of well-characterized strain collections affects the preparation of the validated reference reagents needed to diagnose high risk diseases and represents a risk to the country's safety. It also affects the international credibility of SENASICA's laboratories in its market negotiations with other countries.

1.17 With these deficiencies, which by themselves limit diagnostic capacity, the system faces growing demand for its services due partly to an increase in SENASICA's functions thanks to the addition of fisheries and aquaculture activities (representing an additional 8% of official laboratory analyses), along with a series of ongoing challenges: (i) the need to maintain disease-free status; (ii) the elimination of prevalent endemic diseases, including zoonoses; and (iii) rising trade requires the processing of more samples for surveillance and control, both at the country's borders and internally. In this context, the risks associated with climate change are of serious concern: changes in temperature could encourage the development of disease-carrying vectors (Forman, 2008).

1.18 In sum, there are serious biosafety deficiencies for safe work with livestock pathogens, as well as unmet demand for diagnostic services that pose a risk regarding introduction of exotic diseases, the control and eradication of diseases that still exist in the country, and addressing the growing demand for certifications from international markets. There are also opportunities for integrating laboratory management and increasing laboratory efficiency.

1.19 **Lessons learned.** This operation takes into account experience with animal health operations that the Bank has been supporting in the region (such as the Animal Health Program (518/OC-UR, 1987), and the Agricultural Services Program (1131/OC-UR, 1998) for Argentina (AR-L1032, 2008-2015), Bolivia (BO-L1037, 2008-2014), Nicaragua (NI0182; 2003-2011) and Peru (PE-L1007; 2005-2009)), as well as the conclusions and suggestions of OVE's comparative evaluation of agriculture health and food safety projects, 2002-2014 (see Table I-1).

Table I-1. Incorporating the main lessons learned	
Lesson learned	**Reflected in program design**
Specialized works, such as the plant for producing and raising Mediterranean fruit flies in loan ME-L1045, require specialized technical supervision capacity in order to meet international safety standards.	The current program has incorporated the experience of technicians who are highly specialized in these types of laboratories from the design phase. Also, for execution, a specialized service group has been included that offers architectural guidance, supervision of the work, and commissioning to provide technical guidance from design to construction of the laboratories.[11]
The decisions made by the health services must be independent and made for purely scientific reasons due to the nature of the threats they must deal with, as well as the need for local and international credibility.	The program seeks to improve the scientific foundations of the competent authority by increasing its diagnostic analysis capacity. The program is also expected to improve comprehensive management of the laboratories.
A policy of sharing costs with the beneficiaries is important for sustainability.	SENASICA already has a system of fees for diagnostic services in place. With improvements to the system's diagnostic capacity thanks to the program, SENASICA will charge fees for the new diagnostic services.
Health control institutions need ongoing programs to keep their staff trained and up-to-date.	Training is planned, in particular on new equipment, new diagnostic techniques, and laboratory management.

1.20 **Design.** The empirical evidence clearly indicates that the impact of disease on the livestock sector can be significant and that, as part of the animal health system, specialized laboratories are critical for preventing the sector from experiencing economic losses and for boosting its productivity. The laboratory network (reference, regional, and private) supports the health system's functions of surveillance, quarantine, control, and eradication. In Mexico, more than 90% of laboratory activity is focused on surveillance. Reference laboratories there are a critical part of the laboratory network and the health system due to their role in detecting and responding to potential outbreaks of exotic animal diseases and/or emerging diseases not present in Mexico. They are also important for ensuring the quality of the diagnoses made by the network. Although these laboratories are meeting the country's needs, there is significant unmet demand for diagnostic services. This program proposes supporting the government's efforts to consolidate the progress made in preventing exotic diseases and eradicating diseases of economic and public health importance in order to contribute to promoting agricultural production growth and export development. The program will improve SENASICA's diagnostic capacity by building, equipping, and putting into operation a national animal health reference center (which will replace the current diagnostic reference laboratories). This will improve integration of laboratory capacities, provide better coverage for the samples analyzed, enable more use of cutting-edge technology and equipment, and improve support for the laboratory network through more and better reagents and diagnostic techniques. The program will make it possible to issue more reliable diagnostic results more quickly to control and eradicate diseases that are significant to the country's

[11] Commissioning is an intensive quality control process that begins in the design phase and continues during construction and operation. It ensures the laboratory functions in accordance with the specifications of the contracting party.

livestock and fisheries. The resulting impact will increase livestock productivity while at the same time opening up national and international markets for livestock products. Complementary to this, with their new capacities, the new laboratories will be able to increase the training support that Mexico provides to the region's health services, particularly to neighboring countries in Central America and the Caribbean.

1.21 Animal producers benefit directly, as an improved health system provides them with a productive ecosystem where diseases are less likely to attack their animals, leading to positive impacts on productivity. The producers are also supported by veterinarians and private and/or regional laboratories that detect disease. With the support of the CNRSA's new capacities, these services will be provided more effectively, as they will have access to new diagnostic techniques that are more accurate and effective.

