



**Board of Executive Directors**  
**Simplified Procedure**  
On or after 13 September 2017

PR-4497  
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**Public**  
**Simultaneous Disclosure**

**To:** The Executive Directors  
**From:** The Secretary  
**Subject:** Peru. Proposal for a loan for the “Program to Recover Locations Degraded by Solid Waste in Priority Areas”

**Basic Information:** Loan type ..... Specific Investment Operation (ESP)  
Borrower ..... Republic of Peru  
Amount ..... up to US\$30,000,000  
Source ..... Ordinary Capital

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**Remarks:** Management has determined that this loan proposal meets the requirements for presentation by Simplified Procedure, in accordance with Part III, Section 2 (paragraph 3.29(b)) of the Regulations of the Board of Executive Directors and document GN-1838-1, paragraph 2.

**Reference:** GN-1838-1(7/94), DR-398-17(1/15), GN-2884(2/17), CII/GN-341(2/17)



DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

**PERU**

**PROGRAM TO RECOVER LOCATIONS DEGRADED BY SOLID WASTE IN  
PRIORITY AREAS**

**(PE-L1153)**

**LOAN PROPOSAL**

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

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## ABBREVIATIONS

AWP	Annual work plan
DGCA	Dirección General de Calidad Ambiental [Environmental Quality Bureau]
DIGESA	Dirección General de Salud Ambiental [Environmental Health Bureau]
ESMP	Environmental and Social Management Plan
JICA	Japan International Cooperation Agency
LGRS	Ley General de Residuos Sólidos [Solid Waste Act]
LIBOR	London interbank offered rate
MEF	Ministry of Economy and Finance
MINAM	Ministry of the Environment
MSW	Municipal solid waste
PEP	Program Execution Plan
PEU	Program execution unit
PLANAA	Plan Nacional de Acción Ambiental [National Environmental Action Plan]
RSIP	Recyclers' Social Inclusion Plan
USW	Urban solid waste

## PROJECT SUMMARY

### PERU

#### PROGRAM TO RECOVER LOCATIONS DEGRADED BY SOLID WASTE IN PRIORITY AREAS (PE-L1153)

Financial Terms and Conditions																		
<b>Borrower:</b> Republic of Peru			<b>Flexible Financing Facility<sup>(a)</sup></b>															
			<b>Amortization period:</b>	Bullet 15 Dec. 2025														
<b>Executing agency:</b> Ministry of the Environment (MINAM)			<b>Disbursement period:</b>	5 years														
			<b>Grace period:</b>	Bullet 15 Dec. 2025														
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Source</th> <th style="width: 25%;">Amount (US\$)</th> <th style="width: 25%;">%</th> </tr> </thead> <tbody> <tr> <td><b>IDB (Ordinary Capital)</b></td> <td style="text-align: right;">30,000,000</td> <td style="text-align: center;">85</td> </tr> <tr> <td><b>Local</b></td> <td style="text-align: right;">5,300,000</td> <td style="text-align: center;">15</td> </tr> <tr> <td><b>Total</b></td> <td style="text-align: right;">35,300,000</td> <td style="text-align: center;">100</td> </tr> </tbody> </table>			Source	Amount (US\$)	%	<b>IDB (Ordinary Capital)</b>	30,000,000	85	<b>Local</b>	5,300,000	15	<b>Total</b>	35,300,000	100	<b>Interest rate:</b>	LIBOR-based		
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<b>IDB (Ordinary Capital)</b>	30,000,000	85																
<b>Local</b>	5,300,000	15																
<b>Total</b>	35,300,000	100																
			<b>Credit fee:</b>	(b)														
			<b>Inspection and supervision fee:</b>	(b)														
			<b>Weighted Average Life (WAL):</b>	8.28 years <sup>(c)</sup>														
			<b>Currency of approval:</b>	U.S. dollars from Ordinary Capital														
Project at a Glance																		
<p><b>Project objective/description:</b> The general objective of the program is to improve environmental conditions in areas degraded by solid waste in 12 priority municipios in Peru. The specific objectives are to: (i) recover degraded areas; (ii) strengthen municipal management in the final disposal of municipal solid waste; and (iii) improve conditions and expand job opportunities for informal recyclers. This project is part of a broader program promoted by the Peruvian government, which aims to cover a total of 30 cities. IDB financing will cover 12 cities (Bagua, Huacho, Oxapampa, Abancay, Tarma, Pozuzo, Chancay, and Yauyos, and the viability of Huamanga, Andahuaylas, Aymaraes, and Chinchipe is pending confirmation), while resources from the Japan International Cooperation Agency will cover 18 cities.</p>																		
<p><b>Special contractual conditions precedent to the first disbursement of the financing:</b> The executing agency will submit, to the Bank's satisfaction, evidence of having met the following conditions: (i) the Program Operating Manual has been approved by the executing agency, with the prior no objection of the Bank; and (ii) key staff has been selected by the executing agency (Annex III), including the staff indicated by the Environmental and Social Management Report (ESMR) as necessary (see the section on legal requirements) (<a href="#">OEL#4</a>) (paragraph 3.10).</p>																		
<p><b>Special contractual conditions for execution:</b> Execution of the program is contingent upon receipt of evidence, to the Bank's satisfaction, of compliance with the following conditions: (i) that the executing agency has signed interagency cooperation agreements with the corresponding municipios, establishing their obligations with respect to dumpsite closure works under the program, including ensuring that the annual resources necessary for maintenance, monitoring, and post-closure control are available; and (ii) that the requirements established in the legal requirements section of the ESMR (<a href="#">OEL#4</a>) are met (paragraph 3.11).</p>																		
<p><b>Exceptions to Bank policies:</b> None.</p>																		
Strategic Alignment																		
<b>Challenges:<sup>(d)</sup></b>	SI	<input checked="" type="checkbox"/>	PI	<input checked="" type="checkbox"/>	EI	<input type="checkbox"/>												
<b>Crosscutting themes:<sup>(e)</sup></b>	GD	<input checked="" type="checkbox"/>	CC	<input checked="" type="checkbox"/>	IC	<input checked="" type="checkbox"/>												

<sup>(a)</sup> Under the terms of the Flexible Financing Facility (document FN-655-1), the borrower has the option of requesting changes in 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 credit fee and the inspection and supervision fee will be set periodically by the Board of Executive Directors as part of its review of the Bank's lending charges, in accordance with relevant policies.

<sup>(c)</sup> The original WAL cannot be higher than this number but could be lower depending on the date the loan is signed and will be included therein at the date of signing.

