### BASIC INFORMATION

#### A. Basic Project Data

<table>
<thead>
<tr>
<th>Country</th>
<th>Project ID</th>
<th>Project Name</th>
<th>Parent Project ID (if any)</th>
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<tbody>
<tr>
<td>Panama</td>
<td>P154275</td>
<td>Burunga Wastewater Management Project</td>
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<table>
<thead>
<tr>
<th>Region</th>
<th>Estimated Appraisal Date</th>
<th>Estimated Board Date</th>
<th>Practice Area (Lead)</th>
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</table>

<table>
<thead>
<tr>
<th>Lending Instrument</th>
<th>Borrower(s)</th>
<th>Implementing Agency</th>
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<tbody>
<tr>
<td>Investment Project Financing</td>
<td>Ministry of Finance</td>
<td>Ministry of Health</td>
</tr>
</tbody>
</table>

**Proposed Development Objective(s)**

The objectives of the Project are: (a) to improve access to sewerage services in selected areas of the Borrower’s province of Panama Oeste; and (b) to strengthen wastewater pollution management capacity in key sector institutions of the Borrower.

**Components**

- **Component One:** Construction of a new sewerage system in Burunga
- **Component Two:** Institutional Strengthening for Sustainable Wastewater Management
- **Component Three:** Project Management and Administration

**Financing (in USD Million)**

<table>
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<tr>
<th>Financing Source</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Borrower</td>
<td>4.70</td>
</tr>
<tr>
<td>Development Bank of Latin America (CAF)</td>
<td>11.50</td>
</tr>
<tr>
<td>International Bank for Reconstruction and Development</td>
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</tr>
<tr>
<td><strong>Total Project Cost</strong></td>
<td><strong>81.20</strong></td>
</tr>
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**Environmental Assessment Category**

**B - Partial Assessment**

**Decision**

The review did authorize the preparation to continue
B. Introduction and Context

Country Context

1. Panama’s economic growth over the last decade has made headlines in Latin America. The country of approximately 3.6 million citizens averaged 7.9 percent real GDP growth between 2010 and 2015. In the near-term, growth prospects for Panama are promising with projections for 2014-2019 between 6 and 6.5 percent based on additional traffic through the expanded Canal and expected high levels of public and private investment. Moreover, between 2010 and 2015, poverty declined from 29.8 percent of the population to 23 percent, and extreme poverty from 12.2 percent to 10.3 percent (using the national poverty line). The population at the bottom 40 percent of the country’s economic scale has benefitted from the economic boom, with incomes rising by 4.1 percent per year from 2009 to 2014.

2. Nowhere is the economic growth more evident than in the transformation of Panama City, the economic engine of the country and home to 43 percent of the population. Over the past 20 years, the City of Panama has transformed into a rapidly growing, vibrant urban metropolis, with the first metro system of Central America and a series of high-rises doting the renewed waterfront.

3. Despite this progress, significant challenges persist. At 0.52, the Gini index remains high and above the regional average of 0.49. In addition to economic inequality, the bottom 40 percent suffers disproportionately from poor infrastructure and weak service provision. Rapid urbanization and economic growth, largely concentrated in Panama City, have also created significant environmental and public service delivery challenges, in particular in peri-urban areas. The Panama Bay, where urban residents once bathed until the 1940’s, is now highly contaminated, restricting human and economic activities. Biodiversity has significantly decreased in both the Bay and tributary rivers due to a low water quality as a consequence of poor sanitation and solid waste management services.

Sectoral and Institutional Context

4. One area that has seen exceptional urban growth is the Province of Panama Oeste, which sits west of Panama City. Panama Oeste’s District of Arraijan, where the corregimiento of Burunga is located, has registered 17 percent annual population growth rates in some areas, although many of its residents are still living in poverty conditions (29 percent). This rapid urban growth, however, has not been accompanied by the development of infrastructure and basic services. Only 24 percent of Panama Oeste’s population is connected to a sewerage system, and many of the

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4 The Panama City Metropolitan Area generates approximately 68 percent of the country’s GDP (Panama Strategic Country Diagnostic).
5 International Monetary Fund (IMF). 2015. Regional Economic Outlook. Western Hemisphere: Northern Spring, Southern Chills.
6 Panama Oeste is the tenth province of the Republic of Panama, created in January 2014 due to the region’s rapidly growing population. Panama Oeste includes the Districts of La Chorrera, Arraijan, Capira, Chame and San Carlos.
7 A corregimiento is a small political subdivision. Smaller than a district but larger than a neighborhood.
8 MINSA-PCU Social Evaluation Study of Burunga Sector 2013
9 Panama 2010 Census
sewerage systems are in poor condition with some dating from 1941 and not connected to a treatment plant. The remainder of the population utilizes septic tanks (38 percent), pit latrines or simple ground holes (37 percent use either system), many of which are dilapidated due to lack of maintenance. Septage management services are currently provided by unregulated private entities.