1.22 The program is also designed to follow the guidelines of the country's development policy. Its National Development Plan 2013-2018 stresses the importance of boosting productivity in the agrifood sector by investing in the development of physical, human, and technological capital. Specifically regarding agrifood health, it highlights the need to modernize inspection infrastructure and mechanisms in order to reduce the risk of introducing pests and diseases requiring quarantine.

1.23 **Consistency with the Update to the Institutional Strategy 2010-2020, the Corporate Results Framework 2016-2019, the Bank's Country Strategy with Mexico, and the Sector Framework.** The program is consistent with the Update to the Institutional Strategy 2010-2020 (document AB-3008) and in line with the development challenges of productivity and innovation in that it will increase livestock productivity by reducing the likelihood of the occurrence of animal disease. It will do this by maintaining disease-free status and reducing prevalence rates of endemic and economically significant diseases through improved capacity to diagnose livestock disease. The program is also in line with the economic integration development challenge, pursuant to the multinational targeting criterion, because it supports establishing an animal health diagnostic reference center that would facilitate producer participation in international trade, given that lack of health certification for exports could close some export markets (program Results Matrix impact indicator: increasing the value of Mexico's livestock exports). It also provides an opportunity for countries with limited resources to access this facility, such as Central American countries; this latter opportunity may involve training Central American specialists to use advanced and modern animal health diagnostic techniques. The program will also contribute to the indicators of the Country Development Results of the Corporate Results Framework 2016-2019 (document GN-2727-6) through the number of beneficiaries of improved management and sustainable use of natural capital (point 11) by providing producers with a healthier productive ecosystem thanks to lower likelihood of incidence of disease as a result of an improved animal health system (program Results Matrix impact indicator: increasing productivity (yield) of livestock products). The operation is in line with the Bank's country strategy 2013-2018 (document GN-2749) because it contributes to the priority area of regional development for improving agricultural productivity by providing high-quality public goods and services. It is consistent with the Agriculture and Natural Resources

Management Sector Framework Document (document GN-2709-6), which prioritizes strengthening the provision of sector public goods, and the Food Security Sector Framework Document (document GN-2825-3), which prioritizes provision of agricultural services with the characteristics of public goods.

B. Objectives, components, and cost

1.24 **Objectives.** The general objective is to improve the country's health status in order to contribute to increasing livestock productivity and access to domestic and international markets. The specific objective is to strengthen the capacity and efficiency of animal health services by updating and improving disease diagnostic services.

1.25 **Component on strengthening diagnostic capacity.** This component will support the construction, equipping, and operation of the National Animal Health Reference Center (CNRSA), which includes: (i) a diagnostic laboratory for exotic diseases (BSL-3 and BSL-3(Ag)) that replaces and expands on the operations of the CPA reference laboratory; (ii) a central diagnostic laboratory (BSL-2) that replaces and expands on the majority of CENASA and CENAPA operations; and (iii) a building for storing biological material. The component will also support a series of capacity-building activities aimed at CNRSA staff, laboratory network staff, and animal health service staff from Central America and other countries, as well as technical consulting work, environmental certifications, health and safety certifications, and a plan for publicizing CNRSA activities among livestock producers. The component will also include activities to monitor the work, as well as architectural guidance and commissioning for the process of building and operating the CNRSA.

1.26 **Program cost and financing.** The program's total cost will be US$145 million, and the financing will be charged to the Bank's Ordinary Capital. Table I-2 shows the cost breakdown.

Table I-2. Program cost and financing (in millions of US$)

Investment component	IDB	%
I. Component on strengthening diagnostic capacity	**141.85**	**97.83**
II. Monitoring, evaluation, and audits	**0.15**	**0.10**
III. Contingencies	**3.00**	**2.07**
Total	**145.00**	**100.00**

C. Key results indicators

1.27 **Results matrix indicators** The program has a Results Matrix agreed upon with the executing agency that includes impact, outcome, and output indicators. The program's main impacts are related to increasing productivity and market access. To achieve these impacts, the program will generate the following key outcomes: (i) maintain the disease-free status; (ii) reduce the prevalence rates of endemic diseases of economic and public health importance; (iii) increase coverage of analysis of the diagnostic sample; and (iv) increase animal health services

performance. Due to the nature of the services financed as public goods, the program's beneficiaries will be the country's livestock producers (1.1 million).

1.28 **Economic viability.** An ex ante economic analysis was conducted to assess the economic viability of the proposed program. The benefits are derived from the greater diagnostic capacity and faster response times that SENASICA will be able to provide with the CNRSA. They are expected to include: (i) the pork and beef product export losses avoided as a result of maintaining the country's disease-free status for high-impact diseases such as foot-and-mouth disease and classic swine fever, as granted by the OIE, and continued demonstration that it promptly complies with the tests required to demonstrate the absence of disease to the OIE; (ii) losses avoided to cattle, hog, and avian production from a potential outbreak of a highly significant disease such as foot-and-mouth disease, classic swine fever, or highly pathogenic avian influenza; and (iii) the greater number of analyses that the CNRSA will be able to perform (other than those applied to the aforementioned diseases). The program's total annual cost includes both investment costs and the CNRSA's incremental operation and maintenance costs. The analysis used a time horizon of 20 years and a 12% discount rate. Low prices are used for the goods and services taken into account in the analysis. The program is considered economically viable, with an economic internal rate of return (EIRR) of 22.8% and net present value of US$133 million. A sensitivity analysis was performed, confirming the robustness of the results.