<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. PROJECT DESCRIPTION AND RESULTS MONITORING

### A. Background, problems, and rationale

- 1.1 **Institutional framework.** The Ministry of the Environment (MINAM) is the executive branch agency that develops, directs, supervises, and executes national environmental policy. It also promotes conservation and the sustainable use of natural resources, biological diversity, and protected natural areas.
- 1.2 The MINAM promotes and coordinates proper solid waste management, air quality protection, and noise and nonionizing radiation controls. MINAM's purview includes designing, approving, and supervising the use of environmental prevention, oversight, and rehabilitation tools for solid and hazardous waste to ensure a clean environment, in accordance with the provisions of Law 27314, the Solid Waste Act (LGRS), regulations for which were approved under Supreme Decree 057-04-PCM and Legislative Decree 1065 amending Law 27314.
- 1.3 The LGRS (Law 27314), was amended in June 2008 with the publication of Legislative Decree 1065, to, among other things, add the roles and responsibilities of recently created entities—such as the MINAM itself and the Environmental Evaluation and Supervision Agency (the National Environmental Certification Service was created in 2012)—and to promote and facilitate public and private investment in the sector.
- 1.4 On 23 December 2016, Legislative Decree 1278 was published, enacting the Comprehensive Solid Waste Management Act, issued by the Ministry of the Environment. This law will take effect upon publication of its regulations, repealing the current LGRS enacted by Law 27914.
- 1.5 **National environmental policy.** The objective is to ensure environmental quality suitable for people's health and overall development by preventing damage to ecosystems, recovering degraded environments, and promoting integrated management of environmental risks, as well as clean and eco-efficient production. It is based on four thematic pillars of environmental management. One of the guidelines under pillar 2 on the Comprehensive Management of Environmental Quality is to rehabilitate environmentally degraded areas by coordinating the public- and private-sector actors involved.
- 1.6 **National Plan for the Comprehensive Management of Solid Waste.** The plan establishes the following programs: (i) a capacity-building program that seeks to ensure that 30% of the beneficiaries are women and young people in order to promote their participation at all stages of solid waste management; (ii) an institutional development program; and (iii) an investment feasibility program, one of the objectives of which is to recover and restore—in environmental, social, and economic terms—the areas degraded by dumpsites, with the goal of closing, recovering, and restoring 100% of municipal dumpsites within 10 years.
- 1.7 **2010-2021 National Environmental Action Plan.** The plan incorporates the policy guidelines and the technical-political criteria established in the National Environmental Policy, including that 100% of municipal solid waste (MSW) that cannot be reused will be treated and disposed of properly by the year 2021.

- 1.8 **Diagnosis of the problem.** In Peru, an estimated 13,244 tons of MSW were generated daily in 2014.<sup>1</sup> The coverage of adequate final disposal service is still low; in many cases, untreated waste is placed in open-air dumpsites, a situation exacerbated by population growth and expansion of urban areas. As of 2014, there were 11 authorized sanitary landfills in operation: four in Lima and seven in other provinces. Based on the country's total population, sanitary landfills are the final disposal site for 44.1% of MSW. Considering that 17,524 tons of waste were recovered for recycling per month from municipally managed waste in 2014, an estimated 46.78% of MSW is being improperly released to the environment in dumpsites, bodies of water, and uncontrolled burns, potentially constituting a serious health and environmental problem.
- 1.9 MINAM has been executing the "Project for the Development of Solid Waste Management Systems in Priority Areas" (loan 2759/OC-PE), which is funding the construction of sanitary landfills<sup>2</sup> in eight cities: Bagua, Chancay, Oxapampa, Pozuzo, San Juan Bautista, Yauyos, Huamanga, and Andahuaylas, of a total of 31. Construction in the remaining 23 (Abancay, Moyobamba, Talara, Aymaraes, Azangaro, Chachapoyas, Huacho, Llave, Sechura, Tarma, Tumbes, San Martín, Ferreñafe, Paita, Puno, Huanuco, Sullana, Chincha, Santiago, Puerto Maldonado, Piura, Nuevo Chimbotey, and Juliaca) is being financed by the Japan International Cooperation Agency (JICA), with the closure and recovery of areas degraded by dumpsites in these cities slated for a second stage. These 31 cities currently dispose of their MSW in dumpsites without any type of control. The waste is not compacted or covered daily, and most dumpsites produce unpleasant odors, gases, and leachates.<sup>3</sup> At some dumpsites, informal recyclers earn money from recovering materials, and pig farmers feed their animals with organic waste from the dumpsite. In addition, the situation at the dumpsites is exacerbated and intensified by population growth and changes in the kinds of waste based on the products consumed. Dumpsites can contaminate surface and ground water, the soil, and the air; they also produce odors and are home to insects and other vectors that can spread disease.<sup>4</sup> Finally, it should be noted that dumpsites are not permitted under Additional Provision VI of LGRS 27314 of 21 July 2000, as amended by Article 3 of Decree Law 1065, published on 28 June 2008.
- 1.10 The dumpsites in the 30 cities to be considered under this program (San Juan Bautista is not included for reasons that will be explained below) have very similar

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<sup>1</sup> Source: National Waste Plan 2016-2021 (RM 191-2016-MINAM). <http://www.minam.gob.pe/wp-content/uploads/2016/07/RM-N%C2%B0-191-2016-MINAM.pdf>.

<sup>2</sup> Sanitary landfill: Engineering technique for isolating solid municipal waste. It involves dumping, spreading, and compacting waste on an impermeable bed and covering it with earth or another inert material on at least a daily basis in order to control the proliferation of vectors and to properly manage gases and leaching to avoid environmental contamination and protect the health of the population. A sanitary landfill is an engineering project, with controlled access and a weigh-station, with no waste pickers on site.

<sup>3</sup> Leachate: liquid from waste, formed by reaction, displacement, or percolation and containing dissolved or suspended elements or substances found in the waste.

<sup>4</sup> There are numerous studies analyzing the impact of uncontrolled dumps on the health of the population in the environment, such as *Solid waste treatment and disposal: effects on public health and environmental safety* (Hamer, 2003), *Assessment of the Impact of Solid Waste Dumpsites on Some Surface Water Systems in the Accra Metropolitan Area, Ghana* (Nartey, Hayford and Ametsi, 2012), and *Environmental and Health Impact of Solid Waste Disposal in Developing Cities: A Case Study of Granville Brook Dumpsite, Freetown, Sierra Leone* (Sankoh, Yan and Tran, 2013).

- operational characteristics;<sup>5</sup> only a few differences have been identified, as described below. Most of these dumpsites are located far from the cities' urban and downtown areas. They have on average been operating for 5 to 20 years and have always received waste from the city, and in some cases from other neighboring districts. Some dumpsites partially control and manage what is dumped from vehicles, with a fence, a guardhouse and security, and sporadic supervision of incoming waste being dumped. They also partially cover the waste and keep some records on vehicles entering the dump. Fewer than half of all dumpsites do this. The remaining dumpsites do not have these controls, and in such cases, multiple environmental health problems are evident. For example, the dumping of hospital, industrial, and commercial waste has been confirmed at the Tarapoto, Moyobamba, Puno, Paita, Juliaca, Nuevo Chimbote, and Sechura dumpsites, among others.
- 1.11 Dumpsites in the coastal area<sup>6</sup> have uncontrolled burns aggravated by high temperatures and organic material that, because it is not covered, is in a state of constant combustion. There is no indication in these locations of consistent leachate production, as they are in barren and desert areas. For dumpsites located in the mountain and jungle areas, rain causes drainage that, on mixing with the waste, increases leachate production.
- 1.12 At seven dumpsites, small groups of informal recyclers work to recover recyclable material under precarious working conditions. Their activities spread out the waste, start fires, and produce risks to their health. Disease-spreading vectors like flies and rodents are evidently present, along with other small animals that feed on organic waste in the dumpsites. Large numbers of birds are also found to feed on organic waste there. The dumpsites do not have drains for gases and leachates (only in the handful of controlled dumpsites are these gases and liquids managed), the municipio does not monitor or supervise environmental quality, and no technical manual is available to provide operating procedures.
- 1.13 **Rationale and proposed interventions.** Against this backdrop, MINAM proposes carrying out the "Program to Recover Locations Degraded by Solid Waste in Priority Areas," which would consist of 30 projects in the same cities where the program (loan 2759/OC-PE) operates, except for San Juan Bautista.<sup>7</sup> This operation (PE-L1153, which would be a second stage in the process) is expected to benefit 12 municipios (Bagua, Huacho, Oxapampa, Abancay, Tarma, Pozuzo, Chancay, Yauyos, Huamanga, Andahuaylas, Aymaraes, and Chinchá) by closing and recovering areas degraded by solid waste (dumpsites).<sup>8</sup> The closure of the remaining dumpsites (18) will be financed by JICA. As mentioned above, the first stage is financing the construction of sanitary landfills, which are expected to be completed in 2017, so no interference is expected with the execution of this

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<sup>5</sup> Waste exposed, inadequate management of leachates, limited environmental surveillance. Program Profile of the 2015 National Public Investment System.