5. **The lack of quality Water Supply and Sanitation (WSS) services in Panama Oeste poses major risks to public health** and environmental sustainability of the Panama Bay and surrounding rivers which are contaminated with the Province’s untreated sewage. The Inter-American Development Bank (IADB) estimates that approximately 114,000 m$^3$ per year of untreated wastewater is directly discharged into surrounding water bodies in the area of Arraijan and La Chorrera, contaminating the rivers of Aguacate, Caimito, Prudente, Bernardino, Martin Sánchez and Perequetecito.

6. **The responsibility for WSS services is shared between different institutions.** These include: (a) the Ministry of Health (Ministerio de Salud, MINSA), responsible for overall policy-making; (b) the National Regulatory Authority for Public Services (Autoridad Nacional de los Servicios Publicos, ASEP), responsible for service regulation; and (c) the National Water and Sewerage Institute (Instituto De Acueductos y Alcantarillados Nacionales, IDAAN) responsible for WSS service provision in urban areas. Other key actors include the Ministry of Environment (MIAMBIENTE) that regulates and monitors water quality, and the Ministry of the Presidency through its National Council for Sustainable Development (CONADES), responsible for the implementation of high priority WSS infrastructure programs, including a program for the provision and upgrading of in-house bathroom facilities.

7. **The World Bank has maintained an active presence in the water sector since 2007.** This support includes investment projects, such as the Metro Water and Sanitation Improvement Project (P119694), currently underway, and technical assistance, and provides an important platform to discuss IDAAN’s challenges. The World Bank is also partnering with other actors to support the Government of Panama (GoP) in modernizing IDAAN; however, the pace of reform has been slow.

8. **Recognizing the urgent need to clean-up the Panama Bay and the shortfall in IDAAN’s capacity to deliver the required sanitation services in the Metropolitan Area of Panama, the GoP put in place the Panama City and Bay Sanitation Project (PCBSP) under MINSA in 2001.** The goal of PCBSP is to improve sanitary conditions in low-income urban communities of Panama City and reduce the pollution discharged into the Bay. To implement the PCBSP, MINSA created a specialized project coordination unit (PCU) that has been successfully implementing sanitation infrastructure investments in Panama City (conveyance and treatment) for the last 15 years, including oversight of

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11 In the first half of 2014, there were 18,000 cases of diarrhea in Panama Oeste, many of which are likely to have been caused by parasites transmitted through consumption of water or food that had come in contact with feces. (http://www.panamaamerica.com.pa/tema-del-dia/casos-de-diarrhea-se-han-duplicado-este-ano-en-area-de-panama-oeste, http://www.prensa.com/aleida_samaniego_c/mirada-cientifica-real-causa-diarrea_0_317682365.html)

12 The direct disposal of wastewater and solid waste in several of Panama Oeste’s rivers has increased contamination to a point at which the water is no longer considered apt for human consumption or bathing. Rivers include Aguacate, Caimito and Potrero, and present a medium level of contamination (an average of 58% on the Water Quality Index (WQI) Scale, and 49% on the WQI scale at its most contaminated monitoring point).

contracts for the operation and maintenance of the infrastructure. The PCU has over 60 experienced staff and a total budget allocation for capital works of US$4.5 million in 2016.

9. **The first phase of investments of PCBSP focused on Panama City** (US$1 billion, including US$432 million in national financing). This included extension of sewerage networks, construction of a conveyance system, as well as construction of the first phase of a large-scale wastewater treatment plant (WWTP) at Juan Díaz for Panama’s Metropolitan Area. This first phase of investments was completed in July 2013. Even though the major collection and treatment works in Panama City are operational, the impact on the quality of the Bay is still limited. Other factors contributing to environmental pollution include road runoff, storm water, garbage disposal and irregular sewerage connections to the drainage network, in particular, in peri-urban areas, among others.

10. **In light of these issues, the GoP launched a second phase of the PCBSP to continue wastewater management investments in the rapidly growing peri-urban areas of the city.** This phase also seeks to complement sanitation infrastructure programs by developing new models, tools and instruments to guide investments to maximize pollution reduction in the Bay, as well as assess the contribution of different pollutant with new methodologies such as an Integrated Urban Water Management Plan to coordinate interventions in Panama Oeste, monitor the impacts of wastewater discharges in the Bay and plan for future interventions in a more integrated manner while including climate change considerations.

11. **Given the successful experience of the first Phase, and to support the Basic Sanitation Plan** (Plan de Sanidad Basica 100/Cero) that is part of the Strategic Government Plan 2015-2019, the GoP extended the PCBSP PCU’s mandate, through a presidential Decree, on May 3, 2016, to include the districts of Arraijan and La Chorrera in the province of Panama Oeste and changed the name of the program to Panama Sanitation Program (Programa de Saneamiento de Panama, PSP). The second phase of investments, currently under implementation, focuses on areas west of the Panama Canal and involves the construction of new sewer systems, as well as a new WWTP. It totals US$577 million financed through loans from IADB, the Development Bank of Latin America (CAF), the European Investment Bank (EIB) and the China Fund.