II. Financing Structure and Main Risks

A. Financing instruments

2.1 The program is structured as a specific investment loan to be executed over five years with the following disbursement schedule:

Table II-1. Disbursement schedule

Source	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Total	7%	37%	31%	21%	4%	100%

B. Environmental and social risks

2.2 In keeping with the Environment and Safeguards Compliance Policy (OP-703), this has been classified as a category "B" operation. During preparation, an Environmental and Social Analysis was performed. It contains the Environmental and Social Management Plan (ESMP), which includes mitigation measures for the laboratory construction and the strengthening of environmental management, which will be incorporated into the UISDC's comprehensive management system. SENASICA will be responsible for implementing the ESMP, for monitoring and following up on the measures, and for submitting the corresponding reports. Consultations will be conducted with representatives of the community and beneficiary producers.

2.3 The program is anticipated to have positive socioenvironmental impacts as a result of improvements to the country's capacity to protect animal health, as well as

positive impacts on livestock productivity. The laboratory infrastructure for the CNRSA will be built by expanding existing UISDC facilities, incorporating elements of sustainability, conservation, energy efficiency, and climate adaptation. National and international total quality, disaster prevention, and biosafety standards will be followed. The risks associated with biological contamination (risks that pathogens may escape), while minimal, are considered to be adequately controlled by the biocontainment systems the program will provide (highly controlled access, internal air circulation with no outside access, highly specialized doors, specialized staff training, etc.), as well as treatment of the liquid and solid waste handled pursuant to high-security protocols. Additionally, the UISDC operates under a comprehensive management system, with procedures and instructions based on standards for laboratory operation and systems for quality management, environmental management, and occupational health and safety, for which it is certified under a number of International Organization for Standardization (ISO) standards. SENASICA is also certified under national standards for workplace equality between men and women to promote staff diversity and gender equality. (Environmental and social management report)

C. Fiduciary risks

2.4 The Bank assessed the institutional capacity of SENASICA, which has experience executing Bank-financed projects (ME-L1045), using the Institutional Capacity Assessment System (ICAS). It found that SENASICA has adequate capacity to execute the program (weighted score of 97.5%) and therefore presents a low risk in the systems included in the evaluation, with no significant risks identified that could affect execution.

D. Other project risks and key issues

2.5 The risks were evaluated following the Bank's risk management methodology, including a risk workshop. The risk analysis identified the following medium risks: (i) SENASICA has low technical and management capacity for supervising the construction of these types of work; (ii) defects in the designs of the laboratories; (iii) the contractor building the laboratories does poor work; and (iv) escape of pathogens that could cause disease outbreaks in animals nearby to the laboratories. The following mitigation measures address the four risks identified through contracting specialized services for: (i) architectural guidance; (ii) commissioning; and (iii) supervision of the work. Commissioning involves an intensive quality control process that begins in the design phase and continues during construction and operation. It ensures the laboratory functions in accordance with the specifications of the contracting party, particularly for aspects of biosafety and biocontainment. Those managing the work are responsible for the relationship between the contractor and the work supervisor, planning and validating engineering and equipment changes, resolving technical disputes, and conducting ongoing risk analysis. During its supervision of and technical support for the operation, the IDB will pay special attention to timely compliance with the mitigation measures.

2.6 **Sustainability.** The Government of Mexico is aware of the animal and plant health system's importance as a public good and its significance to the country's economy, and has therefore been implementing a series of improvements. It recently built a BSL-2 phytosanitary laboratory that is operating satisfactorily. Also,

despite its infrastructure limitations, the operation and maintenance of the animal health laboratory (in addition to investments in improvements made in recent years) is satisfactory. As part of the CNRSA designs, SENASICA conducted a detailed study of the costs involved in its operation and maintenance. These costs, which include those for the existing reference laboratories that will be transferred to the CNRSA, account for 1.1% of SENASICA's current budget.[12] They will account for an average of 1.5% of its annual projected budget based on a 20-year projection. Regarding the sustainability of the regular staff training and control and eradication campaigns, the DGSA designs and finances annual campaigns and training programs as part of its central mandate and has regular fiscal financing. A similar funding structure will be in place once the CNRSA begins operating. (Optional links #5 and #6).