<sup>6</sup> The coastal area dumpsites are in Chinchá, Chancay, and Huacho; jungle area dumpsites located in Bagua; and the remaining dumpsites are in the mountains.

<sup>7</sup> About 1,000 homes have been located at the dumpsite at the 1.5 km marker along the Iquitos-Nauta highway for more than 10 years; they have electricity and basic sanitation services. The government of Peru thus decided not to include this dumpsite in the operation.

<sup>8</sup> Eight of these dumps are located on municipally-owned land and the other four are on land belonging to campesino communities (breakdown in paragraph 2.6).

operation, which is projected to begin by the last quarter of 2017 so the works to close the dumpsites can be done in 2018 (once the final designs and competitive bidding processes are completed). By that point, the sanitary landfills financed by the Bank will be operating.

- 1.14 The populations<sup>9</sup> and the MSW<sup>10</sup> they produce in the 12 municipios benefiting from this operation are: Chancay, 67,436 residents generating 38.97 tons/day of MSW; Oxapampa, 15,707 residents generating 12.07 tons/day of MSW; Pozuzo, 2,325 residents generating 1.55 tons/day; Huacho, 176,338 residents generating 148.9 tons/day, Chincha, 199,038 residents generating 144.87 tons/day; Tarma, 45,211 residents generating 30.05 tons/day; Abancay, 63,459 residents generating 64.13 tons/day; Aymaraes, 3,788 residents generating 2.21 tons/day; Bagua, 38,020 residents generating 26.02 tons/day; Andahuaylas, 69,923 residents generating 48.33 tons/day; Huamanga, 233,202 residents generating 222.70 tons/day; and Yauyos, 10,053 residents generating 4.78 tons/day.
- 1.15 Recyclers working informally have been found at the dumpsites in Huacho, Chancay, Bagua, Andahuaylas, Chincha, Abancay, and Huamanga. Approximately 100 informal recyclers sort out recyclables in these seven dumpsites and an estimated 78% of them (88% of the women, 79% of the men) work full time at the sites, with the recovery and sorting of recyclable materials being their only source of income. They earn between 300 and 1,400 soles per month (approximately US\$90 to US\$430).<sup>11</sup> All recyclers handle the waste directly without any type of protection, exposing them to health risks from direct contact with waste and exposure to disease vectors at the sites. Sixty percent of the recyclers have been working at the dumpsites for more than four years and 78% say they would prefer to continue working in recycling and not have to find other work after the sites are closed. Fifty-three percent of the recyclers are between the ages of 20 and 39 and their educations break down as follows: some primary (23.5%), primary completed (25%), some secondary (19%), secondary completed (28%), technical higher education (3.5%), and 1% who do not know how to read or write. About 33% of the recyclers are women and only 21% of them belong to a recyclers' organization (compared to 28% of men), with direct impact on their incomes ([OEL #9](#)). For women, less education compared to men results in greater dependence on informal recycling work and limited access to different job opportunities. The women working at the dumpsites face the same gender inequities as women in the rest of the country. According to data from the Economic Commission for Latin America and the Caribbean, the female poverty index in Peru for 2014 is 109.4, which demonstrates women's greater economic vulnerability.
- 1.16 **Bank knowledge in the sector and lessons learned.** The objective of loan 2759/OC-PE is to improve environmental quality through the efficient and sustainable management of urban solid waste (USW) in the project's eight beneficiary cities. The specific objectives are: (i) effective solid waste storage and street sweeping; (ii) efficient operating capacity of solid waste collection and transport activities in the selected municipios; (iii) recycling of USW; (iv) proper

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<sup>9</sup> According to projected data for 2017, based on the 2007 census. <http://proyectos.inei.gob.pe/web/biblioineipub/bancopub/Est/Lib0842/libro.pdf>.

<sup>10</sup> According to the technical files for Program 2759/OC-PE.

<sup>11</sup> Minimum wage in Peru is 850 soles per month (approximately US\$260).

- sanitary and environmentally safe final disposal (see detail in [OEL #10](#)); (v) efficient administrative and financial management of solid waste; and (vi) better practices by the population for the proper handling and management of USW. The program was approved in July 2012, and became eligible in February 2013. The expiration date for disbursements is 13 July 2018. The loan agreement was for US\$15 million, and US\$12.06 million had been disbursed (80%) as of May 2017. All components of the program have been completed. Only the sanitary landfills and sorting and composting centers remain under development, with the Bagua works nearing completion and the works in Huamanga, Oxapampa, Pozuzo, and San Juan Bautista still under construction. The works at Andahuaylas and Chancay will begin about June, while execution of the work in Yauyos is planned for between July and December 2017.
- 1.17 The eight projects under the “Project for the Development of Solid Waste Management Systems in Priority Zones” (loan 2759/OC-PE) have encountered several limitations to their execution, which should be considered lessons learned for this program.
  - 1.18 The municipios experienced delays in obtaining additional financial resources to achieve the program’s intended scope. This is not a risk for this program, as this investment phase does not include a contribution from municipios.
  - 1.19 The Environmental Health Bureau (DIGESA) delayed its approval of the closure plan, and the technical sign-off on the technical files by the competent agencies (DIGESA and the municipios) was also delayed. Considering that the projects under this program are themselves environmental mitigation measures, they do not require environmental certification from MINAM. The projects will be designed so they do not have negative environmental impacts and, in fact, mitigate environmental liabilities by managing leachates, capturing biogas, and eliminating burns.
  - 1.20 **Government strategy.** MINAM’s National Environmental Policy promotes eco-efficient municipios with three priority lines of action: (i) recycling and final disposal of USW; (ii) treatment and reuse of domestic wastewater; and (iii) land use planning for sustainable development. The country also has the “2011-2021 National Environmental Action Plan” (PLANAA), a long-term national environmental planning instrument that sets priority environmental targets for the next 10 years and represents a challenge and commitment to present and future generations. Due to the magnitude of the environmental problems caused in the country by solid waste, PLANAA gives this issue priority, setting national targets of 60% coverage for recycling and safe, final disposal of 70% of MSW by 2017, with both targets rising to 100% by 2021.
  - 1.21 In this context, one of the strategic actions that MINAM has scheduled, as outlined in the PLANAA, is the Program for Sustainable Management of Solid Waste in Priority Areas, which will make it possible to ensure comprehensive and proper handling of solid waste in 31 of the country’s cities, as well as dumpsite recovery.
  - 1.22 The actions planned are in line with the government’s plan, the priorities of which are to (i) revive and formalize the economy; (ii) strengthen public management; (iii) improve the delivery of services to citizens (particularly water and sanitation); and (iv) strengthen environmental management.

