

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

**PANAMA**

**SANITATION PROGRAM FOR THE DISTRICTS OF ARRAIJÁN AND  
LA CHORRERA - STAGE I**

**(PN-L1121)**

**LOAN PROPOSAL**

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5. <a href="#">Environmental and Social Management Report (ESMR)</a>
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## ABBREVIATIONS

AAUD	Autoridad de Aseo Urbano y Domiciliario de Panamá [Urban and Residential Sanitation Authority]
AECID	Spanish Agency for International Development Cooperation
ASEP	Autoridad Nacional de Servicios Públicos [National Public Utilities Authority]
AWP	Annual work plan
BOD	Biochemical oxygen demand
CABEI	Central American Bank for Economic Integration
CAF	Andean Development Corporation
CGR	Contraloría General de la República [Office of the Comptroller General]
CUT	Cuenta Única del Tesoro [Unified Treasury Account]
DISAPAS	Dirección del Subsector de Agua Potable y Alcantarillado Sanitario [Water and Sewer Subsector Directorate]
EIA	Environmental impact assessment
EIB	European Investment Bank
EIRR	Economic internal rate of return
ESMP	Environmental and social management plan
ESMR	Environmental and social management report
IDAAN	Instituto de Acueductos y Alcantarillados Nacionales [National Water and Sewer Institute]
JICA	Japan International Cooperation Agency
MEF	Ministry of Economy and Finance
MiAmbiente	Ministry of the Environment
MINSA	Ministry of Health
NPV	Net present value
OEL	Optional electronic link
REL	Required electronic link
SIG	Sistema Integrado de Gestión [Integrated Management System]
UCPSP	Unidad Coordinadora del Programa de Saneamiento de Panamá [Panama Sanitation Program Coordination Unit]
WAL	Weighted average life

## PROJECT SUMMARY

### PANAMA SANITATION PROGRAM FOR THE DISTRICTS OF ARRAIJÁN AND LA CHORRERA - STAGE I (PN-L1121)

Financial terms and conditions				
<b>Borrower:</b> Republic of Panama			<b>Flexible Financing Facility<sup>(a)</sup></b>	
			<b>Amortization period:</b>	20 years
<b>Executing agency:</b> Ministry of Health (MINSa) through the Panama Sanitation Program Coordination Unit (UCPSP)			<b>Original WAL:</b>	13.25 years
			<b>Disbursement period:</b>	6 years
<b>Source</b>	<b>Amount US\$</b>	<b>%</b>	<b>Grace period:</b>	6.5 years
<b>IDB (Ordinary Capital)</b>	150,000,000	23.4	<b>Inspection and supervision fee:</b>	(c)
<b>Parallel financing</b>			<b>Interest rate:</b>	LIBOR-based
<b>CAF</b>	50,000,000	7.8		
<b>EIB</b>	50,000,000	7.8		
<b>CABEI</b>	100,000,000	15.6	<b>Credit fee:</b>	(c)
<b>AECID<sup>(b)</sup></b>	50,000,000	7.8		
<b>Local</b>	240,123,158	37.6	<b>Currency of approval:</b> U.S. dollars from the Ordinary Capital	
<b>Total</b>	640,123,158	100.0		
Project at a glance				
<p><b>Program objective and description:</b> The general objective is to help improve sanitary conditions and reduce pollution in urban waterways and rivers in the districts of Arraiján and La Chorrera. The specific objectives are to: (i) increase sewer and wastewater treatment coverage in the program's area of intervention; (ii) help build capacity for the management of works and sustainability in the sector; and (iii) promote the proper operation of the sewer system through comprehensive environmental and sanitation education interventions.</p>				
<p><b>Special contractual conditions precedent to the first disbursement of the loan:</b> (i) presentation of the multiyear execution plan, the procurement plan, and the financial plan for the program; and (ii) approval and entry into effect of the program Operating Regulations, in accordance with the terms agreed upon with the Bank (paragraph 3.3).</p> <p><b>Special contractual conditions for execution:</b> (i) prior to the start of each of the works identified in Component I, signature and entry into effect of the contract with the management company or companies; (ii) prior to the start of the activity to support the sector sustainability committee with interagency coordination of the sector, identified in Component II, evidence that the committee has been established; (iii) prior to the start of the activity to strengthen the Water and Sewer Subsector Directorate (DISAPAS), identified in Component II, appointment of at least two DISAPAS staff members to work full time on implementation of that activity; and (iv) by the end of the first year of project execution at the latest, presentation of a report analyzing alternatives that contains structural proposals for the sustainability of the sanitation sector, as a condition precedent to the use of the Component II resources assigned to the activities described in paragraph 1.34 (vii). Additional special execution conditions are presented in sections 7.1 to 7.3 of the ESMR (paragraph 3.3).</p>				
<p><b>Exceptions to Bank policies:</b> Since the EIB will participate with parallel financing and the IDB's procurement policies (documents GN-2349-9 and GN-2350-9) will be used, the Board of Executive Directors is asked to waive the eligibility requirements of those policies, in order to enable companies from European Union countries that are not members of the IDB to compete for contracts for which the EIB provides parallel funding (paragraph 3.8).</p>				

Strategic alignment			
<b>Challenges:</b> <sup>(d)</sup>	SI <input checked="" type="checkbox"/>	PI <input type="checkbox"/>	EI <input type="checkbox"/>
<b>Crosscutting issues:</b> <sup>(e)</sup>	GD <input type="checkbox"/>	CC <input checked="" type="checkbox"/>	IC <input type="checkbox"/>

- <sup>(a)</sup> Under the Flexible Financing Facility (document FN-655-1), the borrower has the option of requesting changes to the amortization schedule, as well as currency and interest rate conversions. The Bank will take operational and risk management considerations into account when reviewing such requests.
- <sup>(b)</sup> The resources will come from a loan from the Kingdom of Spain financed by FONPRODE, which is an AECID fund created by Law 36/2010.
- <sup>(c)</sup> The credit fee and inspection and supervision fee will be established periodically by the Board of Executive Directors as part of its review of the Bank's lending charges, in accordance with applicable policies.
- <sup>(d)</sup> SI (Social Inclusion and Equality); PI (Productivity and Innovation); and EI (Economic Integration).
- <sup>(e)</sup> GD (Gender Equality and Diversity); CC (Climate Change and Environmental Sustainability); and IC (Institutional Capacity and Rule of Law).

## I. DESCRIPTION AND RESULTS MONITORING

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

- 1.1 **Sector indicators.** In 2015, Panama had an estimated population of 3.97 million, with 67% living in urban areas and 33% in rural ones.<sup>1,2</sup> Safe drinking water is provided in 98.2% of urban areas and 75.5% of rural areas. Nationally, access to sanitation is 93.4%, with 30.3% of the population connected to sewer systems, 29.7% to septic tanks, and 33.4% to latrines.
- 1.2 **Sector institutional framework.** Decree Law 2 of 27 January 1997 establishes the institutional and regulatory framework for water and sanitation services, assigning responsibility for sector leadership and planning to the Ministry of Health (MINSa), through the Water and Sewer Subsector Directorate (DISAPAS); regulation and oversight to the National Public Utilities Authority (ASEP); and delivery of services in areas with more than 1,500 people to the National Water and Sewer Institute (IDAAN). Rural water boards, with technical assistance from MINSa, provide service in communities with fewer than 1,500 people ([OEL#3](#)).
- 1.3 In addition, MINSa's Panama Sanitation Program Coordination Unit (UCPSP), established by Executive Decree 144 of 20 June 2001, executes and operates infrastructure under the Panama City and Bay Sanitation Program. Executive Decree 18 of 3 March 2016 ([OEL#8](#)) made it responsible for executing and operating sanitation works in other parts of the country, including the province of Panamá Oeste, the area targeted by the proposed program.
- 1.4 **Panama City and Bay Sanitation Program.** In accordance with the guidelines of the consolidated master plan for Panama City and Bay (2001-2004) and its update (2015), the UCPSP has been implementing the Panama City and Bay Sanitation Program for the last 10 years, with financing from the Inter-American Development Bank (paragraph 1.25), the Andean Development Corporation (CAF), the Japan International Cooperation Agency (JICA), the European Investment Bank (EIB), the OPEC Fund for International Development (OFID), and national funds. Its first stage is nearing completion and involved an investment of US\$1.240 billion in the Panama City metropolitan area. Under this program, sewer laterals and connections were built in low-income neighborhoods, as well as sewer mains and interceptors to eliminate most of the discharges into rivers, streams, and the bay. The first module of the Juan Díaz Sewage Treatment Plant was also built. A second stage financed by the IDB, CAF, and the EIB is expanding the Juan Díaz Sewage Treatment Plant and other sewer main line works. That program will treat the sewage of 235,018 households, connect 25,605 new households, and reduce pollution in the rivers and Panama Bay.
- 1.5 The Arraiján and La Chorrera districts in the province of Panamá Oeste are located in the approach to Panama City, about 35 kilometers to its east. The districts have

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<sup>1</sup> National Statistics and Census Institute. Bulletin No. 16. *Estimaciones y proyecciones de la Población Total del País, por Provincia, Comarca Indígena, Distrito y corregimiento, según sexo y edad: años 2010-2020.*

<sup>2</sup> <http://datos.bancomundial.org/indicador/SP.URB.TOTL.IN.ZS>.

a combined population of 464,000,<sup>3</sup> with 22% living below the poverty line.<sup>4</sup> A full 98.5% of this population has access to drinking water, but only 37.5% to sanitary sewers.