III. Implementation and Management Plan

A. Summary of implementation arrangements

3.1 **Borrower and executing agency:** The borrower will be the United Mexican States via the Finance Department (SHCP), which will designate Nacional Financiera, S.N.C. (NAFIN), as its financial agent. The executing agency will be SAGARPA through SENASICA. The program will thus be implemented within the SENASICA structure. Specifically, the Animal Health Directorate (DGSA) will take on the technical functions in the program (Technical Unit), while the Administration and Information Technology Directorate (DGAI) will act as the Program Coordinating Unit and will have a team specifically designated to carry out the program's administrative and financial activities. **As a special condition precedent to the first disbursement of the loan, evidence will be presented that the mandate and program execution contract with the borrower via the SHCP, NAFIN, SAGARPA, and SENASICA has been signed.**

3.2 For the activities under its responsibility, both directorates will designate a specific work team that will be responsible for: (i) procurement of works and goods and contracting the consulting and nonconsulting services provided for in the component; (ii) making payments; (iii) recording all procurements; (iv) maintaining accounting records and receipts for payments under the component; and (v) preparing all the technical reports required for the Bank to monitor the technical operation and for impact evaluation, as well as financial reports for consolidation and auditing. The DGAI will also be responsible to NAFIN and the Bank for: (i) promptly transferring program resources to the corresponding execution activities; (ii) consolidating the records supporting disbursement requests with the accounting records; (iii) preparing the program's consolidated progress reports; and (iv) submitting the program's consolidated and audited financial statements, via NAFIN.

3.3 As far as coordination of the program's technical units—DGSA, CENASA, CPA, CENAPA—the DGSA will be in charge of the activities of the other entities, as it is in charge of programming national epidemiological surveillance activities, both active (epidemiological sampling) and passive (disease reporting). It will also be in

[12] Operation and maintenance costs account for less than 0.1% of SAGARPA's current budget.

charge of preparing situational diagnostic plans for diseases in the country. The other units thus fall under the DGSA, which functionally divides up the work by disease type: the CPA deals with exotic diseases, CENASA with endemic diseases, and CENAPA with parasitic diseases. Under the program, the CNRSA will take over and continue to coordinate the units the same way, but from a single location and with cutting edge technology.

3.4 **Procurement.** Procurement will be conducted by SENASICA, pursuant to the provisions of the Policies for the Procurement of Works and Goods (document GN-2349-9) and the Policies for Selection and Contracting of Consultants (document GN-2350-9), both from 2011, and the public tender documents harmonized between the Government of Mexico (Civil Service Department–SFP) and the Bank. The main procurement is the building, equipping, and operation of the CNRSA, which will be accompanied by procurement for work supervision, commissioning, and architectural guidance. Once the architectural guidance, commissioning, and external supervision have been contracted, they will use their expertise to review the CNRSA bidding documents (including laboratory designs) and issue technical opinions. SENASICA will take these opinions into account to make any changes needed to the corresponding bidding documents. SENASICA has recent experience with this type of procurement (animal and plant health laboratory BSL-2).

3.5 **Financial and accounting management of the program.** SENASICA will be in charge of the accounting and financial management of the program. It will be required to: (i) maintain specific accounting and budgetary accounts for handling the proceeds of the financing; (ii) have a system in place for managing, recording, and authorizing payments of the contracts for works and for procurement of goods and consulting services; (iii) submit financial reports in a timely manner and make the accounting, financial, and other necessary information available to the Bank and the external auditors; (iv) maintain records of disbursement requests; and (v) maintain a filing system for the supporting documentation of eligible expenses for the Bank and external auditors to verify.

3.6 **Retroactive financing.** The IDB will be able to retroactively finance up to US$29 million (20% of the proposed loan amount) of eligible expenditures (charged to the loan proceeds) made by SENASICA prior to the date on which the Board of Executive Directors approves the loan, as long as requirements have been met that are substantially similar to those established in the loan contract. The expenditures must have been made on or after 9 August 2016 (the date on which the IDB approved the Project Profile of the operation), however under no circumstances may they include expenditures made more than 18 months before the approval date of the loan.

3.7 **External auditing.** The borrower by way of SENASICA and through NAFIN will, within 180 days of the close of each fiscal year, submit to the Bank the annual financial statements of the program, audited by a firm of independent auditors and as established in the terms of reference agreed upon beforehand by the Bank and the SFP. The final audit will be submitted within 180 calendar days of expiration of the original term or of any extension.

B. Summary of arrangements for results monitoring

3.8 Monitoring and Evaluation Plan. Monitoring will be carried out continuously based on the Results Matrix indicators using the following tools: The annual work plan, the execution plan, the procurement plan, semiannual progress reports, and supervision visits. The final evaluation will look at relevance, efficiency, and effectiveness as measured by a cost effectiveness analysis (in terms of objectives achieved within the allotted budget and time period), as well as an analysis of the cost of the activities implemented, compared with other possible alternatives. The evaluation will be performed within 90 days of the date by which 90% of the proceeds are disbursed.

3.9 The Monitoring and Evaluation Plan includes a description of the methodology of the impact evaluation, including the indicators to be evaluated, those responsible for collecting the information, the timeline, and the budget. The plan proposes an impact evaluation of the program that uses the synthetic control method. This method uses the weighted average of a group of observations not affected by the program to create a “synthetic control group” to get a better idea of the effects on the treatment group. The analysis will use a comprehensive database of variables correlated with the country’s economic and phytosanitary status. A preliminary analysis of the data was conducted to demonstrate the feasibility of the methodology.