12. **In light of the broader scope and the need for more financing and technical assistance, the GoP has requested support from both the World Bank and CAF.** Support in the amount of US$81.2 million is needed for a first set of sanitation investments in the Northwest part of the corregimiento of Burunga, and development of planning and monitoring tools to strengthen wastewater pollution management capacity.

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14 The Juan Díaz WWTP serves the population east of the Panama Canal. The plant’s current treatment capacity is of 2.7m³/s. Under a second phase of investments, its capacity will be expanded to 5.5m³/s.
15 The Basic Sanitation Plan aims to achieve 100 percent, 24-hour-a-day access to potable water and to eliminate the use of dry-pit latrines in the country, reducing the disparities in the access to running water and sanitation and the negative impacts in the environment caused by the disposal of untreated effluents.
16 Executive Decree No. 18, March 3, 2016.
C. Proposed Development Objective(s)

Development Objective(s) (From PAD)

13. The objectives of the Project are: (a) to improve access to sewerage services in selected areas of the Borrower’s province of Panama Oeste; and (b) to strengthen wastewater pollution management capacity in key sector institutions of the Borrower.

Key Results

D. Project Description

14. Component One: Construction of a New Sewerage System in Northwest Burunga (US$49.5 million, of which US$47 million IBRD). This Component will finance the construction of a sewerage system throughout the township of Burunga in the district of Arraijan, including carrying out of detailed construction designs and a sewerage network. The network will provide service to around 20,000 people by 2020 and consists of primary collectors, secondary sewers and a tertiary (smallest diameter) network. This would be implemented through a works contract estimated at US$47 million for which advanced bidding documents exist. This Component will also finance the construction of long inter-domiciliary connections from households to the main sewerage network, and closure and decommissioning of existing septic tanks, or latrines for the few households that still have one. This component will also finance the carrying out of minor drainage works, road access improvements, and other ancillary hydraulic works to protect infrastructure from flash floods. The sewerage system will be connected to a WWTP being financed in parallel by CAF and currently being tendered. The WWTP construction contract also includes the Operation and Maintenance (O&M) of the plant and network for ten years.

15. Component Two: Institutional Strengthening for Sustainable Wastewater Management (US$12.7 million, of which US$12 million IBRD). This Component seeks to strengthen the technical capacity of the PCU in implementing the PSP and helping manage water pollution in the Panama Bay. All contracts under this Component will be fully financed by IBRD and GoP. The Component will finance three subcomponents:

16. Subcomponent 2A (US$7.5 million, of which US$7 million IBRD) aims at technical capacity building of the PCU and provision of management tools to control water pollution in the Panama Bay. To contribute to the technical capacity building of the PCU and provision of management tools to control water pollution in the Panama Bay, Subcomponent 2A will finance: (i) a water quality baseline including an assessment of the expected environmental and economic impacts of the PSP; (ii) a technical audit of the sewer and drainage system in Panama City; (iii) a real-time hydrological/water quality monitoring system to serve as a basic decision support system; (iv) a hydrodynamic model to measure transport of pollutants into the Panama Bay; (v) a map locating and classifying sensitive coastal and river areas; and (vi) an action plan for the intervention of critical sewerage areas. To contribute to the development and partial implementation of an IUWM Plan for an urban river basin in Panama Oeste, the Project will finance: i) a diagnostic of the urban river basin; ii) identification of the key stakeholders; iii) the participatory

17 Internal plumbing works and bathroom appliances will be financed and implemented by CONADES for households currently lacking them.
identification of river-basin interventions; and iv) the partial implementation of the plan in pilot areas of the basin for demonstrative purposes.

17. **Subcomponent 2B (US$2.6 million, of which US$2.5 million IBRD)** aims to strengthen the PCU’s and IDAAN’s technical capacity to manage third party operations, maintenance and management of wastewater infrastructure in the Panama Bay area. The subcomponent will include technical training, short courses, workshops, technical assistance, and study tours to exchange technical knowledge with experienced operators from other regions.

18. **The objective of Subcomponent 2C (US$2.6 million, of which US$2.5 million IBRD)** is to strengthen the PSP’s social interventions by raising awareness, training and encouraging commitment to the Project’s investments among community-based organizations in Burunga. This subcomponent will finance: i) the creation and strengthening of socio-environmental community management committees, ii) the development of monitoring exercises to evaluate the sanitary conditions of the population; and iii) other community initiatives such as sweeping campaigns and cultural and sport events. A social assessment was conducted during project preparation to define the scope of these activities, as well as to ensure prioritization of low-income households.