- 1.23 **Bank country strategy with Peru.** The project is consistent with the Bank's country strategy with Peru for 2017-2021 (GN-2889). Specifically, this operation supports the objective of strengthening environmental management through the recovery of areas degraded by USW and institutional strengthening of the national and subnational governments from a legal, regulatory, and technical standpoint, and support for the formalization of recyclers. The program is also included in the 2017 Operational Program Report (GN-2884).
- 1.24 **Strategic alignment.**<sup>12</sup> The program is consistent with the Update to the Institutional Strategy 2010-2020 (document AB-3008), aligning strategically with the development challenges of: (i) social inclusion and equality; and (ii) productivity and innovation, given that health and environmental conditions will be improved around the 12 municipios where the program will intervene and where actions will also be taken to improve conditions and expand job opportunities for informal recyclers. The program is also aligned with the crosscutting themes of: (i) gender equality, through formalization of recycling activities and training in alternative jobs for the affected recyclers using a gender-based approach ([OEL #9](#)); (ii) climate change and environmental sustainability, under the area of environmental sustainability, in that dumpsites where solid waste is disposed of without any controls will be closed and areas degraded by them will be recovered; and (iii) institutional capacity and the rule of law, to the extent that it contributes to strengthening the municipal governments' management capacities to operate, maintain, and monitor closed dumpsites. In addition, the program is aligned with the Sustainable Infrastructure for Competitiveness and Inclusive Growth Strategy (document GN-2710-5), in that it helps to support the construction and maintenance of socially and environmentally sustainable infrastructure that contributes to mitigating climate change and implementing gender activities. The program is consistent with the Water and Sanitation Sector Framework (document GN-2781-3) dimension of success that seeks to develop environmentally and socially sustainable projects and programs and incorporate climate change and cultural considerations.
- 1.25 Approximately 100% of the operation's resources will be invested in climate change mitigation activities, according to the methodology of the [Joint Report on Multilateral Development Banks' Climate Finance](#). These resources contribute to the IDB Group's goal of increasing financing for projects related to climate change to 30% of all operations approvals by the end of 2020.

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

- 1.26 **Objectives.** The general objective of the program is to improve environmental conditions in areas degraded by solid waste in the 12 priority municipios in Peru. The specific objectives are to: (i) recover the degraded areas; (ii) strengthen municipal management of final MSW disposal; and (iii) improve conditions and expand job opportunities for informal recyclers. This project is part of a broad program promoted by the Government of Peru that aims to cover a total of 30 cities. IDB financing will be used for 12 cities (Bagua, Huacho, Oxapampa, Abancay,

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<sup>12</sup> Although the Public Utilities Policy (document GN-2716-6) applies to the solid waste sector, it does not apply to this operation because it does not intervene in the solid waste utilities value chain (which includes collection, transportation, and final disposal). This program only closes existing garbage dumpsites, thus improving environmental conditions in the areas degraded by the solid waste.

Tarma, Pozuzo, Chancay, Yauyos, Huamanga, Andahuaylas, Aymaraes, and Chincha), and funds from JICA will be used for 18 cities.

- 1.27 **Components.** To achieve its objective, the program will be divided into two components:
- 1.28 **Component I: Dumpsite closure works (US\$30.656 million)**, which will finance the recovery of degraded areas and include: (i) engineering studies; (ii) a definitive halt to incoming waste; (iii) construction of a perimeter fence; (iv) isolation and formation of waste mass, ensuring structural stability and encouraging runoff; (v) placement of final cover, minimizing odors, the entry of rainwater, and integrating the site with the landscape; (vi) handling and management of leachates and biogas; and (vii) supervision of engineering and works.
- 1.29 **Component II: Strengthening municipal and social management, (US\$1.282 million)**, which will finance training, supervision of environmental management, preparation and implementation of Recyclers' Social Inclusion Plans (RSIPs) and community awareness activities. The RSIPs will contain the options proposed for ensuring the formalization of recyclers or their transition to alternative employment activities. These options have been the subject of prior consultations with the affected recyclers to ensure they accept and agree with them, avoiding opposition to the project. The proposed activities include updating the recyclers' registry, training sessions for their formalization or job retraining with a gender-based approach, legal support for the formalization of recycling associations, design of selective collection routes in the municipios, market research on selling recyclables locally, purchasing equipment for street recycling, awareness campaigns targeting the population on separating recyclables at the source, and support for municipal implementation of the RSIP.
- 1.30 **Cost and financing.** The total program cost is US\$35.30 million, US\$30 million in the form of a loan drawn on the IDB's Ordinary Capital and US\$5.30 million as a local counterpart contribution. This operation will be executed as a specific investment program.

**Table I.1 – Program Components and Costs in US\$**

<b>COMPONENTS</b>	<b>IDB</b>	<b>MINAM</b>	<b>TOTAL</b>
<b>Component 1 – Dumpsite closure works</b>	<b>27,926,000</b>	<b>2,730,000</b>	<b>30,656,000</b>
Technical files	3,032,000		3,032,000
Works	21,601,000	2,730,000	24,331,000
Supervision	3,293,000		3,293,000
<b>Component 2 – Strengthening municipal and social management</b>	<b>1,025,000</b>	<b>257,000</b>	<b>1,282,000</b>
Municipal management	160,000	21,000	181,000
Social management and communication	360,000	236,000	596,000
Recyclers' Social Intervention Plan	505,000		505,000
Monitoring, evaluation, and audit	904,000	45,000	949,000
Administration	145,000	2,268,000	2,413,000
<b>TOTAL</b>	<b>30,000,000</b>	<b>5,300,000</b>	<b>35,300,000</b>

1.31 **Description of the beneficiaries.** The project's beneficiaries are all the households in the municipios where the 12 dumpsites are located, as the degraded dumpsite areas will be recovered after closure, improving environmental conditions in the affected areas. This total population stands at approximately 925,000 people, belonging to 250,000 households.<sup>13</sup> In addition, approximately 100 recyclers affected by the project (both women and men) will benefit from a series of activities included in the RSIPs. The recyclers' activities will be formalized, improving their working conditions. This will particularly affect women, who participate less than men in formal organizations. Training will also be provided on employment activities that will be selected, including a gender approach, thus expanding employment opportunities for women ([OEL #9](#)).

**C. Key Results Matrix indicators.**

1.32 The Results Matrix (Annex II) contains the outcome and output indicators. Table I-2 presents the principal outcome indicators.

<sup>13</sup> Instituto Nacional de Estadística e Informática [National Institute of Statistics and Information Technology] (INEI), "Perú: Encuesta Demográfica y de Salud Familiar ENDES 2011," average per household is 3.7 members.