- 1.6 Depletion of undeveloped land for residential uses and the high cost of buying and renting housing in Panama City have prompted an increasing number of people to move to the outskirts of the metropolitan area, particularly to the districts of Arraiján and La Chorrera. This trend, coupled with migration from the countryside to the city, has led to significant population growth in the last 10 years, which has settled in formal and informal barrios or developments. This growth has been accompanied by investments in urban infrastructure, such as expansion of the Inter-American Highway, new water projects, 185 planned housing developments,<sup>5</sup> shopping centers, the Panama Pacific International Logistics Hub, future metro line 3, and the fourth bridge over the Panama Canal. However, growth in sanitation infrastructure has not kept pace with this growth.
- 1.7 **Sanitation system in the districts of Arraiján and La Chorrera:** The resident population and industrial and commercial establishments generate a daily volume of sewage on the order of 114,000 cubic meters (1.3 cubic meters/second), most of which is dumped untreated into rivers running through the urban areas of the districts of Arraiján and La Chorrera or directly into Panama Bay.
- 1.8 To alleviate this situation, in 2002, the Panamanian government regulated the obligation to build small sewage treatment plants for new buildings and developments.<sup>6</sup> The solution has been limited in scope, inefficient on account of its high cost, and ineffective in the medium term since the small plants are generally not operated properly and are difficult to control and monitor.<sup>7</sup> As a result, the main rivers in the districts of Arraiján and La Chorrera (Caimito, Aguacate, Prudente, Bernardino, Martín Sánchez, and Perequetecito) are polluted by extremely high levels of organic and bacterial contaminants.<sup>8</sup> Pollution in the rivers becomes worse in the summer months since the water in the rivers and streams is not as diluted as in the rainy season.

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<sup>3</sup> 2015 population estimate, with 86% urban. The district of Arraiján has one of the highest inter-census growth rates in the country. Over the last decade, different industries in a wide variety of activities, including energy production and mining, have set up operations in these districts, spurring economic growth.

<sup>4</sup> Panama's poverty line is US\$400 per month and per household.

<sup>5</sup> Ministry of Housing and Land Management. *Listado de Urbanizaciones por Provincias y Distritos, Años 2007-2016*.

<sup>6</sup> Resolution AG-0026-2002 of 30 January 2002, establishing timetables for categorization and upgrading to meet the technical regulations governing sewage discharges, DGNTI-COPANIT 35-2000 and DGNTI-COPANIT 39-2000.

<sup>7</sup> In total, 106 small secondary treatment plants and 124 primary treatments plants have been built; 53% of the primary treatment systems have collapsed.

<sup>8</sup> Concentrations exceed the limits established for continental waters for recreational use in Executive Decree 75/2008 in BOD5, dissolved oxygen, and fecal coliforms. Preliminary sampling performed for the program in the dry season indicates that the volumes of BOD5 in mg/l, dissolved oxygen in mg/l and fecal coliforms in NMP/100 ml for these rivers are: Caimito, 16.1, 5.6, and 31,000; Aguacate, 19.5, 5.10, and 110,000; Prudente, 88.5, 4.20, and 265,000; Bernardino, 29.0, 5.60, and 130,000; Martín Sánchez, 33.4, 6.40, and 200,000; and Perequetecito, 37.80, 5.30, and 12,000. The proposed program will establish a baseline for both the rainy and dry seasons and a water-quality monitoring system.



- 1.9 The total length of the sanitary sewer system in the urban areas of the districts of Arraiján and La Chorrera is 820 kilometers, 36% of which has been built in housing developments in the last five years<sup>9</sup> where 27% of the population lives. In general, the systems are: (i) deficient; (ii) old, with some dating from 1941; (iii) deteriorated, with insufficient hydraulic capacity; and (iv) connected to storm sewers, which causes sewage to overflow into streets, streams, and rivers at different points in the districts of Arraiján and La Chorrera.
- 1.10 The rest of the population that has no sanitary sewers uses individual septic tanks<sup>10</sup> (32.5%) which are often collapsed and which overflow, or latrines (28.7%), or they discharge their waste directly into small waterways or ditches along public roads.
- 1.11 A total of 111 industries have been identified in the districts of Arraiján and La Chorrera, whose activities generate contaminated waste that is discharged either into the sewer system or directly into rivers and streams, without complying with Ministry of the Environment (MiAmbiente) regulations governing these cases.
- 1.12 The sanitary situation in the districts of Arraiján and La Chorrera<sup>11</sup> has created concern among MINSA and municipal authorities because of the noxious odors, the visible environmental deterioration, and the potential public health risks. Accordingly, working through the UCPSP, they have begun to implement the Arraiján and La Chorrera Sanitation Program.
- 1.13 **Arraiján and La Chorrera Sanitation Program.** The program's area of intervention covers 308 square kilometers and does not include the areas known as Burunga and Arraiján Cabecera, which are being targeted by a different program, or other isolated urban areas with their own independent water and treatment solutions.<sup>12</sup> In 2015, technical feasibility studies and basic designs were begun in order to prepare the master sanitation plan for the districts. The master plan will cover a total of 317,900 urban residents, 25% of whom live below the poverty line. Fifty percent are connected to sanitary sewers, but just 47.5% of this population's wastewater is processed through a treatment system of some kind, and those systems either operate defectively, have collapsed, or are out of service. The master plan calls for a series of comprehensive interventions to rehabilitate, expand, and/or build sewer laterals and connections, build sewer mains to capture wastewater discharges that are either dumped directly or dumped after processing (small sewage treatment plants, Imhoff tanks, etc.) into streams and rivers, and convey those discharges through an interceptor sewer to a central sewage treatment plant for the study area that provides secondary treatment, removing nutrients and bringing the effluents up to national standards, which will markedly

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<sup>9</sup> Groups of single-family houses built by private developers.

<sup>10</sup> Septic tanks have serious limitations when population density increases with urban development (whereas in rural areas, they may be the best solution).

<sup>11</sup> This situation has been reported in the study *Metropolitan Panama: Sustainable, Human, and Global*, prepared as part of the IDB's Emerging and Sustainable Cities Initiative.

<sup>12</sup> World Bank. Project P154275. Burunga and Arraiján Cabecera Wastewater Management Project, which will cover the subdistricts of Arraiján Cabecera, Burunga, and Cerro Silvestre.

- improve the quality of the treated wastewater.<sup>13</sup> Owing to the scope and expected costs of the master sanitation plan, it has been divided into two stages, with the operation proposed here being stage I.
- 1.14 **Stage I of the Arraiján and La Chorrera master sanitation plan** will cover an area with a current population of 188,500 people living in roughly 229 barrios and developments. Stage I will build a total of 324 kilometers of sewer laterals, install 16,800 new residential connections including retrofits, build 65 kilometers of sewer mains and connect them to lateral systems serving 49,000 households that currently discharge into rivers, and build one interceptor/tunnel measuring 6.6 kilometers that conveys sewage from the sewer mains to the Caimito Sewage Treatment Plant.<sup>14</sup>
  - 1.15 Stage I of the Arraiján and La Chorrera Sanitation Program includes the operation and maintenance costs of the infrastructure, including the sewage treatment plant. Operation and maintenance will be performed through contracts with third parties and administered by the UCPSP.
  - 1.16 Studies and interventions are also proposed that will help to: (i) eliminate cross-connections with storm sewers; (ii) control and monitor to ensure that industrial waste discharged into the existing sewer system and into rivers complies with environmental rules and regulations; (iii) control and monitor the water quality of the rivers to evaluate the program's impact; and (iv) continue supporting the program to reduce water consumption through a public awareness campaign on saving water.
  - 1.17 Given the presence of solid waste in and along the banks of rivers, Stage I of the Arraiján and La Chorrera Sanitation Program will include awareness-raising and education activities about proper solid waste management, to be executed in coordination with Panama's Urban and Residential Sanitation Authority (AAUD), the municipios, and the communities.
  - 1.18 Stage I also includes works that in addition to protecting the rights-of-way of the sewer lines, will create recreational spaces in certain strategic areas along the banks of the rivers, whose water quality will be improved as a result of the program.
  - 1.19 **Sustainability of the infrastructure of the Panama City and Bay and Arraiján and La Chorrera Sanitation Programs.** The National Water and Sewer Institute (IDAAN), which is responsible by law for delivering water and sanitation services on the national level, has been experiencing major challenges in its management indicators, including: (i) an average operating cost coverage index (last three years) of 80%, with subsidies from the Panamanian government to cover its

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<sup>13</sup> The type of project proposed for the sewage treatment plant complies with effluent quality standards. There is considerable literature on the topic: Technical Note IDB-TN-970, "Wastewater treatment in Brazil," Marcos Von Sperling, August 2016, and evidence of the results of the Juan Diaz sewage treatment plant, which is currently receiving the expected flow and discharging an effluent of the expected quality. This plant is reducing BOD by about 90%.

<sup>14</sup> Capacity (to be adjusted in the detailed designs) projected for 2030. The plant will be located on the banks of the Caimito River, about 4 kilometers upstream from the mouth of the river, where it flows into Vacamonte Bay. The UCPSP has a contract to purchase the land for the plant.

- investments and the operating deficit; (ii) water rates that have not been updated for a long time; (iii) high levels of unaccounted-for water (48%); (iv) inadequate system for information, monitoring, and quality control of treated water; (v) low levels of micrometering (68%); and (vi) weak operating capacity to manage its systems ([OEL#3](#)).
- 1.20 While IDAAN is being strengthened, the UCPSP will continue to build and operate the works for the Panama City and Bay Sanitation Program and for Stage I of the Arraiján and La Chorrera Sanitation Program, in accordance with Executive Decree 18 of 3 March 2016 ([OEL#8](#)), which authorizes it to do so. It should be noted that IDAAN, through its Transformation and Modernization Unit, has been designing a strengthening and modernization strategy and is implementing a short- and medium-term modernization and action plan (paragraph 2.12).
- 1.21 Under operations 3506-OC/PN and 3506/CH-PN, IDAAN signed an agreement with MINSA/UCPSP on 18 June 2015 ([OEL#9](#)) in which it delegates to the UCPSP operation and maintenance of the infrastructure that the UCPSP builds and manages in the Panama City metropolitan area and other parts of the country (including the Arraiján and La Chorrera districts). The assignment is for 10 years, with the expectation that IDAAN will be strengthened over that period.
- 1.22 With the support of operations 3506-OC/PN and 3506/CH-PN, the UCPSP has been implementing an integrated management system since 2015 to strengthen its capacity to administer and supervise the execution of projects being managed by private parties, as well as operation and maintenance contracted out to third parties ([OEL#4](#)).
- 1.23 For the above reasons, the program (paragraph 1.34), working within the legal and institutional framework for the sector, will support actions to more clearly define the roles, responsibilities, and levels of coordination between IDAAN and the UCPSP. The idea is to improve the quality of services and have the necessary financing instruments in place (updated proposal for water, sewer, and treatment rates) that will allow the Panamanian government to make decisions that will, at a minimum, guarantee recovery of the operation and maintenance costs of the sewer systems and sewage treatment plants in the medium and long terms. Actions to make the sector sustainable will be implemented under the leadership, coordination, and monitoring of a sector sustainability committee to be established by MINSA (paragraph 3.2).
- 1.24 **Bank support in the sector.** The Bank is executing the following loan operations: (i) Panama City and Bay Sanitation Project, Phase I (1719/OC-PN-1) and Phase II (3506-OC/PN and 3506/CH-PN); (ii) Multiphase Program for the Sustainable Development of Colón Province (Phase I) and Chiriquí Province (Phase II) (2025/OC-PN-1 and -2); (iii) IDAAN Water and Sanitation Multiphase Investment Program, Phases I and II (2367/OC-PN, 3002/OC-PN); and a technical cooperation project to support the program for reform and modernization of the sector and IDAAN, phase I (ATN/OC-14558-PN). As well, the Rural and Indigenous Water and Sanitation Program in Panama (GRT/WS-13329-PN) is being executed with resources from the Spanish Cooperation Fund for Water and Sanitation in Latin America and the Caribbean. These operations are helping to improve the quality of service for 428,000 people in urban areas, provide water and sanitation for 43,000 people in rural and indigenous areas, clean and restore