Development Effectiveness Matrix			
Summary			
I. Strategic Alignment			
1. IDB Strategic Development Objectives	Aligned		
Development Challenges & Cross-cutting Themes	-Productivity and Innovation -Economic Integration		
Regional Context Indicators			
Country Development Results Indicators	-Beneficiaries of improved management and sustainable use of natural capital (#)		
2. Country Strategy Development Objectives	Aligned		
Country Strategy Results Matrix	GN-2749	Raise productivity in the agricultural sector and improve the coverage of water services for people living in rural areas .	
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	Highly Evaluable	Weight	Maximum Score
	9.3		10
3. Evidence-based Assessment & Solution	8.4	33.33%	10
3.1 Program Diagnosis	3.0		
3.2 Proposed Interventions or Solutions	2.4		
3.3 Results Matrix Quality	3.0		
4. Ex ante Economic Analysis	10.0	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	1.5		
4.5 Sensitivity Analysis	1.5		
5. Monitoring and Evaluation	9.6	33.33%	10
5.1 Monitoring Mechanisms	2.5		
5.2 Evaluation Plan	7.1		
III. Risks & Mitigation Monitoring Matrix			
Overall risks rate = magnitude of risks*likelihood	Medium		
Identified risks have been rated for magnitude and likelihood	Yes		
Mitigation measures have been identified for major risks	Yes		
Mitigation measures have indicators for tracking their implementation	Yes		
Environmental & social risk classification	B		
IV. IDB´s Role - Additionality			
The project relies on the use of country systems			
Fiduciary (VPC/FMP Criteria)	Yes	Financial Management: Budget, Treasury, Accounting and Reporting, External control. 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 results of the impact evaluation by using sythetic control will provide important information, since there is no rigorous empirical evidence to measure the effects of these interventions using control groups. It will make an important contribution to the knowledge base of the sector, the country and the Bank.	

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

The overall objective of the project is to improve the country´s health status in order to contribute to the increase of livestock productivity and access to domestic and international markets. The specific objective is to strengthen the capacity and efficiency of animal health services through updating and improving the capabilities of diagnosing diseases. One component will be implemented: Strengthening of the Diagnostics Capacity, which will support the construction, equipping, and functioning of the National Reference Center for Animal Health.

The documentation is well structured, with a solid diagnosis of the problems which are faced by the national animal health system.

The proposed solution is related to the magnitude of the problems identified. The results matrix reflects the program objectives and shows a clear vertical logic. The key top-level indicators have values that are the result of the ex-ante economic analysis. Lower level indicators reflect the design of the component. SMART indicators are included at impact, outcome and output levels with their respective baseline values, targets, and the means for collecting the information. Empirical evidence is cited for the effectiveness of similar programs; however the internal or external validity of this evidence is not discussed.

The economic analysis is based on a cost-benefit analysis. The benefits are based on maintaining the certification as a country free of Foot and Mouth Disease (FMD) and Classical Swine Fever (CSF), in a more effective control system in case of any outbreak of FMD or CSF, and the avoided cost of vaccination in states that would transition to a "Low immunization schedule." The cost-benefit analysis yields an IRR of 22.8% with a NPV of US$133 million. A set of ten sensitivity analysis is done based on key variables that can affect the main benefits and costs. The conservative scenario finds an IRR of 14% with a NPV of US$19 million.

The monitoring and evaluation plan proposes an impact evaluation using a synthetic control, which is appropriate given the nature of the intervention. The results will provide valuable information, since there is no rigorous empirical evidence to measure the effects of these interventions using control groups. 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. Mitigation actions and compliance indicators are included.

RESULTS MATRIX

Objective: The general objective is to improve the country's health status in order to contribute to increasing livestock productivity and access to domestic and international markets. The specific objective is to strengthen the capacity and efficiency of animal health services by updating and improving disease diagnostic services.

Impact	Baseline	Target (2027)	Comments
Impact 1: Maintaining livestock product markets and accessing new ones			
Indicator 1: External markets for livestock goods (number)[1]	1,179	1,400	Baseline source and year: SENASICA, 2015 Target source: SENASICA Means of verification SENASICA import and export database
Indicator 2: Value of livestock product exports (US$ million)	Live cattle = 712 Beef = 169 Pork = 395	Live cattle = 1,264 Beef = 466 Pork = 918	Baseline source and year: INEGI, average 2011-2015 Target source: SENASICA Means of verification INEGI
Impact 2: Agricultural productivity maintained and increased			
Indicator 3: Per-animal productivity: beef, pork, chicken (yield, kg/carcass)	Beef: 204.9 Pork: 76 Chicken: 1.74	Beef: 209 Pork: 76 Chicken: 1.82	Baseline source and year: FAOSTAT, average 2011-2013 Target source: SENASICA-SAGARPA projection Means of verification FAOSTAT
Indicator 4: Livestock production (thousands of metric tons)	Beef = 1,821 Pork = 1,267 Poultry = 2,841 Fish and shellfish = 1,698	Beef = 2,064 Pork = 1,677 Poultry = 3,616 Fish and shellfish = 2,112	Baseline source and year: Agriculture and Fisheries Information Service (SIAP) – SAGARPA, average 2011-2015; fish: average 2011-2013 Target source: SENASICA projection Means of verification: SIAP-SAGARPA

[1] An export market is defined as a particular product exported to a particular country. For example, bulk limes with access to 10 countries would count as 10 markets, while lime juice to the same 10 countries would count as 10 more markets.