**Table I.2 – Key indicators**

<b>Name of outcome indicator</b>	<b>Unit of measurement</b>	<b>Baseline</b>	<b>Outcome target</b>
Areas degraded due to improper disposal of solid waste in municipios subject to intervention by the program	Hectares	178.43	0
Solid waste disposed of in dumpsites in municipios subject to intervention under the program.	Tons/year	263,289	0
Percentage of dumpsites closed by the program that pass the environmental monitoring checks conducted by the municipios. <sup>1</sup>	Closed dumpsites that pass checks/Closed dumpsites	0	100
Percentage of recyclers who participated in formalization workshops <sup>14</sup> added to the MSW management workforce (broken down by gender)	Trained recyclers who work in MSW facilities / Recyclers trained to be formalized	0	70%
Percentage of recyclers who participated in job retraining workshops who work in activities for which they were trained (broken down by gender)	Recyclers who work in activities for which they received training / Recyclers given job retraining	0	50%

- 1.33 **Technical viability.** The preinvestment studies for each dumpsite closure have been completed by the consulting firm IDP engaged for the 12 projects. The studies have been submitted to MINAM's Environmental Quality Bureau (DGCA), which has approved all of them with respect to their technical aspects. Eight projects have been declared technically, economically, and administratively viable by the MEF: Bagua, Huacho, Oxapampa, Abancay, Tarma, Pozuzo, Chancay, and Yauyos; a decision on the viability of Huamanga, Andahuaylas, Aymaraes, and Chincha is expected in May 2017, pending administrative procedures.
- 1.34 For each of the 12 projects, alternative technical solutions were analyzed for the different collection systems in the recovery area, and the most appropriate solutions were chosen for each project. The project does not include alternative sites, as the dumpsites to be closed are the existing ones. The design of the closure works has taken possible climate developments in future years into account. The projected infrastructure thus will be able to withstand extreme events associated with climate change.
- 1.35 **Economic viability.** Following customary practice for this type of project, at each of the 12 dumpsites, an alternatives analysis was performed on isolating the area. For the economic analysis, a cost-effectiveness analysis was done to compare costs of the different alternatives for closing the dumpsites to select the most cost-effective one. The effectiveness indicator used was the volume of solid waste enclosed and controlled in sanitary and environmental terms. The costs measured were the social costs of investment plus operation and maintenance costs. Using a discount rate of 12%, costs were found to range from US\$2.25/ton to US\$42.60/ton. According to the analysis performed, in the dumpsites located on the coast (Chancay, Huacho, and Chincha) the most cost-effective alternative is to use earth from the area to close

<sup>14</sup> This refers to the recyclers who choose to continue working in recycling activities, whether in the sanitary landfill, in the separation plant, or in other alternatives associated with formal MSW management.

the site; in the other dumpsites, the alternative chosen is bentonite. The evaluations were supplemented by the corresponding sensitivity analyses that show the robustness of the results. The breakdown of the results is provided in the Economic Analysis link ([OEL#1](#)).

- 1.36 **Financial viability.** The municipios' financial capacity was analyzed in order to establish a fitting financing arrangement and ensure the availability of resources so the municipios will be able to cover the costs. Each municipio was found to have the ability to cover operation and maintenance costs in each location, while MINAM would be required to cover the local counterpart investment. To ensure the sustainability of the program, an interagency agreement will be signed by the executing agency and each beneficiary municipio that includes the responsibility of each municipio to commit the necessary annual resources for post-closure maintenance, monitoring, and control to the Bank's satisfaction.
- 1.37 **Institutional viability.** MINAM's institutional capacity was evaluated using the Institutional Capacity Assessment System methodology. The evaluation finds that MINAM has broad experience in executing IDB projects, institutional capacity and a satisfactory degree of development, and a low risk level for program execution and subsequent administration of the works. In addition, as a result of this evaluation, the implementation of a strengthening plan is recommended. The plan's activities will include approval of the Program Operating Manual and the selection of key personnel will be included as contractual conditions (paragraph 3.10).

## II. FINANCING STRUCTURE AND MAIN RISKS

### A. Financing instruments

- 2.1 **Modality.** This operation is structured as a specific investment loan that finances specific works, which have been fully defined through technical, economic, and institutional viability analyses. The disbursement period will be five years, as noted in paragraph 3.12.

### B. Environmental and social risks

- 2.2 The Bank's guidelines in the Environment and Safeguards and Compliance Policy (OP-703); Disaster Risk Management Policy (OP-704), Access to Information Policy (OP-102); Operational Policy on Gender Equality in Development (OP-761); Operational Policy on Indigenous Peoples (OP-765) and the Involuntary Resettlement Policy (OP-710) have been followed, and this has been classified as a category "B" operation.
- 2.3 Because this is a specific works loan, an environmental and social analysis was conducted and an environmental and social management plan (ESMP) was developed for each of the 12 projects; they are published on the [Bank's website](#). The areas subject to intervention have a low or moderate risk of natural disasters, particularly from earthquakes (on the coast) and intense rain (in the jungle). Each environmental analysis identifies and classifies these risks, which have been taken into account in the basic design of the works. The structural mitigation measures and contingency plans for the construction and operation stages will be developed in detail during preparation of the technical files.

- 2.4 The main positive environmental impacts of the works involve the reduction of vectors and leachate liquids by closing the sites and properly burying the disposed waste. Depending on the specific characteristics of each site, systems are also planned to extract and transport leachates for treatment at the sanitary landfill plants. In areas where new activities are carried out in the sanitary landfill as the result of remediation of the degraded area, an amendment to the environmental impact assessment of that area will be submitted. In addition, considering that closure of the dumpsites will be contingent upon the construction of sanitary landfills, confirmation will be secured that there are no environmental or social liabilities to limit construction and jeopardize the progress of the operation (the possibility of a dumpsite becoming full before the landfill opens is addressed as a special condition for execution in 3.11.iii.b). The program execution unit (EU003) will submit the information for this.
- 2.5 Given that there is no population living in the project areas, no provision is made for physical resettlement. However, the recyclers who currently earn income from the dumpsites will be economically displaced and affected by the impossibility of continuing their sorting work. An RSIP has been prepared in this regard, following the Involuntary Resettlement Policy (OP-710) and the Policy on Gender Equality in Development (OP-761), according to which recyclers will be able to choose from three alternatives: (i) formal employment in MSW management; (ii) inclusion in construction work on the sanitary landfills under municipal administration; or (iii) retraining for another job. In the first case, recyclers will be registered with the municipio as members of legally established associations, through which they will be able to provide services related to recycling (after training, in accordance with national regulatory guidelines) using the equipment procured under the project. As for job retraining, the recyclers will receive training for other jobs available depending on the local supply. The RSIP also incorporates a gender equality approach by establishing the inclusion of women as an eligibility criterion. Beneficiary women may opt for alternative jobs or training on recycling specifically designed to optimize their opportunities for growth within the labor market. An effort will be made to close existing gender gaps by ensuring, on the one hand, that female recyclers' activities are formalized and that women are included in leadership positions within the organizations formed and, on the other, by conducting training sessions on access to jobs in sectors not traditionally considered accessible to women that are stable and well-compensated (computers, food industry, electricity, hospitality, tourism, and other fields). During program execution, the specific RSIP will be updated for each municipio that has recyclers. This updated RSIP will define in detail the actions to be financed and executed in each location and will be part of each project's ESMP.
- 2.6 Various types of consultations were conducted during program preparation. MINAM led workshops for those involved that included collecting perceptions, complaints, and information on the project's general benefits and impacts. In addition, in coordination with the municipios, the RSIP ([OEL#6](#)) was described to the recyclers, who were consulted directly on the scope of the project and their expectations regarding site closures. Consultation activities also took place in the four campesino communities that own land where dumpsites are located: Yauyos, Andahuaylas, Aymaraes, and Huamanga. In the case of Yauyos, there is already a transfer agreement, and information will be compiled documenting the consultation process. Similar agreements are expected to be reached in the other three communities.

Finally, a complaints handling and resolution mechanism will be established under municipal jurisdiction to address any concerns the affected population may have during the construction phase and subsequent monitoring of the sites.<sup>15</sup>

- 2.7 During the post-investment phase, activities will be carried out for the post-closure control and environmental monitoring of the closed dumpsites. The agreements between the executing agency and the municipios will establish that: (i) the municipios must ensure that they have the necessary annual resources to perform maintenance, monitoring, and post-closure control to the Bank's satisfaction; and (ii) the municipios must manage internal procedures to protect the recovered area and analyze the advisability of imposing fines on those who dispose of their waste at locations other than the sanitary landfill.
- 2.8 To ensure implementation of the aforementioned mitigating measures, the executing agency will have a social specialist and a manager responsible for environmental monitoring of the works and environmental management plans.