105 kilometers of streams, rivers, and coastline in the Panama City metropolitan area, and treat sewage for 820,000 people. The situation in the sector and at IDAAN has been studied, on the basis of which problems and challenges and the plans and actions needed to address them have been identified.

- 1.25 **Execution status of loans 1719/OC-PN-1, 3506-OC/PN, and 3506/CH-PN.** Since 2006, the UCPSP has been satisfactorily implementing the first phase of the Panama City and Bay Sanitation Program, under operations 1719/OC-PN (completed in 2014) and 1719/OC-PN-1, which is expected to conclude in December 2016. Execution of the second phase of the program is under way, with financing from operations 3506/OC-PN and 3506/CH-PN, approved in July 2015. A significant percentage of the funds for those operations are expected to be committed by the end of 2016.
- 1.26 **Lessons learned.** This operation has taken into account the lessons learned from operations 1719/OC-PN, 1719/OC-PN-1, 3506-OC/PN, and 3506/CH-PN, as follows: (i) the high level of managerial and technical capacity at the UCPSP, the stability of its staff, and its commitment to the program, which is the result of the technical and financial support provided by multilateral institutions since 2006, have allowed this operation, which is very complex in terms of studies, designs, and financing amounts and structure (five lenders), to be structured in six months; (ii) the challenges involved in laying sewer mains in the operations described above, which were redesigned owing to changes in land use, made it necessary to carry out these types of projects under a design-build arrangement, which will be used in the proposed operation to speed up execution; (iii) execution of the communication and citizen participation strategy minimized public resistance to construction of the works, and this lesson has been applied in the preparation and future execution of the proposed operation; and (iv) works to retrofit self-contained individual systems simultaneously with the construction of the larger public systems will be included in the proposed operation, ensuring that 100% of the beneficiaries are actually connected to the new systems.
- 1.27 **Program design.** The Panamanian government has asked the Bank for a loan in the amount of US\$150 million to implement Stage I of the Arraiján and La Chorrera Sanitation Program. The program calls for activities to: (i) increase the sewage collection, conveyance, and treatment capacity of the system in the area targeted by the Arraiján and La Chorrera Sanitation Program; (ii) reduce pollution in streams, rivers, and the bay; and (iii) finance studies or activities to improve the management and the operation and maintenance of the sewer system, making it more reliable, efficient, and sustainable. As a result of these interventions, it is expected that 16,800 households will have new connections, the wastewater generated by 65,800 households will be effectively treated, and the pollutant load in the districts of Arraiján and La Chorrera will be reduced by about 40%, measured in BOD5. The program will cost US\$640,123,158, of which 23.4% will be financed by the IDB, 7.8% by CAF, 7.8% by the EIB, 7.8% by the AECID, 15.6% by CABEI, and 37.6% by the government counterpart. The IDB, together with the UCPSP and in coordination with the other lenders, has been leading efforts to prepare and structure the operation, including each lender's share in financing the works.

- 1.28 **National strategy.** In its Strategic Five-Year Plan 2015-2019,<sup>15</sup> the Panamanian government has identified the water and sanitation sector as one of its priorities and implemented the Basic Sanitation Plan 100/0 to increase coverage and improve quality and management in the delivery of services. The plan includes important activities to expand infrastructure and improve the quality of sanitation services through the UCPSP.
- 1.29 **Strategic alignment.** The program is consistent with the Bank's country strategy with Panama for 2015-2019 (document GN-2838) inasmuch as it contributes to the strategic objective to "improve the delivery of basic services to population segments living in poverty" through actions to increase sanitary sewer coverage in urban and peri-urban zones, which will close the gaps in access and in the quality of the service in both urban and rural areas and strengthen the sector's organizational model and its financing mechanisms. It is also consistent with the objectives of the Water and Sanitation Sector Framework Document (document GN-2781-3) in Dimension of Success 1: "Countries achieve universal access to water and sanitation while improving service quality." The program is included in the Operational Program Report 2016 (document GN-2849).
- 1.30 The program is consistent with the Update to the Institutional Strategy 2010-2020 (document AB-3008) and aligned with the development challenges of social inclusion and equality through the provision of more inclusive infrastructure, which will increase the number of households with access to sewer systems, increase the number whose sewage is treated, and improve the quality of water and sewer services. This will help narrow gaps in access and quality. The program is also aligned with the crosscutting area of climate change and environmental sustainability, given that it includes works to improve sewage collection and treatment. In addition, the program is aligned with the Corporate Results Framework 2016-2019 (document GN-2727-6) through the indicators "households with new or upgraded access to sanitation" and "households with wastewater treatment." It is also aligned with the Strategy for Sustainable Infrastructure for Competitiveness and Inclusive Growth (document GN-2710-5), inasmuch it helps to: (i) promote access to services and ongoing improvements in infrastructure governance; and (ii) support the construction and maintenance of environmentally and socially sustainable infrastructure.
- 1.31 **Consistency with Bank policies.** This operation and the national objectives for the sector meet the conditions relating to financial sustainability and economic evaluation established in the Public Utilities Policies (document GN-2716-6) and are consistent with its principles, given that: (i) the operation and maintenance costs of the Panama City and Bay and Arraiján and La Chorrera Sanitation Programs are currently covered out of national budget allocations, made in a specific and transparent matter, with the objective of expanding sewerage and wastewater treatment coverage (paragraph 2.13); (ii) there is a plan in place to improve the operating and financial sustainability of IDAAN in the years ahead (paragraph 2.12) that the Bank has been supporting through various operations (paragraph 1.24); and (iii) program funds will be used to strengthen the lead agency and implement actions to support sector sustainability (paragraph 1.34).

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<sup>15</sup> See [link](#).

The works to be financed under the program are also feasible from the socioeconomic standpoint (paragraph 2.10) ([OEL#5](#)).

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

- 1.32 **Objectives.** The general objective is to help improve sanitary conditions and reduce pollution in urban waterways and rivers in the districts of Arraiján and La Chorrera. The specific objectives are to: (i) increase wastewater treatment coverage in the program's area of intervention; (ii) help build capacity for the management of works and sustainability in the sector; and (iii) promote the proper operation of the sewer system through comprehensive environmental and sanitation education interventions. The program consists of the following components.
- 1.33 **Component I: Priority investments.** The Bank and the local counterpart will finance studies, designs, and supervision of the program works. The Bank, along with the EIB, CAF, CABEI, AECID, and the local counterpart, will finance the Prudente, Aguacate, Bernardino, Martín Sánchez 1 and 2, Caimito 1 and 2, and Rodeo sewer mains, for a total of 65 kilometers; the construction of a 6.6 kilometer interceptor tunnel measuring 1.8 meters in diameter; and the final design and construction of the first module of the Caimito Sewage Treatment Plant with the capacity to treat 1.35 cubic meters per second.<sup>16</sup> The sewer laterals, including retrofits (sewage and greywater) and indoor connections, will be financed by the other lenders and the local counterpart ([OEL#1](#)).
- 1.34 **Component II: Institutional strengthening.** The following actions will be financed, in conjunction with CAF and the local counterpart: (i) support for the management and the operation and maintenance capacity of the UCPSP (completion of installation of the Integrated Management System (SIG) and training activities); (ii) support for the sector sustainability committee in interagency coordination of the sector (consulting services will be financed to provide technical support); (iii) strengthening of DISAPAS as the lead agency in the sector (an institutional strengthening plan will be prepared, and key actions arising from that plan will be implemented, including training, equipment, and consulting services to provide technical support); (iv) water quality monitoring program for rivers in the Arraiján and La Chorrera area; (v) technical cadaster of existing sanitary and storm sewers in the Arraiján and La Chorrera area; (vi) regulation of the IDAAN-UCPSP agreement; (vii) actions to strengthen the roles and responsibilities of IDAAN and the UCPSP as proposed in the institutional arrangement arising from the study on strengthening the sanitation subsector, being prepared by CAF<sup>17</sup> with technical cooperation funds; and (viii) preparation of a proposal to adjust and update the rate schedule for sanitary sewer and wastewater treatment services in the country.
- 1.35 **Component III: Complementary studies and actions.** In conjunction with CAF and the local counterpart, financing will be provided for studies and interventions associated with: (i) developing pilot recreational areas along the banks of the rivers whose water quality will be improved (identification of the area, feasibility study, and final design, including walking trails, reforested areas, rest areas, etc., and

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<sup>16</sup> Capacity to be adjusted in the detailed designs.

<sup>17</sup> In coordination with the other lenders.

supervision and construction); and (ii) conducting public sanitation campaigns including awareness-raising and education for proper handling of solid waste, to be executed in coordination with Panama’s Urban and Residential Sanitation Authority (AAUD), the municipios, and the communities.