19. **Component Three: Project management and administration (US$19 million, of which US$6 million IBRD).** This Component will finance: (i) the costs associated with the supervision, quality control, monitoring, inspection and procurement of the works being performed in the corregimiento of Burunga, including those developed under Component 1, plus the neighboring Areas of Burunga Center and Burunga East as well as the WWTP; and (ii) the PCU’s Project management and administration activities. The PCU’s Project administration activities will be financed by IBRD, including fiduciary management (including financial audits), reporting and monitoring activities, a Monitoring and Evaluation (M&E) system and implementation of the Project’s Environmental Management Plan and Social Management Strategy, which contains Civil Engagement Strategy, gender analysis, and Grievance and Redress Mechanisms (GRM). A project management consulting firm (Project Manager) will be financed by CAF to ensure procurement, supervision, quality control, monitoring, and inspection of the works being performed in the corregimiento of Burunga, including those developed under Component 1, the neighboring Areas of Burunga Center and Burunga East and the WWTP (with no fiduciary responsibilities), thus the PCU has the fiduciary responsibility for the Bank, but everything else related to designs, studies and field supervision of works is to be covered by the project manager.

**E. Implementation**

Institutional and Implementation Arrangements

20. **MINSA, through the PSP’s PCU**\(^{18}\) **will be responsible for the overall implementation of the Project.** The PCU is responsible for the administrative management and operation of the PSP, program planning and execution, preparation of progress reports, data collection and project monitoring, specialized technical assistance to accompany Project execution, and environmental and social supervision of the works. The PCU is currently managing a portfolio of over US$1 billion in contracts, demonstrating its capacity to effectively manage and implement large-scale projects. The PCU is well

\(^{18}\) The PCU was created by Executive Decree 144 on June 20, 2001
staffed and has qualified multidisciplinary personal able to fulfill its mandate. Moreover, the PCU recruited an international firm in August 2015 (Project Manager) to support the preparation of technical designs, environmental studies, and licensing documents and bidding documents. The PCU will not be delegating fiduciary responsibilities to the project manager. Finally, the O&M of the planned infrastructure will be included as part of the construction contract for ten years.

F. Project location and Salient physical characteristics relevant to the safeguard analysis (if known)

The Project infrastructure investments will benefit within the District of Arraijan: (i) the inhabitants of the corregimientos of Burunga with new sewerage

The District of Arraiján is located on a plain (about 100 m.a.s.l on average) with depressions and elevations such as the Cabra and Galera hills. It is characterized by its high water resources concentration with 54 rivers and streams, where the most important ones include the Caimito, Aguacate, Potrero, Paja and Velasquez rivers. In general, these rivers are short, narrow and of small basin areas. Burunga, enjoys rich natural and water resources of which stand out the Bosque Protector de Arraijan (Arraijan Protective Forest) and El Chorro, a historically touristic waterfall once popular among Panamanians. All these rivers and streams discharge their waters to the Panama Bay in the Pacific Ocean. The natural richness and sustainability of the area has been affected by the lack of adequate sanitation in the surrounding urban communities.

Only 35 percent of the population in Arraijan (9 percent in Burunga) is connected to a sewerage system, and the households that are connected do not receive the full benefits of household sewerage connections because of the system’s poor condition, the population with sanitation solutions utilizes septic tanks or pit latrines or simple ground holes many of which are in a dilapidated state due to lack of maintenance, and septage management services are provided by unregulated private entities. Leakages from septic tanks and direct disposal of untreated wastewater into streets and urban streams have negatively affected the quality of main rivers such as the Rio Caimito and El Chorro, whose water is no longer considered for human consumption or bathing.

G. Environmental and Social Safeguards Specialists on the Team

Ximena B. Traa-Valarezo, Carlos Vargas Bejarano

SAFEGUARD POLICIES THAT MIGHT APPLY

<table>
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<tr>
<th>Safeguard Policies</th>
<th>Triggered?</th>
<th>Explanation (Optional)</th>
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</thead>
<tbody>
<tr>
<td>Environmental Assessment OP/BP 4.01</td>
<td>Yes</td>
<td>The proposed wastewater management system will have positive impacts for the public health and environmental sustainability of the area, mainly through the elimination of latrines and septic tanks which pollute both surface and ground waters.</td>
</tr>
</tbody>
</table>
The team proposes the Project to be classified as an Environmental Category B, mainly because during the construction of the Burunga Sector’s sanitary sewer system, negative environmental impacts of the Project will correspond to civil works that can be adequately managed by environmental management plans.