Outcomes **Component: Component on strengthening diagnostic capacity**				
		Baseline	**Target**	**Comments**
Outcome 1: Maintaining disease-free status	Indicator 1: Maintaining country's status of being free of exotic disease (number of diseases): *Foot-and-mouth disease,* classic swine fever,* bovine spongiform encephalopathy,* Aujeszky's disease, salmonella, the screwworm fly, Newcastle disease (virulent strains).* ** With OIE certification*	7	**Program end:** 7	Baseline source and year: SIVE SENASICA reports, 2016 Target source: SENASICA Means of verification SIVE and OIE reports
Outcome 2: Increased status of free of economically important endemic diseases and diseases of public health significance	1. Brucellosis	1 disease free 6 in eradication phase	**Program end:** 3 disease free 5 in eradication phase	**Definitions** *Disease free:* Herd is disease free *Eradication phase status:* prevalence of less than 3% Baseline source and year: SIVE/SENASICA, 2016 Target source: SENASICA Means of verification SIVE-SENASICA reports
	2. Tuberculosis	25 states in eradication phase	**Program end:** 30 states in eradication phase	**Definition** *Eradication phase:* prevalence of less than 2% Baseline source and year: SIVE/SENASICA, 2016 Target source: SENASICA Means of verification SIVE-SENASICA reports

		Baseline	Target	Comments
	3. Highly pathogenic avian influenza	28 states disease free	**Program end:** 30 states disease free	**Definition** *Disease free:* No evidence of virus Baseline source and year: SIVE/SENASICA 2016 Target source: SENASICA Means of verification SIVE-SENASICA reports
Outcome 3: Improved performance of animal health services	Performance of the DGSA according to OIE-PVS (performance veterinary services)	73.8%	**Program end:** 80%	Baseline source and year: SENASICA, 2016 (self-assessment) Target source: SENASICA Means of verification OIE-PVS
Outcome 4: Beneficiaries of improved management and sustainable use of natural capital (#)	Number of livestock producers	0	**Program end:** 1.1 million	Baseline source and year: SAGARPA/SIAP, 2016. Target source: SIAP/SAGARPA Agricultural census Means of verification SAGARPA statistics
Intermediate Outcome 1: Increased coverage of analysis of diagnostic samples	Total annual number of analyses performed in reference laboratories	127,000	**Program end:** 216,000	Baseline source and year: SENASICA, average 2011-2015 Target source: SENASICA Means of verification SENASICA
Intermediate Outcome 2: Increased diagnostic capacity of reference laboratories	Number of diseases that can be diagnosed by reference laboratory	65	**Program end:** 90	Baseline source and year: SENASICA, 2016. Target source: SENASICA Means of verification SENASICA
Intermediate Outcome 3: Increased compliance with delivery times (as set by standards in service catalog) for diagnostic analyses	Percentage of compliance with time standards	84%	**Program end:** 95%	Baseline source and year: SENASICA 2016 Target source: SENASICA Means of verification SENASICA
Intermediate Outcome 4: Recognition of the CNRSA as a center that collaborates with the OIE on quality management systems	OIE recognition	0	**Program end:** 1	Baseline source and year: SENASICA, 2016. Target source: OIE Means of verification: OIE report

Outputs **Component: Strengthening diagnostic capacity**								
Outputs	**Baseline**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Target**	**Comments**
BSL-3(Ag) laboratory built, equipped, and operating in line with international quality and biosafety standards.	0	0	0	0	0	1	1	Source: SENASICA
BSL-2 laboratory built, equipped, and operating in line with international quality and biosafety standards.	0	0	0	0	1	0	1	Source: SENASICA
Storage facility built, equipped, and operating in line with international quality and biosafety standards.	0	0	0	1	0	0	1	Source: SENASICA
People trained at:								Source: SENASICA
• Government laboratories	0	80	52	83	53	82	350	
• International laboratories	0	0	20	8	20	8	56	
• Nongovernmental laboratories	0	0	100	0	100	0	200	
Quality, safety, and environmental certifications obtained by the CNRSA.	0	0	0	0	0	9	9	Source: SENASICA

FIDUCIARY AGREEMENTS AND REQUIREMENTS

Country: Mexico

Project number: ME-L1256

Name: Animal Health Improvement

Executing agency: Department of Agriculture, Livestock, Rural Development, Fisheries, and Food (SAGARPA) through the National Service for Agrifood Health, Safety, and Quality (SENASICA)

I. EXECUTIVE SUMMARY

1.1 The IDB will support the Department of Agriculture, Livestock, Rural Development, Fisheries, and Food (SAGARPA) in the construction of a National Animal Health Reference Center, to be executed by the National Service for Agrifood Health, Safety, and Quality (SENASICA).