1.36 **Program administration.** Resources from all the lenders will be used to contract personnel for the UCPSP, as well as for program audit, evaluation, and monitoring activities.

1.37 **Cost and type of financing.** The total estimated cost of the program is US\$640,123,158, with the IDB financing up to US\$150 million equivalent from the Flexible Financing Facility of its Ordinary Capital. The program will have a local counterpart contribution of US\$240,123,158 and parallel financing of up to a total of US\$250,000,000 from AECID, CAF, the EIB, and CABI (OEL#10).

Table I-1 – Cost table

Category or component	IDB	AECID	CAF	CABI	EIB	Local counterpart	Total
<b>1. Program administration</b>	<b>4,087,850</b>	<b>2,000,000</b>	<b>2,000,000</b>	<b>2,000,000</b>	<b>2,000,000</b>	<b>846,150</b>	<b>12,934,000</b>
1.1 Administration and monitoring	3,200,000	2,000,000	2,000,000	2,000,000	2,000,000	784,000	11,984,000
1.2 Audits and evaluation	887,850	-	-	-	-	62,150	950,000
<b>2. Direct costs</b>	<b>145,912,150</b>	<b>48,000,000</b>	<b>48,000,000</b>	<b>98,000,000</b>	<b>48,000,000</b>	<b>239,277,008</b>	<b>627,189,158</b>
<b>Component I: Priority investments</b>	<b>135,851,386</b>	<b>48,000,000</b>	<b>45,000,000</b>	<b>98,000,000</b>	<b>48,000,000</b>	<b>238,362,755</b>	<b>613,214,140</b>
2.1 Designs and works	112,998,516	48,000,000	45,000,000	98,000,000	48,000,000	201,903,459	553,901,975
2.2 Supervision and management	22,852,870	-	-	-	-	21,459,295	44,312,165
2.3 Operation and maintenance	-	-	-	-	-	15,000,000	15,000,000
<b>Component II: Institutional strengthening</b>	<b>7,428,731</b>	<b>-</b>	<b>2,141,379</b>	<b>-</b>	<b>-</b>	<b>669,908</b>	<b>10,240,018</b>
<b>Component III: Complementary studies and actions</b>	<b>2,632,033</b>	<b>-</b>	<b>858,621</b>	<b>-</b>	<b>-</b>	<b>244,346</b>	<b>3,735,000</b>
<b>Total cost</b>	<b>150,000,000</b>	<b>50,000,000</b>	<b>50,000,000</b>	<b>100,000,000</b>	<b>50,000,000</b>	<b>240,123,158</b>	<b>640,123,158</b>

1.38 **Parallel financing and coordination with other institutions.** The Bank and the other lenders have worked together with the UCPSP to prepare the operation, agreeing on the program’s objectives, components, and financing structure. They also agreed that during execution, bidding processes would follow the Bank’s procurement policies, which, together with the disbursement conditions, will be reflected in the program Operating Regulations, which will harmonize the reporting and monitoring requirements of all the entities providing financing (OEL#6). The Bank may sign agreements with each of the other lenders establishing the mechanisms for collaboration, supervision, information-sharing, and assistance to coordinate implementation of their respective loans, in accordance with its



applicable policies and procedures. The loans providing parallel financing are expected to be approved prior to the end of the 2016 fiscal year.

### C. Key results indicators

- 1.39 The following table presents the key program indicators. Principally, the program will help to improve the water quality of the Caimito River (measured in BOD5) and increase the number of households in the Arraiján and La Chorrera area with sanitary sewer connections and wastewater treatment services. Annex II ([link](#)) presents additional results related to strengthening the sector entities, the execution unit, and complementary interventions for the proper functioning of the sanitation system. The results include appreciation of land near the rivers, given that the river environment and water quality will be improved and odors will be eliminated.

Table I-2 – Key indicators (see [Annex II](#))

Results indicators	Baseline 2015	Program completion
Sanitary sewer coverage in the area targeted by the Arraiján and La Chorrera Sanitation Program	50%	60%
Households with treated wastewater in the area targeted by the Arraiján and La Chorrera Sanitation Program	0 <sup>18</sup>	57%
Water quality (mg/l BOD5) <sup>19</sup> in the Caimito River	18	12 <sup>20</sup>

## II. FINANCING STRUCTURE AND MAIN RISKS

### A. Financing instruments

- 2.1 The program will cost US\$640,120,000 and will be financed with IDB contributions (US\$150,000,000) through a specific investment loan, parallel financing of US\$250,000,000 from AECID, CAF, CABEI, and the EIB, and a local counterpart contribution of US\$240,120,000.
- 2.2 **Disbursement schedule.** Ordinary Capital disbursements will be made to the UCPSP in the form of advances based on the program's real liquidity requirements, for a maximum period of 180 days, and reimbursements of expenditures or direct payments to suppliers. The program has an expected execution period of six years, and the projected annual disbursements are shown in the following table.

<sup>18</sup> Although small sewage treatment plants exist, they do not comply with the standards.

<sup>19</sup> Biochemical oxygen demand.

<sup>20</sup> These are preliminary values that depend on the section considered and will be updated in the monitoring plan. Other points of verification may be included.



**Table II-1 – Disbursement schedule (US\$)**

<b>Financing</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>	<b>Total</b>
IDB	2,846,399	10,361,230	36,985,523	45,214,476	42,573,658	12,018,714	150,000,000
Other lenders	1,004,073	16,109,358	66,016,798	86,776,770	70,962,414	9,130,587	250,000,000
Local counterpart	2,527,643	9,937,487	57,829,385	75,220,654	60,972,431	33,635,558	240,123,158
<b>Total</b>	<b>6,378,115</b>	<b>36,408,075</b>	<b>160,831,706</b>	<b>207,211,900</b>	<b>174,508,503</b>	<b>54,784,859</b>	<b>640,123,158</b>
%	1.00%	5.69%	25.13%	32.37%	27.26%	8.56%	100%

## **B. Environmental and social risks**

- 2.3 Considering that the risks and environmental and social impacts are medium, in accordance with the Environment and Safeguards Compliance Policy (OP-703), the program has been classified as a category “B” operation. The corresponding environmental impact assessments (EIAs) were prepared for all program works, and executive summaries have been made available to the public on the websites of the Bank and the executing agency. During program preparation, citizen participation, communication, and dissemination plans were designed, and a complaints resolution mechanism was developed,<sup>21</sup> with the aim of reducing or mitigating social conflicts and promoting participation by key stakeholders. Nearly 60 citizen consultation and dissemination activities have been carried out with the affected communities and with various interest groups, in addition to three workshops with people living adjacent to the site of the future sewage treatment plant.<sup>22</sup>
- 2.4 The program will have a significant net positive environmental and social impact, mainly associated with improved water quality of rivers, effluents, and groundwater in the Arraiján and La Chorrera districts. The health and the standard of living of the local population will also be improved. This, in turn, will stimulate the local economy through the creation of new jobs.
- 2.5 Some of the works will generate low to medium negative impacts, which will be localized and short term. The main negative environmental impacts will occur during construction (noise, gasses, dust, and debris) and, to a lesser extent, during operation (generation of liquid effluents and waste such as sludge). In the construction stage, particular note should be taken of: (i) 543 properties affected (in phase 1) (possible damage to minor infrastructure such as walls or fences and temporary interruption of access to houses and businesses) and partial acquisition of land; and (ii) mangroves affected at the sewage treatment plant site. In the operation stage, there is the possibility of noxious odors near the sewage

<sup>21</sup> This includes, for the different phases of the program: mapping of key stakeholders and identification of community leaders, dissemination activities, response to consultations, establishment of communication channels with the community, institutions participating in the operation (MINSA, MiAmbiente, etc.), nongovernmental organizations, etc., and mechanisms for resolving complaints.

<sup>22</sup> The Bank will monitor the plans during the program supervision missions.

treatment plant and along routes used to transport sludge and other waste.<sup>23</sup> An environmental and social management report (ESMR) was prepared based on the EIAs ([REL#6](#)) and includes measures to manage and mitigate the negative impacts and risks identified, through the application of 23 environmental and social management plans (ESMP). The most important measures include the mangrove reforestation and compensation plan, with a compensation factor of 2:1, and the plan for the management and mitigation of property impacts. The latter will serve to mitigate the risk of encroachments on rights-of-way in the areas required for the works.

- 2.6 The program takes account of climate change mitigation and adaptation inasmuch as it establishes the context for vulnerability to hydrometeorological events and responds to those risks with adaptation measures included in the program's investments. Insofar as it is technically and economically feasible, measures will be applied to control and reduce greenhouse gas emissions.

**C. Fiduciary risks**

- 2.7 The procurement and financial management risk is low inasmuch as UCPSP personnel have extensive experience in managing and executing projects with different sources of funds from multilateral agencies ([Annex III](#)).

**D. Other project risks**

- 2.8 The risk analysis identified other potential risks relating to: (i) delays in the approval of contracts and payments by the Office of the Comptroller General (CGR); (ii) limited program management; (iii) poor coordination of sector entities; (iv) annual budget constraints on funds for execution and operation and maintenance of infrastructure works; and (v) availability of parallel financing for the program. The respective mitigation measures include: (i) coordination of actions and monitoring of procedures with the CGR, coordination meetings with the CGR to share information on the program, inclusion in the timetables of the periods required for prior control by the CGR, and efforts to tap the UCPSP's past experience in managing contracts and payments requiring prior control by the CGR; (ii) incorporation of the necessary personnel and support for UCPSP management; (iii) promotion and support for sector sustainability, creation of a sector sustainability committee, regulation of the UCPSP-IDAAN agreement, and strengthening of the lead agency; (iv) timely management of budget lines and program funds by the UCPSP-MINSA with the Ministry of Economy and Finance (MEF); and (v) an express commitment made by the Panamanian government in the loan contract to provide the funds needed for full and uninterrupted execution of the program, in order to mitigate any risk that parallel financing from the other lenders could fail to materialize.