Even though the WWTP will be financed by the CAF, the WB has participated actively in this process, evaluating each and every aspect of its design. The aspects most relevant to the WWTP are presented below:

1. Three potential sites were evaluated for the WWTP location, finally choosing a site in the Aguacate river basin, approximately 1.5 km from the Nuevo Chorrillo area. The final WWTP's location was defined after a feasibility study that considered technical, economic and environmental aspects. The site chosen for the WWTP has an available area of approximately 21 hectares, however, only 8 hectares will be used for the treatment facilities, driveway and administrative areas. The chosen location, near the margins of the Aguacate river, is sensitive to flooding risks. These risks have been mitigated by including hydraulic and hydrologic models, including models for forecasting floods, during the preparation of the WWTPs technical design. As a result, the WWTP will be located in an elevated area with a flooding return period of 100 years. In addition, the construction of the plant will include works (like the construction of walls and terraces) for the protection of the WWTP during flooding events. The identified flooding areas will be part of the areas reserved for environmental management, buffer zones and landscape management.

2. The effluent discharged by the WWTP will need to comply with Panama’s discharge standards specified in the COPANIT 35-2000 norm. In this sense, the treatment technology to be selected for this WWTP (initial considerations include activated sludge as a reference treatment technology), will have to be able to produce an effluent compliant with this national standard. In addition to
<table>
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<tr>
<th>(3) The PCU estimates that between 1500 to 1600 tons of biosolids will be produced by the WWTP every month. The biosolids characteristics will need to be compliant with the COPANIT 47-2000 national norm. The PCU is considering different alternatives for the biosolids disposal. In the short term, the PCU will dispose of them at the solid waste landfill of Patacon, and in the medium and long term the PCU is considering options for their use in agriculture or for soil improvement as well as the construction of a landfill for Panama Oeste. During this process, the GoP will evaluate the best alternative for biosolids disposal and its use as final cover and for landscape management.</th>
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<tbody>
<tr>
<td>(4) The Bank has requested the PCU to include it the WWTP design, considerations to prevent and mitigate climate change effects. These include, among others, measures to prevent greenhouse emissions (methane gas recovery and cogeneration) and to protect the WWTP in case of extreme flow changes of the Aguacate river.</td>
</tr>
<tr>
<td>(5) Following Panama’s environmental regulations, particularly Executive Decree 123 of 2009, a Category III Environmental Impact Assessment (EIAs) has been completed for the construction of the sanitary sewer systems of Arraijan Cabecera, Rio Potrero, the Burunga Sector, and of the WWTP. The Bank team reviewed the content established in this Decree and has requested the PCU to (a) widen the EIAs scope to include more depth regarding the environmental impacts of the plant, (b) to include an analysis of environmental aspects related to the assessment for site location, selection of treatment technologies, operational aspects, odor dispersion, biosolids disposal and environmental management plans of the WWTP operation phase and (c) to include measures related to industrial safety and...</td>
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occupational health during the construction and operation phase of the WWTP, pumping stations and sewerage networks. The PCU has completed the additional Bank’s request.

The Project Implementation Unit (PCU) completed the Environmental and Impact Assessment (EIA) in February 2016, and submitted it to MINAMBIENTE for their revision and approval. The WB and MINAMBIENTE found the EIA to be satisfactory. Through Resolution 1A-122-2016 of July 15, 2016, MINAMBIENTE approved the EIA Category III, a legal document which constitutes the Environmental License of this Project.

The EIA and its annexes were published on MINSA-PCU’s website, and on the World Bank’s website on May 31, 2016. Resolution 1A-122-2016 of July 15, 2016 was published on MINSA-PCU’s website on August 2016.

The PCU has completed the Project’s socialization process, including the socialization of environmental measures that will be adopted during Project implementation. Following Panamanian environmental regulations, a public consultation forum was carried out for the Project’s EIA on April 2016, with the participation of the community affected by the Project as well as representatives from local authorities, institutions and other groups. The socialization report has been publicly disclosed in MINSA’s and the Bank’s external website in May 2016.

Taking into account the experience of the PCU in the environmental management of large sanitation systems, the Bank has preliminarily agreed with the PCU to use their environmental management system following Panama’s environmental regulatory framework and abiding to the resolutions by the Ministry of Environment regarding EIAs (one for the WWTP and the other for sewerage system). The World Bank, together with the other Project financiers (CAF and the EIB), have agreed with the PCU to adopt only one criteria for the environmental management of the Project, specifically comply with
Panamanian environmental regulations, particularly related to the WWTP effluent compliance with the COPANIT 35-2000.

Compliance with the Environmental Management Plan for the WWTP, pumping stations, collectors and sewerage network will be monitored by the Project Manager. The PCU, will follow-up closely with the Project Manager and will be directly responsible for the compliance of the agreements established in the Environmental Licenses, Resolution 1A-122-2016 of July 15, 2016, awarded by the Ministry of the Environment.

Regarding other social aspects, the PCU will be responsible for the implementation of the social management scheme of the Project. The Social Management strategy has been designed during project preparation, based on the results of the Social Assessment and consultations. The Social Assessment for the investments of Burunga has been finalized, sent to the World Bank and disclosed on the MINSA’s website.