### **C. Fiduciary risks**

- 2.9 Based on the risk assessment exercise carried out during the program's design stage, in fiduciary terms the financial management and procurement risk was determined to be low, due to the experience gained by the program execution unit (PEU) while executing loan 2759/OC-PE.

### **D. Other project risks**

- 2.10 **Other risks.** First, the timely startup of the sanitary landfill in each municipio poses a high risk to the ability to maintain post-closure control of the dumpsites. To address this risk, the following is planned: (i) complete legal procedures for transferring the use/ownership of the land; (ii) allocate additional financial resources from MINAM; and (iii) have the technical file on the Chincha sanitary landfill financed by JICA prepared under the direct administration of the PEU. Second, a medium risk of possible delays in the preparation and approval of the technical files has been identified. As a mitigation measure: (i) legal procedures for transferring the use/ownership of the land will be completed; (ii) the scope of the projects with DIGESA will be publicized; and (iii) detailed documentation of cost increases will be provided in the technical files.

## **III. IMPLEMENTATION AND MANAGEMENT PLAN**

### **A. Summary of implementation arrangements**

- 3.1 **Borrower and executing agency.** The borrower will be the Republic of Peru and the executing agency is MINAM through the PEU that has been executing loan 2759/OC-PE. This unit reports functionally and administratively to the Office of the Vice Minister for Environmental Management. The PEU will be responsible for administrative, financial, and accounting tasks and for technical coordination, as

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<sup>15</sup> In this case, OP-710 does not require a cessation agreement to be reached with all communities prior to operation approval, as the operation involves recovery of deteriorated land to the benefit of the campesino communities, and the integrity of the land will not be affected.

well as coordination with beneficiary municipios on contracting works and procuring goods.

- 3.2 **The program execution unit.** The PEU will be responsible for project execution in accordance with Bank rules and procedures and will have the strategic guidance and supervision of a program steering committee, which will include representatives from the MEF, MINAM, and the municipios involved where the program will be executed. The municipios will be organized into four work areas: in the northern, central, southern, and eastern areas of the country. To fulfill its functions, the PEU will have a general coordinator, administrative coordinator, procurement specialist, accounting and equity specialist, technical coordinator, social specialist, and environmental specialist.
- 3.3 For execution, MINAM will sign interagency cooperation agreements with the municipios, describing their mutual obligations on technical assistance, supervision, and monitoring, to ensure transparency in execution and the results obtained.
- 3.4 Each of the municipios involved will strengthen a municipal solid waste management unit created under loan 2759/OC-PE, by improving its technical and administrative capacity. That unit will coordinate with the PEU to facilitate project implementation. The PEU will centralize the handling of competitive bidding procedures to implement the project investment stage. Works supervision during the investment stage will be the responsibility of specialized companies. To ensure the mechanisms for coordinating the various stakeholders (IDB, JICA, MINAM, municipios) are in place, the program steering committee from loan 2759/OC-PE will be maintained, with functions that are fully described in the Program Operating Manual and summarized as follows: (i) ensuring achievement of the program's objectives; (ii) approving the annual work plans (AWPs) and confirming compliance with them; (iii) examining and evaluating the overall performance of the PEU; (iv) issuing an opinion on the need to change the general coordinator; and (v) other functions under its purview.
- 3.5 JICA financing is not part of this program as another program is being carried out by the Government of Peru with JICA financing.
- 3.6 **Program Operating Manual.** Execution will be carried out in accordance with the Program Operating Manual, which will include responsibilities, rules, and procedures on programming activities and preparing work plans; project review and approval; procurement and contracting; financial-accounting management; handling and filing of documentation supporting bidding and financial management processes; auditing; and the corresponding monitoring and evaluation system ([OEL #5](#)). It will also include the security measures necessary to: (i) guarantee closure and place safeguards on the recovered area, including examining the appropriateness of imposing fines on those who dispose of waste in places other than the sanitary landfill, and (ii) properly consider the situation of recyclers in accordance with the RSIP, among other requirements of the ESMP, which will be included as an annex.
- 3.7 **Program execution plan (PEP).** The development of program activities will follow a schedule implemented through a PEP ([REL #1](#)) and its annual revisions that will be included in the corresponding AWP ([REL #2](#)). The PEP breaks down into an AWP for each year of execution. However, it must be amended every year to account for the actual progress made in the program. The annual revisions of the PEP (i.e., AWP) must be submitted to the Bank.

- 3.8 **Fiduciary agreements and requirements.** Loan proceeds can be disbursed through fund advances, reimbursement of expenses, and direct payment to the supplier. For fund advances, disbursements will be made based on projected expenses for up to 180 days. The minimum percentage required for replenishment of fund advances will be 80%. The executing agency will submit the program's annual and final audited financial statements in accordance with the terms and deadlines required by Bank policies. To do so, the execution unit commits to selecting and engaging an independent auditing firm acceptable to the Bank for the duration of the project.
- 3.9 The procurement plan ([REL #6](#)) will be managed through the online procurement plan execution system. Works and goods will be procured and consulting services hired in accordance with 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), both dated March 2011, or their subsequent updates. Procurement and contracting by public entities within the context of subprojects financed by this project must be handled in accordance with those policies. Procurement in the context of projects using operation funds may be executed in accordance with Appendix 4 of those policies, provided that the beneficiary entity belongs to the private sector.
- 3.10 **The special contractual conditions precedent to the first disbursement of the loan. are considered to be fundamental for ensuring that the borrower is prepared to commence execution of the program with a properly-established execution unit and an operating manual that provides detailed guidelines on operations and coordination between the executing unit, MINAM offices, and the entities participating in execution.**
- 3.11 **Special conditions for execution.** Program execution is contingent upon the receipt of evidence, to the Bank's satisfaction, that the following conditions have been met: (i) the executing agency has signed interagency cooperation agreements with the corresponding municipios, establishing the latter's obligations with respect to dumpsite closure works planned under the program, including guaranteeing the necessary annual resources to conduct post-closure maintenance, monitoring, and control to the Bank's satisfaction; and (ii) the terms of the legal requirements section of the ESMR are being met.<sup>16</sup> These conditions are crucial for ensuring prior to launch of program execution that the beneficiary municipalities have the right to use the land where the solid waste dumpsites will be closed; that the necessary resources have been secured to guarantee the sustainability of the interventions; and that the Bank's environmental and social safeguards are being complied with, as specified in the legal requirements section of the ESMR.
- 3.12 **Program disbursement plan.** Disbursements will be made according to the project's actual liquidity needs. A disbursement period of five years is planned ([OEL #7](#)).

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<sup>16</sup> For the Abancay project (with JICA financing), where the landfill's capacity might be exceeded before the sanitary landfill has begun to operate, the executing agency must submit a schedule of activities to meet the planned deadline (mid-2018); otherwise, the municipio will select a transitional site: (i) that it owns; (ii) that has design and operation characteristics to ensure the environment is not affected; (iii) that has a social license; (iv) that has approval from the competent authority, if applicable; and (v) that has a defined closure plan, to be financed using local resources.