- 2.9 **Technical feasibility.** Technical feasibility is based on a review of the designs for the sewage treatment plant, the interceptor, and the Aguacate and Prudente sub-watersheds, with their conveyance systems, sewer laterals, and connections

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<sup>23</sup> Measures for the control and reduction of greenhouse gas emissions will be applied at the sewage treatment plant, which will have an odor elimination system. In addition, a program will be implemented for the management and final disposal of sludge from the sewage treatment plant, and sealed trucks with odor control systems will be used for transfer to the sanitary landfill.

- ([OEL#1](#)). The basic design studies were carried out by specialized consulting firms and, as for the other infrastructure components, have been identified and prioritized in the master sanitation plan, following the technical guidelines established in that plan, national rules and regulations, and good practices. The detailed designs and construction of the works will be done by qualified firms, to be selected in accordance with the Bank's procurement policies and procedures. The execution of projects in the Panama City and Bay Sanitation Program confirmed that the engineering practices, works supervision, and studies used by the UCPSP and its contractors are adequate. The proposed program has set aside counterpart funds to contract specialized companies to operate and maintain the infrastructure to be built in the initial years.
- 2.10 **Socioeconomic feasibility.** A cost-benefit evaluation has been prepared for the works to be financed by the Bank, which include the Caimito Sewage Treatment Plant, the interceptor tunnel, and all the sewer mains needed to convey wastewater from the existing sewer laterals in the sub-watersheds defined in stage I of the Arraiján and La Chorrera Sanitation Program. In addition, the works for the collection systems and sewer mains located in the Prudente sub-watershed were analyzed. The benefits considered were the increase in wellbeing of people in these areas who have sewer connections, the improvement of water quality in the rivers and the ocean at the mouth of the Caimito River, the savings in the costs of existing treatment plants that will be replaced by the new one, and the appreciation in the value of vacant land adjacent to the rivers and streams that have been cleaned up. Using a discount rate of 12%, it was found that the works in the Prudente sub-watershed have a net present value (NPV) of US\$258,463 and an economic internal rate of return (EIRR) of 12.3%. The sewer mains, the interceptor tunnel, and the sewage treatment plant in Stage I have an EIRR of 13.6% and an NPV of US\$13,400,398.
- 2.11 The analysis was supplemented with an analysis of sensitivity to the main assumptions ([OEL#2](#)). It shows that program feasibility is sensitive to an increase in the value of vacant land adjacent to the rivers.
- 2.12 **Institutional and financial feasibility.** In view of the fact that IDAAN's main indicators are inefficient (paragraph 1.19), the UCPSP has been satisfactorily taking on responsibility for operation and maintenance of the Panama City and Bay Sanitation Program's infrastructure in recent years, as well as operation and maintenance of the Arraiján and La Chorrera Sanitation Program, as established in [OEL#8](#). A cooperation agreement exists between IDAAN and the UCPSP ([OEL#9](#)) for operation and maintenance of the program infrastructure, and actions to coordinate the two agencies will be supported with program resources (paragraph 1.34). Once IDAAN improves its operating and financial performance, it should be able to take over operation and maintenance of the Panama City and Bay and Arraiján and La Chorrera Sanitation Programs in the long run. In this regard, IDAAN's Transformation and Modernization Unit<sup>24</sup> was established with Bank support, and IDAAN has recently approved a modernization and action plan 2016-2019, which includes operational and financial actions to increase its income

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<sup>24</sup> The main objective of the Transformation and Modernization Unit is to coordinate all institutional restructuring activities carried out at IDAAN as part of its modernization and action plan.

(installation of micrometers, updating the user cadaster, rate studies, etc.) and reduce expenses (reduction of unaccounted-for water, optimization of operation and maintenance of the systems, energy efficiency plan, etc.) with the objective of improving its performance in the coming years. The borrower, through IDAAN, has made a commitment, in the framework of other loans in execution (paragraph 1.24), to present annual reports on compliance with the indicators to enable the Bank to verify the institution's performance ([OEL#3](#)).

- 2.13 This operation will follow a management plan similar to the sanitation activities currently being carried out by the UCPSP in the Panama City and Bay Sanitation Program, where the UCPSP supervises and manages design, construction, and operation and maintenance contracts with international sanitation infrastructure contractors (laterals, mains, interceptors, and sewage treatment plants). The public-private arrangement has operated satisfactorily, with modern and effective operation and maintenance plans and the transfer of operation and maintenance knowledge to UCPSP personnel. Just as for the Panama City and Bay Sanitation Program, the budgets for carrying out program activities are assigned to the UCPSP promptly and transparently through MINSA, which receives the funds from the national budget, as indicated in the financial analysis ([OEL#3](#)). The annual budgets of MINSA and the UCPSP are published each year in the Official Gazette. The UCPSP's financial management is satisfactory, and budget execution levels exceed 92%. MINSA's and the UCPSP's five-year budget plan for 2016-2020 includes funds for construction and operation and maintenance of the proposed operation.
- 2.14 To ensure adequate operation and maintenance of the program works, the loan contract will include a maintenance commitment by the borrower (paragraph 2.16). Furthermore, during the disbursement period and up to the fifth year after the end of the disbursement period, the executing agency and MINSA will deliver to the Bank, within 120 days after the close of each fiscal year, their annual budgets showing the funds set aside for activities financed under the program components and budget execution during the previous financial year.
- 2.15 **Program execution feasibility.** The assessment of the UCPSP as program executing agency was updated using the Institutional Capacity Assessment System, with satisfactory development results and low risk, which is consistent with its experience in the Bank's procurement and fiduciary policies and with the technical and operational capacity it has been demonstrating with the execution of programs with the Bank (paragraph 1.25). The UCPSP also has extensive experience in executing sanitation programs with other multilateral and bilateral agencies (paragraph 1.4). The proposed program includes a number of institutional strengthening activities for the UCPSP which will contribute to program execution and operation (paragraph 1.34) ([OEL#4](#)).
- 2.16 **Operation and maintenance.** The borrower commits to: (i) ensure that the project works and equipment are adequately maintained in accordance with generally accepted technical standards; and (ii) present the following to the Bank: (a) an annual preventive operation and maintenance plan for program works and equipment containing a description of the main activities to be carried out during that period, a calculation of the financing required for operation and maintenance, and evidence that the budget includes sufficient funds for the following fiscal year;

and (b) annual maintenance reports on the status of program works and equipment during the first quarter of each calendar year, up to the fifth year after the end of the disbursement period.

### III. IMPLEMENTATION AND MANAGEMENT PLAN

#### A. Summary of implementation arrangements

- 3.1 **Borrower and executing agency.** The borrower will be the Republic of Panama. The executing agency will be the Ministry of Health (MINSA), acting through the Panama Sanitation Program Coordination Unit (UCPSP), which is currently executing the Panama City and Bay Sanitation Program and the Arraiján and La Chorrera Sanitation Program. The UCPSP will be responsible for technical, social, and fiduciary management and for operation and maintenance of the infrastructure financed by the program, until such future time as IDAAN has the necessary capacity (paragraph 2.12).
- 3.2 **Coordination and execution mechanisms.** The UCPSP will coordinate execution and operation and maintenance of the program works based on the cooperation agreement it signed with IDAAN ([OEL#9](#)) for the Panama City and Bay and Arraiján and La Chorrera Sanitation Programs. The UCPSP will be supported by management firms in reviewing the basic designs, preparing the bidding documents, and supervising the detailed design, construction, and operation and maintenance of the works. The governance plan also provides for participation by the sector sustainability committee to be established by MINSA,<sup>25</sup> composed of senior representatives from MINSA, the UCPSP, IDAAN, the MEF, ASEP, MiAmbiente, the National Council for Sustainable Development, and the Secretariat of Presidential Goals. The sector sustainability committee will act as a vehicle for improving the sustainability of sector institutions, coordinating, leading, planning, and implementing actions to modernize the sector, including: (i) the necessary reforms in the action plan to transform IDAAN; (ii) definition of roles, responsibilities, and levels of coordination between IDAAN and the UCPSP; (iii) promotion and implementation of a strategy to reduce water use; (iv) gradual implementation of an efficient rate structure; and (v) supervision and coordination of the actions of the different government agencies and institutions that participate in the sector ([OEL#4](#)). As part of Component III, an interagency coordination model will be established for the UCPSP, the municipios, MiAmbiente, IDAAN, and AAUD that will contribute to the sustainability of the investments. Details about this coordination will be included in the program Operating Regulations.
- 3.3 **Special contractual conditions precedent to the first disbursement of the loan: (i) presentation of the multiyear execution plan, the procurement plan, and the financial plan for the program; and (ii) approval and entry into effect of the program Operating Regulations, in accordance with the terms agreed upon with the Bank.**

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<sup>25</sup> Creation of the sector sustainability committee is a condition for execution of one component of loans 3506-OC/PN and 3506/CH-PN.

- 3.4 **Special execution conditions for execution:** (i) prior to the start of each of the works identified in Component I, signature and entry into effect of the contract with the management company or companies; (ii) prior to the start of the activity to support the sector sustainability committee with interagency coordination of the sector, identified in Component II, evidence that the committee has been established; (iii) prior to the start of the activity to strengthen the Water and Sewer Subsector Directorate (DISAPAS), identified in Component II, appointment of at least two DISAPAS staff members to work full time on implementation of that activity; and (iv) by the end of the first year of project execution at the latest, presentation of a report analyzing alternatives that contains structural proposals for the sustainability of the sanitation sector, as a condition precedent to the use of the Component II resources assigned to the activities described in paragraph 1.34 (vii). Additional special execution conditions are presented in sections 7.1 to 7.3 of the ESMR.
- 3.5 **Accounting and financial management.** The UCPSP will be responsible for managing program resources and presenting audited financial statements within 120 days after the close of each fiscal year and after the final disbursement upon program completion. The UCPSP will contract an external auditor acceptable to the Bank, which may be the same firm that the unit has contracted for other loans.
- 3.6 **Program Operating Regulations.** Program execution will be governed by the Operating Regulations, which will contain the following: (i) detailed execution plan; (ii) institutional roles and responsibilities of the entities involved; (iii) intervention strategy in the different phases of the project cycle; (iv) rules and procedures for the selection and contracting of works, goods, and services; (v) rules and procedures for administrative and financial management; and (vi) monitoring procedures. The ESMP is attached to the Operating Regulations as an annex ([OEL#7](#)).
- 3.7 **Procurement of works, goods, and services.** Works, goods, and consulting services will be procured in accordance with the Policies for the Procurement of Goods and Works financed by the IDB (document GN-2349-9) and the Policies for the Selection and Contracting of Consultants financed by the IDB (document GN-2350-9), both approved in March 2011.
- 3.8 **Exception to Bank policies.** Since the EIB will participate with parallel financing and the IDB's procurement policies (documents GN-2349-9 and GN-2350-9) will be used, the Board of Executive Directors is asked to waive the eligibility requirements of those policies, in order to enable companies from European Union countries that are not members of the IDB to compete for contracts for which the EIB provides parallel funding.
- 3.9 **Retroactive financing and recognition of expenditures.** The Bank may provide retroactive financing of up to US\$30,000,000 from the loan proceeds (20% of the proposed amount of the loan) and recognize up to US\$24,012,315 from the local counterpart contribution (10% of the contribution) for eligible expenditures incurred by the borrower prior to the loan approval date for purposes of procuring works, goods, nonconsulting services, and consulting services, provided that requirements substantially similar to those established in the loan contract have been met. The expenditures must have been incurred after the date of approval of



the project profile (26 May 2016), but in no event will expenditures incurred more than 18 months prior to the loan approval date be recognized.