The Social Management will take place throughout the project cycle, that is: (a) during the initial diagnostic of socioeconomic conditions of affected population; (b) through informed consultations on the Project design, (c) through the participation strategy of those affected, to register their opinions and views, and to ensure broad community support to the Project at large; and (d) in their participation during subproject implementation, and after civil works have concluded, to ensure sustainability of the W&S systems built or rehabilitated.

Gender aspects are a key part of the Social Management strategy. The social assessment and consultations will identify the specific roles of men and women in the project area. Women are typically responsible for the health and hygiene education of the family. The Social Management strategy will take into account gender roles to include opportunities for meaningful participation.
A Grievance and Redress Mechanism (GRM) was designed for the project, to allow stakeholders and beneficiaries to express their concerns and complaints and to get responses within an agreed time-frame.

The Project works to be performed will be mostly located in urban or peri-urban areas. There are no protected natural habitats located within or in the proximity of the Project intervention area.

During site preparation it will be necessary to carry out soil movement and remove shrubs. The PCU has performed a forestry and wildlife inventory in the areas nearby the chosen location for the WWTP, along the Burunga, Perico and Aguacate rivers (in the corridors where main collector pipes will be installed) and in the land designated for the pumping stations. Approximately 80 species and 5,500 trees have been identified in the area of influence of the project which includes the area where the new sewerage will be constructed (7.5 ha in the corridors parallel to the rivers of Burunga, Perico and aguacate) and the area of the WWTP. The status of all the identified species were verified against the lists found in the Convention on International Trade in Endangered Species of Wild Fauna and Flora of the International Union for Conservation of nature (IUCN). None of the identified species is considered endemic in the area or region.

The EIA has established all the relevant measures for environmental protection, conservation and management of ecological values of the sites.

<table>
<thead>
<tr>
<th>Natural Habitats OP/BP 4.04</th>
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</tr>
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<tbody>
<tr>
<td>Forests OP/BP 4.36</td>
<td>No</td>
</tr>
<tr>
<td>Pest Management OP 4.09</td>
<td>No</td>
</tr>
<tr>
<td>Physical Cultural Resources OP/BP 4.11</td>
<td>Yes</td>
</tr>
</tbody>
</table>

The Project will only finance activities in urban or peri-urban areas, with no intervention of forests or mangroves within nor in the immediate proximity of the Project’s areas of intervention.

The Project will not finance activities involving the acquisition or use of pesticides in large quantities.

An archaeological survey was conducted in the sites selected for the WWTP and main collectors. Prehispanic ceramic fragments were identified on the top layer of the land for the WWTP location. No other findings were identified. Because of this, the
The site will be monitored for archeological findings during the preparation phase of the terrain, with the permanent presence of a qualified archaeologist. In case archaeological remains are identified, the appropriate authorities will be notified to initiate the archeological recuperation.

The team has assessed that there is a need to include chance find procedures in the Environmental Management Plans.

**Indigenous Peoples OP/BP 4.10**

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OP/BP 4.10 is not triggered. The social assessment for the Corregimiento of Burunga, was carried out between June and October 2015 by the Firm Louis Berger and MINSA social team. Through a socioeconomic survey, and consultations it was established that there are no Indigenous groups in the project area. As per the Indigenous families intermingled with mestizo population, the Social Management Strategy of the Project has provisions to ensure all sectors of the population are invited to participate in the project activities (training, social control) to attain project sustainability.

**Involuntary Resettlement OP/BP 4.12**

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The Policy is triggered, and a Resettlement Policy Framework (Marco de Políticas para Afectaciones por Adquisición de Tierras y/o Reasentamiento Involuntario) was elaborated by the borrower, with technical assistance of the Bank team. The RPF includes 2 parts: (a) Land Acquisition; and (b) Involuntary Resettlement. The RPF will be included in the contractors’, and design consultants’ bidding documents.

Studies undertaken at the moment indicate that involuntary resettlement is not likely to happen, but in the event it occurs, the RPF will be applied.

Land identified for construction of infrastructure located on public lands is in the process of being transferred to MINSA following the RPF mentioned above. Land for wastewater pumping stations and other small infrastructure may need to be acquired for construction of civil works. The RPF was institutionalized by MINSA for all their operations under the Panama Sanitation Program. Easement rights will need to be negotiated with property owners.
owners for the construction of the sewage networks and, minor drainage works, road access improvement, and other ancillary hydraulic works.

The Land Acquisition and Involuntary Resettlement Framework (RPF) provides guidelines and step-by-step instructions for the acquisition of plots of land needed for project infrastructure, following procedures set up by the Finance Ministry and Contraloría for the valuation of assets and improvements to lands. The RPF also provides guidelines for mitigation of socio-economic impacts of land occupants (owners, tenants or squatters), compensation at replacement cost, and livelihood restoration of persons affected by the project (PAPs). It also includes a Form for Land Donation Contracts to ensure absence of coercion in the transactions.