SENASICA is responsible for agricultural health and food safety in Mexico. Its main objective is to protect agricultural resources and livestock from diseases that could affect humans and animals. It seeks to protect the safety of consumers of animal and plant products while ensuring they can be sold nationally and internationally without any restrictions or quarantines imposed by partner countries.

1.2 In order to achieve the objectives described in the main document, the component on strengthening diagnostic capacity was prepared. It will support the construction, equipping, and operation of the National Animal Health Reference Center (CNRSA). It will also support a series of capacity-building activities aimed at CNRSA staff, laboratory network staff, and animal health service staff from Central America and other countries, as well as a plan for publicizing CNRSA activities among livestock producers. The component will also include activities to supervise the work, as well as architectural guidance and commissioning for the process of building and operating the CNRSA.

II. THE EXECUTING AGENCY'S FIDUCIARY CONTEXT

2.1 The executing agency will be SAGARPA through SENASICA—more specifically, through the Directorate for Animal Health (Technical Unit) in coordination with the Directorate for Administration and Information Technology (Coordinating Unit). The Bank updated SENASICA's Institutional Capacity Assessment (ICAS) in March 2011 for the Program to Strengthen Rural Public Goods (2547-OC/ME) to support the proposed execution model.

III. Fiduciary Risk Evaluation and Mitigation Actions

3.1 Application of the ICAS returned a total weighted score of 97.51%, demonstrating that SAGARPA's fiduciary systems are adequately developed and present a low execution risk according to the risk evaluation (PRM).

Consolidation of Institutional Capacity Assessment Results

Consolidation of capacity results	Score			Development (ND, LD, MD, SD)	Risk Level (HR, SR, MR, LR)
	Qualification %	IR %	Weighted %		
Programming and organization capacity	96.66	25	24.17	SD	LR
Execution capacity	100.00	45	45.00	SD	LR
Internal and external control capacity	94.48	30	28.34	SD	LR
Total		**100**	**97.51**	**SD**	**LR**

IV. Considerations for the Special Provisions of the Loan Contract

4.1 The exchange rate for reporting will be that of the last working day of the month prior to the date on which payments are made.

4.2 SAGARPA will submit an audited financial report annually during the execution period within 120 days following the end of the fiscal year, plus a final audited financial report 120 days after the final disbursement. (See section 5)

V. Agreements and Requirements for Procurement Execution

5.1 All procurement will be conducted by SENASICA, which will apply the provisions of the Policies for the Procurement of Goods and Works (document GN-2349-9) and the Policies for the Selection and Contracting of Consultants (document GN-2350-9), both from 2011. If they are amended, the new version may be applied provided the executing agency accepts this in writing.

5.2 **Procurement of works, goods, and nonconsulting services:** Works, goods, and nonconsulting services contracts generated under the project and subject to international competitive bidding (ICB), as well as tenders subject to national competitive bidding (NCB), will be executed using bidding documents harmonized between the SFP and the Bank, available at: http://www.funcionpublica.gob.mx/unaopspf/credito/normace.htm.

The project's sector specialist is responsible for reviewing the technical specifications for procurement when selection processes are being prepared.

5.3 **Selection and contracting of individual consultants:**

a. **Consulting services contracts signed with firms** will be executed using the standard request for proposals agreed upon between the Bank and the SFP. It can be viewed at: http://www.funcionpublica.gob.mx/unaopspf/credito/normace.htm.

Announcements of consulting contracts worth more than US$200,000 will be published internationally, and for those worth less than US$500,000, the shortlist can include only national firms.

b. **Selection of individual consultants:** Consulting services contracts with individual consultants will take into account their qualifications to do the work based on comparison with the qualifications of at least three candidates. The contracting will be performed using the model for contracting individual consultants agreed upon by the SFP and the Bank, which can be viewed at: http://www.funcionpublica.gob.mx/unaopspf/credito/normace.htm.

The project's sector specialist is responsible for reviewing the terms of reference for contracting consultant services.

5.4 **Use of country procurement system:** In February 2013, the Bank's Board of Executive Directors agreed to increase use of Mexico's public procurement and contracting system (adoption of Mexico's public contracting system) in keeping with the provisions of the updated country strategy (document GN-2595-3).[1] The system can be used once the corresponding implementation agreement has been signed with the Mexican government.

Table of threshold amounts for procurement (US$)

Works			Goods[2]			Consultancy	
International competitive bidding	National competitive bidding	Shopping	International competitive bidding	National competitive bidding	Shopping	Announcement of international consultancy	Shortlist 100% National
>15,000,000	<15,000,000 and >500,000	<500,000	≥3,000,000	<3,000,000 ≥100,000	<100,000	>200,000	<500,000

5.5 **Main procurements:**

- An ICB for building, equipping, and operating the National Animal Health Reference Center for approximately US$119,878,974.18.
- The contracting of nonconsulting services for external supervision of the construction, equipping, and operation of the National Animal Health Reference Center for an approximate amount of US$3,581,247.18.