**B. Summary of arrangement for monitoring results**

3.10 **Monitoring and evaluation.** The UCPSP will present the following instruments as part of its monitoring system: (i) the procurement plan ([REL#4](#)); (ii) the annual work plans, and the program execution plans ([REL#1](#)), which will include actions agreed upon and necessary to mitigate the identified risks; (iii) the financial plans; (iv) audited financial statements; (v) environmental audits; and (vi) semiannual reports, covering progress in the annual work plans ([REL#2](#)), the results obtained in the execution of activities, and an action plan for the following six months for aspects that require corrective measures to improve program performance ([REL#3](#)).

3.11 The proposed evaluation system will include: (i) verification of fulfillment of the targets agreed upon in the results matrix ([Annex II](#)); and (ii) a performance monitoring report and supervision plan oriented to attaining results and evaluating program performance. A midterm evaluation is planned for 36 months from the date of which the loan becomes eligible for disbursement or when 50% of the loan proceeds have been disbursed, whichever comes first, and a final evaluation will be conducted when 90% of the loan proceeds have been disbursed. The midterm and final evaluations will include: (i) the results of financial execution; (ii) fulfillment of the targets for program outcomes and outputs and progress toward the expected impacts; (iii) compliance with the environmental requirements and specifications for works, as established in the environmental management plans for the projects, in accordance with the guidelines of the program ESMP; (iv) degree of fulfillment of operation and maintenance activities for completed works; (v) degree of fulfillment of the works plans; and (vi) degree of fulfillment of the contractual commitments. The final evaluation will also include an ex post cost-benefit analysis and a before-and-after evaluation that measures changes brought about by the interventions.

## RESULTS MATRIX

<b>Project name:</b>	Sanitation Program for the Districts of Arraiján and La Chorrera – Stage I
<b>Project objective:</b>	To help improve sanitary conditions and reduce pollution in urban waterways and rivers in the districts of Arraiján and La Chorrera.
<b>Specific objectives:</b>	(i) increase wastewater treatment coverage in the program’s area of intervention; (ii) help build capacity for the management of works and sustainability in the sector; and (iii) promote the proper operation of the sewer system through comprehensive environmental interventions.

Outcomes											
Outcome 1: Water quality in the Caimito River improved											
Indicator	Unit of measure	Baseline	Baseline year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	End of project	Comments/ Means of verification (MOV)
Water quality in the Caimito River <sup>1</sup>	mg/l BOD5 <sup>2</sup> in the Caimito River	18	2016						12	12	<b>MOV:</b> Final evaluation report.
Outcome 2: Sewage treatment capacity increased in the Arraiján and La Chorrera sanitation area											
Households whose wastewater is treated in the Arraiján and La Chorrera sanitation area <sup>3</sup>	Household	0 <sup>4</sup>	2016						65,800	65,800	<b>MOV:</b> Final evaluation report.
Coverage of households whose wastewater is treated in the Arraiján and La Chorrera sanitation area	%	0	2016						57%	57%	<b>MOV:</b> Final evaluation report.
Flow of treated sewage in the in the Arraiján and La Chorrera sanitation area	m <sup>3</sup> /sec	0	2016						0.6	0.6	<b>MOV:</b> Final evaluation report. m <sup>3</sup> /sec of sewage treated.

<sup>1</sup> The values are preliminary, depend on the section considered, and will be updated in the monitoring plan. Other points of verification may be included.

<sup>2</sup> Biochemical oxygen demand.

<sup>3</sup> The area targeted by the Arraiján and La Chorrera Sanitation Program includes stages I and II, as mentioned in paragraph 1.13 of the loan proposal.

<sup>4</sup> Although some small sewage treatment plants exist, they do not meet the standards.



Indicator	Unit of measure	Baseline	Baseline year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	End of project	Comments/ Means of verification (MOV)
<b>Outcome 3: Sewage collection capacity increased in the Arraiján and La Chorrera sanitation area</b>											
Sanitary sewer coverage in the Arraiján and La Chorrera sanitation area increased	%	50	2016						60	60	<b>MOV:</b> Final evaluation report. Households with access to sanitary sewers in Arraiján and La Chorrera/total households.
Households with sewer system connections in the Arraiján and La Chorrera sanitation area <sup>5</sup>	Household	51,600	2016						68,400	68,400	<b>MOV:</b> Final evaluation report.
<b>Outcome 4: Integrated management system of the project coordination unit (UCPSP) internationally accredited</b>											
The UCPSP's integrated management system (SIG) certified as meeting international quality standards	Accreditation	0	2016						5	5	<b>MOV:</b> Final evaluation report. As a minimum, ISO 9001, ISO 14001, and OHSAS 18001 certification.
<b>Outcome 5: Capacity of sector agencies strengthened</b>											
Sector agencies (MINSA/UCPSP/DISAPA, IDAAN, ASEP, MiAmbiente, and MEF) coordinated	Agency	0	2016						7	7	<b>MOV:</b> Midterm evaluation report. Will be considered "coordinated" when the sustainability committee is operating under its regulatory instrument.

<sup>5</sup> 3.1 people per household (projections based on the census).

Indicator	Unit of measure	Baseline	Baseline year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	End of project	Comments/ Means of verification (MOV)
Water and basic sanitation public policy document prepared by DISAPAS to improve the sustainability of the sector in execution	Public policy document	0	2016						1	1	<b>MOV:</b> Final evaluation report. Will be considered “in execution” when the public policy has been approved by MINSA.
<b>Outcome 6: Environmental conditions improved for proper operation of the sanitation system</b>											
Rehabilitated land and urban renewal programs in the Arraiján and La Chorrera sanitation area	m <sup>2</sup>	0	2016						10,000	10,000	<b>MOV:</b> Final evaluation report. “Urban renewal programs” are understood as the construction of parks along river banks, recreational areas, and awareness campaigns.
Number of participants in awareness-raising and education activities for proper solid waste management in the Arraiján and La Chorrera sanitation area	Individuals	0	2016						400	400	<b>MOV:</b> Final evaluation report.
<b>Outcome 7: Appreciation of vacant land near the rivers to be cleaned up</b>											
Value of vacant land within 500 meters of the rivers to be cleaned up in the Arraiján and La Chorrera sanitation area <sup>6</sup>	US\$/m <sup>2</sup>	17.3	2016						24.2	24.2	<b>MOV:</b> Final evaluation report based on the property cadaster at project completion in the Arraiján and La Chorrera sanitation area or a survey of property values near the rivers that were cleaned up.

<sup>6</sup> This variable is a proxy for land value, given that it was estimated using a sample. The baseline and the target will be updated with the cadaster of land in the Arraiján and La Chorrera sanitation area or a representative sample of the value of land located within 500 meters of the rivers whose water quality has been improved.

Output	Unit of measure	Associated outcomes	Cost (US\$)	Baseline	Year 1 (2017)	Year 2 (2018)	Year 3 (2019)	Year 4 (2020)	Year 5 (2021)	Year 6 (2022)	End of project	Comments/ Means of verification (MOV)
<b>Component 1: Priority investments</b>												
<b>Output 1:</b> First module of the Caimito sewage treatment plant built	Plant	1, 2, 7	140,153,608	0	0	0	0	0	1	0	1	<b>MOV:</b> Certificate of acceptance of the plant.
<b>Output 2:</b> Caimito interceptor sewer built	km	3, 7	59,888,714	0	0	0	0	3	3.8	0	6.8	<b>MOV:</b> Works status report and final certification.
<b>Output 3:</b> Sewer mains built, rehabilitated, and/or expanded in the Arraiján and La Chorrera sanitation area	km	3, 7	147,193,288	0	0	0	0	26	19.5	19.5	65	<b>MOV:</b> Works status report.
<b>Output 4:</b> Sewer laterals built in the Arraiján and La Chorrera sanitation area	km	3, 7	201,712,207	0	0	0	0	62.9	142.7	118.8	324.4	<b>MOV:</b> Works status report.
<b>Output 5:</b> Household sewer connections installed in the Arraiján and La Chorrera sanitation area	Connection	3	49,266,324	0	0	0	0	4,380	6,670	5,750	16,800	<b>MOV:</b> Works status report.
<b>Output 6:</b> First module of the Caimito Sewage Treatment Plant and interceptor sewer operating up to technical design specifications <sup>7</sup>	Plant	2, 4, 7	15,000,000	0	0	0	0	0	0	1	1	<b>MOV:</b> Semiannual progress report.

<sup>7</sup> Includes annual operation and maintenance costs for the sewage treatment plant and system in year 6.