The Framework was approved by the country and the WB Practice Manager and published on the web pages of the Ministry of Health, and the World Bank’s external website in May 2016.

<table>
<thead>
<tr>
<th>Safety of Dams OP/BP 4.37</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projects on International Waterways</td>
<td>No</td>
</tr>
<tr>
<td>OP/BP 7.50</td>
<td>The Project will not finance activities involving the use or potential pollution of international waterways.</td>
</tr>
<tr>
<td>Projects in Disputed Areas OP/BP 7.60</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>The Project will not finance activities in disputed areas as defined in the policy.</td>
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</tbody>
</table>

**KEY SAFEGUARD POLICY ISSUES AND THEIR MANAGEMENT**

**A. Summary of Key Safeguard Issues**

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:

The project would improve water quality in the watershed. The World Bank (WB) considers necessary the construction of the WWTP to be completed before the finalization of the sewer network construction to assure the protection and recovery of the Rio Aguacate receiver source. The effluent of the sewer system of the Burunga Sector will be treated in the WWTP; this treatment plant will have to be active once the sewer system comes into operation in order to prevent the contamination of the Aguacate and Caimito Rivers. The GoP will have to offer the WB guarantees of its commitment to the WWTP’s construction, and to have it operating at the moment the sewerage networks are put into
The WB will have access to WWTP’s construction reports on technical, environmental and land acquisition issues to make sure that all the dispositions of the Environmental License, Resolution 1A- 122-2015 of July 15, 2016, are being complied with, while applying all measures of prevention and control established in the Environmental Impact Assessment.

Social
No negative social impacts are foreseen for this Project, on the contrary, many positive impacts are expected. The Social Management Strategy includes provisions to ensure participation of all groups of the population, including Indigenous families scattered in the project area. Stakeholder consultations are built into the scheme throughout the project cycle.

The OP 4.12 is triggered and a Resettlement Policy Framework (Marco de Política para Afectaciones por Adquisición de Tierras o Reasentamiento Involuntario) was elaborated by the client with support of the Bank team. The framework has been institutionalized by MINSA for the Panama Sanitation Program. Involuntary resettlement of social units or economic activities is not foreseen now.

The OP 4.10 is not triggered. The social assessment activities concluded that there are no Indigenous groups living as indigenous communities in the project area. However, the Indigenous families living in the affected neighborhoods will be identified in the Social Management Strategy and offered opportunities to participate in project activities and training.

Environmental
Environmental safeguards triggered for this Project include Natural Habitats (OP/BP 4.04) and Physical Cultural Resources (OP/BP 4.11). These safeguards have been addressed through the EIA, which includes chance-finding procedures.

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area:
The environmental and social impacts of the Project are expected to be positive and long-term, especially in terms of public health, water and sanitation services and the environmental sustainability of the area, mainly through the elimination of latrines, illegal discharges to creeks or rivers and de-commissioning of septic tanks which pollute both surface and ground waters.

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.
Unlike previous PSP interventions, the one in Burunga is particularly careful on the location to lay out the sewerage network. A 100-year return flood-analysis has been carried out in order to determine the exact location of the main outfalls in order to minimize interference with the creek and river channels, minimize erosion and preserve the infrastructure. Energy-efficient wastewater treatment technologies are also considered in order to minimize the need to produce fossil-based electricity. Also, wastewater treatment technologies that minimize the production of sludge are being considered to reduce the impact on current and future landfills.

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described.
Environmental
The PCU has hired a Project Management firm who will be responsible for the environmental management of the works and the operation of the WWTP, pumping stations and sewerage network. In particular, the PCU, through the Project Manager will need to ensure that environmental regulations and environmental safeguards are complied with and will monitor the implementation of the Environmental Impact Assessment. The Project Manager can be strengthened with additional professionals with the necessary competencies, as the Project progresses.

The PCU will be directly responsible for complying with the agreements established in the Environmental License, Resolution 1A- 122-2015 of July 15, 2016, awarded by the Ministry of Environment.

The PCU is establishing an integrated quality system ISO 9001, ISO 14001 and ISO 18001 for its internal processes. The integrated quality system will facilitate the environmental and safety management of the Project.

Social
O.P.4.10 Indigenous Peoples. The Social Assessment tried to identify Indigenous groups established in the project area (with Indigenous Authorities and Institutions). No groups of Indigenous Peoples were identified. However, the social assessment indicated that Indigenous families have moved from the Comarcas (Ngobe-Buglé, Guna, Embera, Wounaan) and mingled with non-indigenous population in urban areas. To ensure their participation in the benefits of the project, the Social Management Strategy includes provisions to ensure all sectors of the population, men and women, are invited to participate in all project activities (training, Committees, etc.).

The MINSA social team is formed by experienced social specialists. MINSA has previous experience managing social issues in infrastructure projects. The Social Management Scheme has been institutionalized and is included in all consultants, and contractors TORs.