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[1] Mexico's federal public contracting system will be used for all contracts for amounts up to the threshold established by the Bank for use of ICB in procurement of works (US$15 million) and goods and services (US$3 million). For amounts higher than this, the Bank policies established in documents GN-2349-9 and GN-2350-9 will be applied. The system cannot be used for the following: (i) consulting services contracts; (ii) PEMEX contracts; (iii) contracts under state and municipal laws; and (iv) direct contracts between public entities (inter-administrative contracts). Federal system provisions on the exclusion of foreigners and degree of national integration also do not apply.

[2] Includes nonconsulting services.

- Consulting services provided by a firm for technical assistance and quality control during the building, equipping, and operating the National Animal Health Reference Center for approximately US$8,706,246.15.
- The plan is also to contract training for CNRSA staff, laboratory network staff, and animal health service staff from Central America and other countries for approximately US$461,538.46

5.6 **Supervision and procurement plan:** Based on the low risk rating of the institutional assessment, procurement will be reviewed ex post, except when ex ante review is expressly called for in the procurement plan and for specific cases. SENASICA has experience with procurement that is complex and similar to the main procurements indicated. In any case, and where necessary, the Bank can conduct training on procurement, as well as provide guidance and support for procurement execution. The procurement plan can be reviewed and updated at any time.

5.7 **Records and procurement archives:** The archives must be available for any procurement review that the Bank may deem pertinent.

VI. Financial Management Agreements and Requirements

1. Programming and budget

6.1 Because all the projects developed by the Mexican government, including those financed by international organizations, fall under the budgets assigned to its departments and entities, each public institution is required to conduct internal oversight on the matter. For SAGARPA and SENASICA, this control is performed through SAGARPA's national Budget and Accounting System (SIPREC).

6.2 The executing agency's functions, programs, and projects are incorporated into its annual expenditures budget; the executing agency is assigned its expenditure budget in an annual programming/budgeting exercise. The functions of programming, budget and expense control, and accounting and reporting based on financial information are governed by a variety of regulations issued mainly by the SHCP. This ensures that standards for record-keeping and use of the systems established are coherent.

2. Accounting and information systems

6.3 SAGARPA and SENASICA perform the budgetary and accounting control through SIPREC. They are also incorporating the government resource planning (GRP) system, which provides an opportunity to oversee the institution's operation records on its budget, finances, accounting, procurement, fixed assets, services, storage, human resources, training, payroll, travel, and compensation. It should be noted that the SHCP has implemented a comprehensive budgetary accounting system (SICOP) that all the offices of the Federal Civil Service are required to use to process budgetary, payment, and accounting transactions. It brings recording and control of financial information together in one place. SIPREC, GRP, and SICOP are institutional systems that are in line with the SHCP's system for internally processing transactions.

3. Disbursements, flow of funds

6.4 The disbursements will be made pursuant to the methodology for reimbursement of expenditures. SAGARPA will submit details of the transfers to the IDB. They will then be reviewed ex post.

4. Internal control and internal audit

6.5 SAGARPA has a head of the Internal Control Body, designated by the SFP, whose job is to inspect, supervise, and impress upon the institution the good governance agenda based on transparency, accountability, and strict regulatory compliance, following the requirements of the SFP and other applicable regulations. The exercise, oversight, and evaluation of federal public spending are fundamentally conducted under the provisions of the Expenditure Budget of the Federation and the Federal Budget and Treasury Responsibility Act and its regulations.

5. Retroactive financing

6.6 The IDB will be able to retroactively finance up to US$29 million (20% of the proposed loan amount) of eligible expenditures (charged to the loan proceeds) made by SENASICA prior to the date on which the Board of Executive Directors approves the loan, as long as requirements have been met that are substantially similar to those established in the loan contract. The expenditures must have been made on or after 9 August 2016 (the date on which the IDB approved the Project Profile of the operation), however under no circumstances may they include expenditures made more than 18 months before the approval date of the loan.

6. External control and reporting

6.7 **Audits:** Within 120 days after the end of every fiscal year, SAGARPA will submit audited financial reports. The auditing firm will be designated by the SFP with the IDB's no objection. Review of the auditing work will be conducted based on the terms of reference agreed upon by the IDB, SAGARPA, and the SFP.

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-___/16

Mexico. Loan ____/OC-ME to the United Mexican States
Animal Health Improvement

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 United Mexican States, as Borrower, for the purpose of granting it a financing to cooperate in the execution of an animal health improvement program. Such financing will be for the amount of up to US$145,000,000 from the resources of the Bank's Ordinary Capital, and will be subject to the Financial Terms and Conditions and the Special Contractual Conditions of the Project Summary of the Loan Proposal.

(Adopted on __ _____ 2016)

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