Output	Unit of measure	Associated outcomes	Cost (US\$)	Baseline	Year 1 (2017)	Year 2 (2018)	Year 3 (2019)	Year 4 (2020)	Year 5 (2021)	Year 6 (2022)	End of project	Comments/ Means of verification (MOV)
<b>Component 2: Institutional strengthening</b>												
<b>Output 7:</b> Training in operation and maintenance and the SIG implemented	Activity	4	1,425,000	0	2	2	2	2	2	2	12	<p><b>MOV:</b> Lists of participants and reports on the execution of training and SIG implementation activities.</p> <p><b>MOV:</b> Semiannual progress report.</p> <p>“Implemented” means execution of the following activities: (i) strengthening of management and the management support system; (ii) activities to improve existing methodologies, manuals, and instruments; (iii) workshops on asset management; and (iv) specialized advisory services.</p>
<b>Output 8:</b> Instrument regulating the IDAAN-UCPSB agreement approved	Instrument	5	475,000	0	1						1	<p><b>MOV:</b> Regulatory document approved by the sector sustainability committee.</p>
<b>Output 9:</b> Technical cadaster implemented to verify existing storm and sewer systems in the Arraján and La Chorrera sanitation area	Report	3	2,075,000	0			1				1	<p><b>MOV:</b> Semiannual progress report/cadaster report prepared</p> <p>“Implemented” means that the information has been compiled.</p>
<b>Output 10:</b> Plan implemented to monitor water quality in rivers and streams in the Arraján and La Chorrera sanitation area	Plan	1	1,900,000	0						1	1	<p><b>MOV:</b> Document updating the baseline/semiannual progress report.</p> <p>“Implemented” means the procurement of equipment and other instruments needed to carry out campaigns each year, one in the rainy season and another in the dry season.</p>
<i>Milestone 1: Update of the baseline</i>	Baseline							1			1	
<i>Milestone 2: Monitoring campaigns</i>	Campaign								2	2	4	

Output	Unit of measure	Associated outcomes	Cost (US\$)	Baseline	Year 1 (2017)	Year 2 (2018)	Year 3 (2019)	Year 4 (2020)	Year 5 (2021)	Year 6 (2022)	End of project	Comments/ Means of verification (MOV)	
<b>Output 11:</b> Plan implemented to monitor and control industrial discharges into sanitary sewers in the Arraiján and La Chorrera sanitation area	Plan	1	2,490,000	0						1	1	<b>MOV:</b> Semiannual progress report/monitoring reports prepared.  This output is related to a JICA technical cooperation project that will generate inputs to develop this output.  “Implemented” means the procurement of equipment and other instruments needed to obtain information on industrial discharges.	
<i>Milestone 1:</i> Update of the baseline of large polluters discharging industrial waste	Update						1						1
<i>Milestone 2:</i> Design of the monitoring plan	Design							1					1
<i>Milestone 3:</i> Monitoring campaign	Campaign								1	1			1
<b>Output 12:</b> Plan prepared to strengthen DISAPAS	Plan	5	914,000	0						1	1	<b>MOV:</b> Semiannual progress report/regulatory instrument  The activities will be identified and prioritized once milestone 1 has been attained.	
<i>Milestone 1:</i> Diagnostic assessment and plan designed	Plan						1						1
<i>Milestone 2:</i> Plan activities prepared	Activity							1	1	1			1
<b>Output 13:</b> Activities implemented to improve the sustainability of the sanitation system	Activity	5	961,017	0							4	<b>MOV:</b> Semiannual progress report.  The activities will be defined on the basis of the alternative proposed and selected in the study, to be financed by CAF.  Knowledge-transfer activities include high-level training with international experts.	
<i>Milestone 1:</i> Instrument prepared to regulate the functioning of the committee	Regulation						1						1
<i>Milestone 2:</i> Knowledge transfer activities	Activity							1	1	1			1
<i>Milestone 3:</i> Proposal prepared to update the rate structure for sewer and sewage treatment services	Proposal							1					1

Output	Unit of measure	Associated outcomes	Cost (US\$)	Baseline	Year 1 (2017)	Year 2 (2018)	Year 3 (2019)	Year 4 (2020)	Year 5 (2021)	Year 6 (2022)	End of project	Comments/ Means of verification (MOV)
<b>Component 3: Complementary studies and actions</b>												
<b>Output 14:</b> Pilot project implemented to protect sewer rights-of-way that creates recreational areas along river banks in the Arraján and La Chorrera sanitation area	Pilot project	6	3,320,000	0	0	0	0	0	0	1	1	<b>MOV:</b> Certificate of acceptance of the works. “Implemented” means that the investments have been made and the equipment needed to enable the pilot project to attain the expected outcome has been procured.
<b>Output 15:</b> Awareness-raising and education activities for proper solid waste management in the Arraján and La Chorrera sanitation area implemented	Activity	6	415,000	0	0	1	1	1	1		4	<b>MOV:</b> Semiannual progress report/activities reports. “Implemented” means the execution of activities that include technical assistance, workshops in schools, and training for key stakeholders.

## **FIDUCIARY AGREEMENTS AND REQUIREMENTS**

<b>Country:</b>	Panama
<b>Project number:</b>	PN-L1121
<b>Name:</b>	Sanitation Program for the Districts of Arraiján and La Chorrera – Stage I
<b>Executing agency:</b>	Ministry of Health (MINSa) through the Panama Sanitation Program Coordination Unit (UCPSP)
<b>Fiduciary team:</b>	Juan Carlos Dugand and Ezequiel Cambiasso (FMP/CPN)

### **I. FIDUCIARY CONTEXT OF THE EXECUTIVE AGENCY**

#### **A. Panama Sanitation Program Coordination Unit (UCPSP)**

- 1.1 The structure to be used is similar to that established for projects 1719/OC-PN-1, 3506/OC-PN, and 3506/CH-PN, which are financing the first and second phases of the Panama City and Bay Sanitation Program and are currently in execution. A Panama Sanitation Program Coordination Unit (UCPSP), established by Executive Decree 144 of June 2001, as amended by Executive Decree 18 of 3 March 2016, reports to MINSa and, in addition to coordinating the program, is currently responsible for running the Juan Díaz Sewage Treatment Plant and sewer systems in Panama City in the framework of the sanitation program, until such time as National Water and Sewer Institute (IDAAN) has the capacity to take over and operate the infrastructure that was built.
- 1.2 The UCPSP is implementing an integrated management system (SIG) that operates under a matrix structure and enables it to function more efficiently and have managers for the main components of the projects for which it is responsible.
- 1.3 All selection, contracting, and payment processes will be managed by the UCPSP. The program budget is included in MINSa, and the UCPSP is responsible for reporting budget execution, based on the payments made.
- 1.4 The auditors' reports on the financial statements and the visits made during execution of the aforementioned loans indicate that the UCPSP has the necessary organization and experience to execute the program. In addition, the institutional capacity assessment (ICAS) was updated and determined that the level of development was satisfactory and the risk low.

### **II. FIDUCIARY RISK EVALUATION AND MITIGATION ACTIONS**

- 2.1 The procurement risk is low, inasmuch as UCPSP personnel have a great deal of experience in contracting with financing from multilateral agencies.

- 2.2 The financial risk is low given the UCPSP's experience and the low probability of major shortcomings in the program's financial management.
- 2.3 There is a risk that budget allocations will be insufficient. This risk has materialized in the past and, furthermore, if the spending caps established in the Fiscal Social Responsibility Act<sup>1</sup> are exceeded, cuts could be made to the budget. This risk will be mitigated through the delivery of progress reports and meetings to discuss strategic areas with the Ministry of Economy and Finance (MEF).

### III. CONSIDERATIONS FOR THE SPECIAL PROVISIONS OF CONTRACTS

- 3.1 The following agreements and requirements should be included in the special provisions:
- a. The Policies for the Procurement of Works and Goods financed by the IDB (document GN-2349-9) and the Policies for the Selection and Contracting of Consultants financed by the IDB (document GN-2350-9) will be applied. The Bank's Board of Executive Directors approved (document GN-2538-11) the use of framework agreement subsystems for up to the threshold established for national competitive bidding (NCB), as well as the mechanism to be used for minor procurements up to US\$50,000, which may change as the Bank approves greater levels of use.
  - b. Exceptions to Bank policies. Since the EIB will participate with parallel financing and the IDB's procurement policies will be used, the Board of Executive Directors is asked to waive the eligibility requirements of those policies (documents GN-2349-9 and GN-2350-9), in order to enable companies from European Union countries that are not members of the IDB to compete for contracts for which the EIB provides parallel funding.
  - c. Retroactive financing and recognition of expenditures: The Bank may provide retroactive financing of up to US\$30,000,000 from the loan proceeds (20% of the proposed amount of the loan) and recognize up to US\$24,012,315 from the local counterpart contribution (10% of the contribution) for eligible expenditures incurred by the borrower prior to the loan approval date for purposes of procuring works, goods, and consulting services, provided that requirements substantially similar to those established in the loan contract have been met. The expenditures must have been incurred after the date of approval of the project profile (26 May 2016), but in no event will expenditures incurred more than 18 months prior to the loan approval date be recognized.
  - d. The provisions of the Operational Guidelines for Financial Management of IDB-financed Projects (document OP-273-6) will be applied. Accordingly:
    - (i) annual financial statements for the program will be required, audited by a firm of independent auditors acceptable to the Bank and delivered within 120 days after the close of each fiscal year and after the final disbursement;<sup>2</sup>

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<sup>1</sup> Law 34 of 2008 and subsequent amendments.

<sup>2</sup> The firm contracted by the UCPSP to audit its projects financed by other international agencies may be used, provided it is acceptable to the IDB.



- (ii) advances may be requested for a financial plan covering up to 180 days; and (iii) a new advance may be requested when 80% of the balance of previous advance has been justified.
- e. The Panamanian balboa exchanges at par with the U.S. dollar and therefore any of the exchange rate options established in the general provisions of the loan contracts may be used, as the borrower prefers.

#### **IV. AGREEMENTS AND REQUIREMENTS FOR PROCUREMENT EXECUTION**

- 4.1 The fiduciary agreements and requirements for procurement establish the provisions to be applied to the execution of all program procurements.