The Bank provided guidance and approved the Grievance and Redress Mechanism that is under the Specific Quality Procedure (PCA-06) of the PCU.

O.P.4.12 Land Acquisition and Involuntary Resettlement Policy is triggered. A Resettlement Policy Framework (RPF) (Marco de Política para Afectaciones por Adquisición de Tierras o Reasentamiento Involuntario) was elaborated by the borrower, with technical assistance of the Bank team. Land needed for infrastructure located on public properties will need to be transferred to MINSA. Land for minor infrastructure may need to be acquired.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people.

Environmental
Key stakeholders include the Ministry of Environment, Ministry of Health, the Ministry of Public Works, municipal authorities, the civil society and the community in the direct Project’s area of influence.

The Project Implementation Unit (PCU) completed the Environmental and Impact Assessment (EIA) in February 2016, and submitted it to MINAMBIENTE for their revision and approval. The WB and MINAMBIENTE found the EIA to be satisfactory. Through Resolution 1A- 122-2016 of July 15, 2016, MINAMBIENTE approved the EIA Category III, a legal document which constitutes the Environmental License of this Project.

The EIA and its annexes were published on MINSA-PCU’s website, and on the World Bank’s website on May 31, 2016. Resolution 1A- 122-2016 of July 15, 2016 was published on MINSA-PCU’s website on August 2016.
The EIA and the environmental management plans has been socialized and consulted with the community through a public forum which was carried out in April 2016. The socialization report has been published in the MINSA’ss and the World Bank’s Infoshop website.

Social

Some key stakeholders are: The Ministry of Health, Mayors, Representatives (Honorables Representantes) of the Corregimientos, Social-environmental neighborhood Committees (men and women), local Associations, women’s associations, schools, health units, and other social organizations.

A social assessment including Consultations, a survey and a Participatory Diagnostics were carried out by the Firm Louis Berger between June and October 2015. Six workshops, 14 meetings, and focus groups were carried out to introduce the project and consult people on potential social risks and opportunities. Twenty-four interviews with key stakeholders, civil society leaders, the municipality of Arraiján, neighborhood leaders, public schools, environmental groups took place in the Barriada 11 de Octubre (sectors 1,2,3,4), 13 de Febrero, El Progreso, Generación 2000 and La Alameda. 143 people of different neighborhoods of Burunga participated in the Participatory Diagnostics.

A Social Management Strategy was prepared by the PCU. It includes provisions for informed consultations with stakeholders and beneficiaries throughout the life of the project, that is, before the public works are built, while project designs are drawn, during construction of public works, and afterwards to ensure sustainability. Authorities and representatives of corregimientos were involved from onset.

B. Disclosure Requirements

<table>
<thead>
<tr>
<th>Environmental Assessment/Audit/Management Plan/Other</th>
<th>Date of receipt by the Bank</th>
<th>Date of submission to InfoShop</th>
<th>For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors</th>
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<td>30-Jan-2016</td>
<td>31-May-2016</td>
<td>For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors</td>
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"In country" Disclosure

Panama

30-May-2016

Comments

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<th>Resettlement Action Plan/Framework/Policy Process</th>
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<td></td>
<td>30-Jan-2016</td>
<td>17-May-2016</td>
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</table>

"In country" Disclosure
C. Compliance Monitoring Indicators at the Corporate Level (to be filled in when the ISDS is finalized by the project decision meeting)

OP/BP/GP 4.01 - Environment Assessment

Does the project require a stand-alone EA (including EMP) report?
Yes
If yes, then did the Regional Environment Unit or Practice Manager (PM) review and approve the EA report?
Yes
Are the cost and the accountabilities for the EMP incorporated in the credit/loan?
Yes

OP/BP 4.04 - Natural Habitats

Would the project result in any significant conversion or degradation of critical natural habitats?
No
If the project would result in significant conversion or degradation of other (non-critical) natural habitats, does the project include mitigation measures acceptable to the Bank?
No

OP/BP 4.11 - Physical Cultural Resources

Does the EA include adequate measures related to cultural property?
Yes
Does the credit/loan incorporate mechanisms to mitigate the potential adverse impacts on cultural property?
Yes

OP/BP 4.12 - Involuntary Resettlement

Has a resettlement plan/abbreviated plan/policy framework/process framework (as appropriate) been prepared?
Yes
If yes, then did the Regional unit responsible for safeguards or Practice Manager review the plan?
Yes

The World Bank Policy on Disclosure of Information
Have relevant safeguard policies documents been sent to the World Bank's Infoshop? Yes
Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs? Yes

All Safeguard Policies

Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies? Yes
Have costs related to safeguard policy measures been included in the project cost? Yes
Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies? Yes
Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents? Yes

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APPROVAL

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Approved By

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Practice Manager/Manager: 28-Dec-2016
Country Director: Maryanne Sharp 28-Dec-2016