**Table III.1 – Disbursement Plan**

Source	Year 1	Year 2	Year 3	Year 4	Year 5	Total
IDB loan	100,060	2,585,939	4,866,801	8,763,847	13,683,354	30,000,000

**B. Summary of results monitoring arrangements.**

- 3.13 **Monitoring.** The PEU will prepare progress reports and reports on the outcomes of the activities for which it is responsible. The outline will include: (i) the procurement plan; (ii) the PEP; (iii) the AWP; (iv) annual verification of achievement of targets established in the Results Matrix; and (v) half-yearly reports containing: (a) activities carried out, progress made in execution, problems encountered, and solutions adopted; (b) evaluation of the Results Matrix, procurement plan, AWP, and Risks Analysis; (c) analysis of the project monitoring report, for which purpose achievement of indicator targets and planning for the next six months will be evaluated; and (d) statement of compliance with and implementation of environmental and social mitigation measures.
- 3.14 **Evaluation.** The following program evaluations will be commissioned: (i) midterm evaluation to be submitted 90 days following the date when 50% of the funds have been disbursed; and (ii) final evaluation submitted within 90 days from the date on which 90% of the loan proceeds have been disbursed. The proposed evaluation will follow the before-and-after methodology, which will consist of measuring the project's baseline outcome indicators before and after the interventions have been implemented in each municipio, and comparing the measurements to confirm that targets have been met. In addition, an ex post economic evaluation will be performed, taking into account the model developed ex ante, but with possible adjustments, as detailed in the Monitoring and Evaluation Plan ([REL #4](#)). The evaluation report will be part of the project completion report.

Development Effectiveness Matrix		
Summary		
<b>I. Corporate and Country Priorities</b>		
<b>1. IDB Development Objectives</b>	Yes	
Development Challenges & Cross-cutting Themes	-Social Inclusion and Equality -Productivity and Innovation -Gender Equality and Diversity -Climate Change and Environmental Sustainability -Institutional Capacity and the Rule of Law	
Country Development Results Indicators		
<b>2. Country Development Objectives</b>	Yes	
Country Strategy Results Matrix	GN-2889	Strengthen environmental management.
Country Program Results Matrix	GN-2884	The intervention is included in the 2017 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>3. Evidence-based Assessment &amp; Solution</b>	Evaluable	
3.1 Program Diagnosis	9.6	
3.2 Proposed Interventions or Solutions	3.0	
3.3 Results Matrix Quality	3.6	
<b>4. Ex ante Economic Analysis</b>	10.0	
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	2.4	
4.3 Identified and Quantified Costs	1.2	
4.4 Reasonable Assumptions	1.2	
4.5 Sensitivity Analysis	1.2	
<b>5. Monitoring and Evaluation</b>	7.2	
5.1 Monitoring Mechanisms	2.5	
5.2 Evaluation Plan	4.7	
<b>III. Risks &amp; Mitigation Monitoring Matrix</b>		
Overall risks rate = magnitude of risks*likelihood	Low	
Identified risks have been rated for magnitude and likelihood	Yes	
Mitigation measures have been identified for major risks	Yes	
Mitigation measures have indicators for tracking their implementation	Yes	
Environmental & social risk classification	B	
<b>IV. IDB's Role - Additionality</b>		
The project relies on the use of country systems		
Fiduciary (VPC/FMP Criteria)	Yes	Financial Management: Budget, Treasury, Accounting and Reporting, External Control.
Non-Fiduciary		
The IDB's involvement promotes additional improvements of the intended beneficiaries and/or public sector entity in the following dimensions:		
Gender Equality		
Labor		
Environment		
Additional (to project preparation) technical assistance was provided to the public sector entity prior to approval to increase the likelihood of success of the project	Yes	The purpose of the Technical Cooperation (ATN / OC-14222-PE) was to support the pre-investment studies for the recovery of areas degraded by municipal solid waste in the 12 beneficiary municipalities, allowing the development of activities necessary for the recovery of these zones and the closure of dumps.
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 to improve environmental conditions of areas degraded by solid waste in 12 prioritized municipalities of Peru. The program has the following specific objectives: (i) recover degraded areas; (ii) strengthen municipal management in the final disposal of solid waste, and (iii) improve conditions and expand employment opportunities of informal recyclers.

The project presents a complete diagnosis and includes a precise description of the current environmental situation and disposal of solid waste. It also describes the undergoing work in these areas in the 12 participating municipalities. Likewise, it makes a detailed diagnosis of the labor situation of the 100 recyclers who work in the dumps where the program will intervene.

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

The economic analysis of the project was performed through a cost-effectiveness analysis (CEA), which is consistent with the program logic; it has reasonable assumptions and uses a rigorous methodology. This analysis concluded that the most cost-effective alternative for the dumps in the coast is using soil from the region; for the rest of the dumps, the most cost-effective alternative is bentonite.

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

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

**RESULTS MATRIX**

<b>Project objective:</b>	The general objective of the program is to improve environmental conditions in areas degraded by solid waste in 12 priority municipios in Peru. The specific objectives are to: (i) recover degraded areas; (ii) strengthen municipal management in the final disposal of municipal solid waste; and (iii) improve conditions and expand job opportunities for informal recyclers.
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**EXPECTED OUTCOMES**

Expected Outcomes	Unit of Measurement	Baseline		Year 1	Year 2	Year 3	Year 4	Year 5	Meta	Means of Verification
		Value	Year	Value	Value	Value	Value	Value	Value	
Areas degraded due to improper disposal of solid waste in municipios subject to the program's intervention	Hectares	178.43	2016					0	0	Environmental monitoring reports submitted to MINAM by the municipios. In addition, as part of the final evaluation, a field survey will be conducted to verify that there are no other areas in these municipios degraded by improper disposal of solid waste.
Solid waste disposed of in dumpsites in the municipios subject to intervention under the program	Tons/year	263,289	2016					0	0	Municipal reports on operation of sanitary landfills and national generation statistics (waste from 12 municipios measured in sanitary landfills). In addition, as part of the final evaluation, a field survey will be conducted to verify that there is no solid waste improperly disposed of in other dumpsites in each municipio subject to intervention.

Expected Outcomes	Unit of Measurement	Baseline		Year 1	Year 2	Year 3	Year 4	Year 5	Meta	Means of Verification
		Value	Year	Value	Value	Value	Value	Value	Value	
Percentage of dumpsites closed by the program that pass the environmental monitoring checks conducted by the municipios. <sup>1</sup>	Closed dumpsites that pass monitoring/ Closed dumpsites	0	2016					100	100	Environmental monitoring report submitted to MINAM by the municipios
Percentage of recyclers who participated in formalization workshops <sup>2</sup> engaged in municipal solid waste management (broken down by gender)	Trained recyclers who work in MSW management/ Recyclers trained for formalization	0	2016					70	70	Municipal government resolution/Council agreement approving the association of recyclers participating in the collection service or contracts with the municipio. Expectations are that 78 recyclers will choose a new alternative.
Percentage of recyclers who participated in job retraining workshops who work in the areas for which they were trained (broken down by gender)	Recyclers who work in activities for which they received training / Recyclers given job retraining	0	2016					50	50	RSIP monitoring reports submitted by the execution unit. It is estimated that 22 recyclers will choose a new alternative.

<sup>1</sup> Environmental monitoring includes samples and measurements in accordance with Peru's environmental quality standards covering soil, water, and air. In addition, biogas and leachates will be monitored.