##### **A. Procurement execution**

- 4.2 Bidding processes will be carried out in accordance with document GN-2349-9 of March 2011, and consultants will be selected and contracted in accordance with document GN-2350-9 of March 2011.
  - a. **Procurement of works, goods, and nonconsulting services.** For international competitive bidding (ICB), the standard bidding documents issued by the Bank will be used. In the case of national competitive bidding (NCB) and shopping, the models established for this operation by the Bank will be used. As well, the Bank's Board of Executive Directors approved (document GN-2538-11) the use of framework agreement subsystems for up to the threshold established for NCB, as well as the mechanism for minor procurements up to US\$50,000, which may change as the Bank approves greater levels of use.
  - b. **Selection and contracting of consultants.** Contracts for consulting services under the project will be executed using the standard request for proposals issued by the Bank.
  - c. **Selection of individual consultants.** Consideration will be given to qualifications to perform the work, based on a comparison of at least three candidates.
  - d. **National preference.** Not applicable.
  - e. **Recurring costs.** These costs will be financed by the local contribution.
  - f. **Procurement plan.** The Procurement Plan Execution System (SEPA) or an updated version that replaces it as an electronic system for tracking procurements will be used.

## B. Table of thresholds (US\$)

Works			Goods			Consulting services	
ICB	NCB/ Shopping	Shopping for complex works	ICB	NCB/ Shopping	Shopping for complex goods	International publicity for consulting services	Short list 100% national
US\$3,000,000 and over	Over US\$250,000 and under US\$3,000,000	Under US\$250,000	US\$250,000 and over	Over US\$50,000 and under US\$250,000	Under US\$50,000	Over US\$200,000	US\$200,000 and under

## C. Main procurement items

Description	Estimated amount US\$	Selection method
Contracting of a firm to design, build, and perform operation and maintenance of the sewage treatment plant, the interceptor tunnel for the Panamá Oeste sector, the Prudente, Aguacate, and Bernardino sewer laterals and mains, including connections.	296,589,346	ICB
Contracting of a firm to design and build the Martín Sánchez I and II, Rodeo, and Puerto Caimito sewer laterals and mains, including residential and on-property connections.	165,203,675	ICB
Contracting of a firm to design and build the Caimito I, Caimito II, and Colectora Piedras sewer laterals and mains, including residential and on-property connections.	107,745,972	ICB
Contracting of a consulting firm to supervise the design and construction of the sewage treatment plant, the interceptor tunnel, and the Prudente, Aguacate, and Bernardino sewers laterals and mains, including residential and on-property connections.	17,988,561	QCBS

## D. Procurement supervision

4.3 All procurements using ICB and direct contracting for works, goods, and nonconsulting services will be subject to prior review. The selection of consulting firms for amounts greater than US\$200,000 and direct selections will be subject to prior review. For all other contracts, the type of review to be performed will be determined on a case-by-case basis in the procurement plan.

**E. Special provisions**

None.

**F. Records and files**

- 4.4 The executing agency will keep up-to-date records, duly filed in such a way that they can be revised by the Bank, in accordance with the following guidelines:
- a. The procurement documentation should be kept separately in a single file or folder that can be readily differentiated from processes financed with the local contribution or with funds from outside the program.
  - b. The documents will be kept in proper order and paginated and numbered so that they can be readily identified, immediately located, and made available at any time for review by the Bank and auditing.

**V. FINANCIAL MANAGEMENT**

**A. Programming and budget**

- 5.1 The MEF is responsible for budget formulation and control. By 31 July each year, it presents a draft budget to the National Assembly, which is responsible for approving the budget and any budget increases. The budget is annual and includes all public sector investments, revenues, and expenditures. The MEF included US\$1.9 million from the IDB for this program in the 2017 budget presented to the National Assembly.

**B. Accounting and information systems**

- 5.2 In January 2015, the government began to gradually implement a new financial information system known as ISTMO,<sup>3</sup> developed under the SAP platform, which replaces the SIAFPA. This system is evolving, and some adjustments are being made to enable it to include financial information and generate reports on projects financed by multilateral agencies.<sup>4</sup> MINSA has still not adopted ISTMO, so the UCPSP's parallel system will continue to be used.
- 5.3 The UCPSP uses the PENTAGON system for loans and will continue to use it for this program, keeping income and expenditures from the different lenders separate. The system includes planning, contracting, budgeting, and accounting modules and is used in several IDB-financed projects in Panama.
- 5.4 Accounting will be governed by the standards issued by the Office of the Comptroller General (CGR), which do not conform to International Public Sector Accounting Standards.

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<sup>3</sup> *Integración y Soluciones Tecnológicas del Modelo de Gestión Operativa* [Integration and Technological Solutions of the Operational Management Model].

<sup>4</sup> The adjustments will be tested in a pilot project under loan 3512/OC-PN, which is being executed by Ministry of Social Development and will subsequently be evaluated.

**C. Disbursements and cash flow**

- 5.5 In the second half of 2013, Panama enacted a law that requires use of a Unified Treasury Account (CUT), and it began to be implemented at the end of 2014 for the accounts of some ministries. In the first half of 2016, the CUT was evaluated,<sup>5</sup> and once some adjustments are made to the manuals and procedures, it could be used to manage program funds.
- 5.6 The IDB will transfer the loan proceeds to the account at Banco Nacional where the CUT is set up if the adjustments mentioned above are approved, or to an account kept exclusively for IDB financing for the program. The contributions of the different lenders will be managed independently, either in the CUT or in individual accounts. Disbursements will be processed as advances<sup>6</sup> that cover financing requirements established in the respective financial plan for a period of up to 180 days.
- 5.7 The initial financial plan indicates that during the first year of the program, disbursements from the IDB of US\$6 million will be required.

**D. Internal control and internal auditing**

- 5.8 As a consequence of the prior control carried out by the CGR, the internal control and internal auditing systems of government institutions are weak, because they rely on CGR control instead of establishing effective processes and controls. As a result, the systems are not considered suitable for carrying out the control function required for the projects.

**E. External control and reports**

- 5.9 The CGR has focused on prior control of the disposal of government property, and its audit function is weak. Since it participates in administrative processes as a result of its prior control function, it does not have the necessary independence to conduct audits and therefore is found to lack the capacity to carry out external control of the program.
- 5.10 The program will contract a firm of independent auditors acceptable to the Bank, and the audit costs will be covered by the loan. The audited annual financial statements will be delivered within 120 days after the end of the fiscal year and after the date of the last disbursement.

**F. Financial supervision plan**

- 5.11 Financial supervision will focus on the reports mentioned in paragraph 5.10, and the supporting documentation for disbursements will be subject to post review by the auditors when the audits are performed or during the financial inspection visits.

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<sup>5</sup> The draft report on the results of the evaluation is being reviewed by the MEF.

<sup>6</sup> In accordance with Operational Guidelines OP-273-6.

Development Effectiveness Matrix			
Summary			
<b>I. Strategic Alignment</b>			
<b>1. IDB Strategic Development Objectives</b>	<b>Aligned</b>		
Development Challenges & Cross-cutting Themes	-Social Inclusion and Equality -Climate Change and Environmental Sustainability		
Regional Context Indicators			
Country Development Results Indicators	-Households with new or upgraded access to sanitation (#)		
<b>2. Country Strategy Development Objectives</b>	<b>Aligned</b>		
Country Strategy Results Matrix	GN-2838	Improve the delivery of basic services to the population living in poverty.	
Country Program Results Matrix	GN-2849	The intervention is included in the 2016 Operational Program.	
Relevance of this project to country development challenges (If not aligned to country strategy or country program)			
<b>II. Development Outcomes - Evaluability</b>	<b>Evaluable</b>	<b>Weight</b>	<b>Maximum Score</b>
	8.6		10
<b>3. Evidence-based Assessment &amp; Solution</b>	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		
<b>4. Ex ante Economic Analysis</b>	<b>10.0</b>	<b>33.33%</b>	<b>10</b>
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		
<b>5. Monitoring and Evaluation</b>	<b>7.5</b>	<b>33.33%</b>	<b>10</b>
5.1 Monitoring Mechanisms	2.5		
5.2 Evaluation Plan	5.0		
<b>III. Risks &amp; Mitigation Monitoring Matrix</b>			
Overall risks rate = magnitude of risks*likelihood	<b>Medium</b>		
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>B</b>		
<b>IV. IDB's Role - Additionality</b>			
The project relies on the use of country systems			
Fiduciary (VPC/FMP Criteria)	Yes	Financial Management: Budget.	
Non-Fiduciary		Procurement: Information System, Shopping Method.	
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			

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

The main objective of the project is contributing to improve sanitary conditions and reduce the pollutant load in the rivers and tributaries in the Districts of Arraján and La Chorrera (urban). The specific objectives are to: (i) expand coverage in the area of intervention of wastewater networks and wastewater treatment; ii) contribute to develop capacity building in construction management capacity and the sector's sustainability; and iii) promote proper functioning of the sewage system through comprehensive interventions and health education programs.

The project presents a complete diagnosis; it includes a precise description of the targeted population and assesses the current situation regarding wastewater treatment and sewage in the area of intervention. Moreover, the experience in the sector is mentioned, highlighting the Panama City and Bay Sanitation Program.

In terms of the results matrix, outcome indicators reported are SMART and have means of verification.

The cost-benefit analysis (CBA) is consistent with the program logic; it has reasonable assumptions and uses a rigorous methodology. The CBA concludes that the works financed by the Bank – Caimito Treatment Plant, interceptor and collectors - are economically viable. In addition, the sensitivity analysis shows that the increase of vacant land value is the variable that affects the economic feasibility of the project.

The project includes a monitoring and evaluation plan. The effectiveness of the proposed intervention will be measured following different methodologies: an ex-post cost benefit analysis, and a before and after approach.

Finally, the risks identified in the risk matrix are rated for magnitude; they include mitigation measures and related metrics to track their implementation.

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-\_\_\_/16

Panama. Loan \_\_\_/OC-GU to the Republic of Panama  
Sanitation program for the districts of Arraiján  
and La Chorrera – Stage I

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 Republic of Panama, as Borrower, for the purpose of granting it a financing to cooperate in the execution of the first stage of a sanitation program for the districts of Arraiján and La Chorrera. Such financing will be for the amount of up to US\$150,000,000 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)