<sup>2</sup> Refers to the universe of recyclers who choose to continue working in recycling activities, whether in the sanitary landfill, the sorting plant, or other alternatives associated with the formal management of municipal solid waste.

### OUTPUTS

Outputs	Estimated cost (US\$)	Outcome to which it contributes	Unit of Measurement	Base-line	Year 1	Year 2	Year 3	Year 4	Year 5	Final Target	Means of Verification
<b>Component I: Dumpsite closure works<sup>3</sup></b>											
Engineering studies completed for closure of dumpsites	3,032,023		Study	0	0	7	5	0	0	12	Technical files approved by the execution unit
Dumpsites closed <sup>45</sup>	27,619,174		Dumpsite	0	0	0	0	5	7	12	Work acceptance record
<b>Component II: Strengthening municipal and social management</b>											
Municipal management maintenance and monitoring strategies for each of the dumpsites closed	180,385		Strategy	0					12	12	Note: A strategy will be implemented for each prioritized municipio. This applies for each of the milestones.
Milestones: Occupational health and safety training workshops conducted	25,672		Workshop	0	0	0	0	5	7	12	Participant list
Occupational Health and Safety Manual prepared	27,313		Manual	0	0	0	0	5	7	12	Manual approved by the PEU
Training workshops conducted on technical guidelines, rules, sanctions, and operation and maintenance of dumpsite closure	25,672		Workshop	0	0	0	0	5	7	12	Participant list
Dumpsite operation and maintenance manual prepared	72,746		Manual	0	0	0	0	5	7	12	Manual approved by the PEU

<sup>3</sup> In this program, the term “dumpsite” refers to areas degraded by solid waste in accordance with Law 27314/00, as amended by Legislative Decree 1065/08.

<sup>4</sup> Located in the municipios of Chancay, Bagua, Pozuzo, Oxapampa, Yauyos, Huamanga, Andahuaylas, Huacho, Tarma, Chinchá, Abancay, and Aymaraes.

<sup>5</sup> A dumpsite will be considered “closed” upon physical delivery of the works, to include a perimeter fence, consolidation and burial of waste, and installations to control and monitor leachates and gases.

Outputs	Estimated cost (US\$)	Outcome to which it contributes	Unit of Measurement	Base-line	Year 1	Year 2	Year 3	Year 4	Year 5	Final Target	Means of Verification
Follow-up, control, and monitoring workshops held under the environmental monitoring plan	28,955		Workshop	0	0	0	0	5	7	12	Participant list
Recyclers' Social Inclusion Plans implemented in the closed dumpsites that had recyclers <sup>6</sup>	469,165		Plan	0	0	0	0	0	7	7	Note: A strategy will be implemented for each priority municipio where recyclers are present. This applies for each of the milestones.
Milestones: Social inclusion implementation plan developed. <sup>7</sup>	128,567		Plan	0	2	2	2	1	0	7	Social inclusion plan approved by the municipio
Registry of recyclers updated	63,403		Study	0	2	2	2	1	0	7	Registry approved by the execution unit
Study prepared on recyclers' socioeconomic vulnerability	15,522		Study	0	0	2	2	2	1	7	Socioeconomic vulnerability study approved by the execution unit
Selective collection routes designed	34,520		Study	0	0	2	2	2	1	7	Study on design of selective collection routes approved by the municipio
Training workshops conducted on formalizing recyclers with a gender focus	55,522		Workshop	0	0	4	4	4	2	14	Workshop minutes and participant list
Job retraining workshops conducted with a gender focus	15,846		Workshop	0	0	2	2	2	1	7	Workshop minutes and participant list

<sup>6</sup> A Recyclers' Social Inclusion Plan (RSIP) will be considered "implemented" when the recyclers have been assigned to the inclusion options defined in the RSIP (according to the eligibility criteria), have received the established training and personal protection equipment, and have begun to work recovering recyclable material in segregated waste collection routes in the municipios.

<sup>7</sup> These will be developed for dumpsites where informal recyclers are present (Chancay, Bagua, Huamanga, Andahuaylas, Huacho, Chinchá, and Abancay).

Outputs	Estimated cost (US\$)	Outcome to which it contributes	Unit of Measurement	Base-line	Year 1	Year 2	Year 3	Year 4	Year 5	Final Target	Means of Verification
Equipment <sup>8</sup> purchased for recycling work under way	131,128		Equipment	0	0	2	2	2	1	7	Document acknowledging that municipio has received the equipment
Paperwork prepared for incorporating recyclers' association	24,657		File	0	0	2	2	2	1	7	Registration in the Program for Formalizing of Recyclers and Selective Collection of Municipal Solid Waste
Awareness campaign <sup>9</sup> conducted on sorting waste	34,520		Campaign	0	0	2	2	2	1	7	Execution unit's semiannual report
Social communication plan implemented on good environmental practices	595,836		Plan							1	
Milestones: Public workshops conducted on health and environmental risks and impacts	127,701		Workshop	0	0	10	10	20	20	60	Participant list. Five workshops will be conducted per dumpsite.
Publicity campaign carried out to inform the public on the closure of the 12 dumpsites	468,135		Campaign	0	0	0	0	0	1	1 <sup>10</sup>	Half-yearly PEU report

<sup>8</sup> "Equipment" refers to a package that includes personal protective clothing and equipment for each recycler and motor cycles.

<sup>9</sup> The target population is located in the areas of each municipio with the selective collection routes.

<sup>10</sup> Nationwide campaign.

## **FIDUCIARY AGREEMENTS AND REQUIREMENTS**

<b>Country:</b>	Republic of Peru
<b>Project No.:</b>	PE-L1153
<b>Name:</b>	Program to Recover Locations Degraded by Solid Waste in Priority Areas
<b>Executing agency:</b>	Ministry of the Environment (MINAM)
<b>Fiduciary team:</b>	Allizon Milicich Nieto-Polo and Ariel Rodríguez / Gabriele del Monte (FMP/CPE)

### **I. EXECUTIVE SUMMARY**

- 1.1 The financial situation of MINAM was evaluated, the analysis of the MINAM PEU's institutional and fiduciary capacity was reviewed, and meetings were held with key agency personnel and with the project team. Considering the experience gained by the PEU in executing loan 2759/OC-PE, the risk level given to fiduciary management is low, with specific support actions identified in this annex.

### **II. THE COUNTRY'S FIDUCIARY CONTEXT**

- 2.1 The country's financial management systems are adequate and reliable. Regarding the country procurement system, the reverse auction and electronic catalogue for framework agreements subsystems are being used in accordance with Peru's public contracting regime approved under document GN-2538-11.

### **III. THE FIDUCIARY CONTEXT OF THE EXECUTION UNIT AND THE PROJECT BENEFICIARIES ADMINISTRATIVE EXECUTOR**

- 3.1 The executing agency will be MINAM through the PEU. The PEU has economic, administrative, financial, and technical autonomy and is responsible for the management, execution, monitoring, and evaluation of project actions. The PEU will have the strategic guidance and supervision of a steering council.
- 3.2 The PEU, which has been executing the Program for the Development of Solid Waste Management Systems in Priority Areas (loan 2759/OC-PE) maintains adequate fiduciary management.
- 3.3 The current organizational structure of the PEU is not sufficient to handle execution of the new operation. It needs: (i) to hire additional support staff with a minimum level of experience in projects financed by international financial organizations; and (ii) fiduciary support from the Bank for the staff hired.

- 3.4 The PEU uses the Electronic System for Government Procurements and Contracts to register procurement plans and disseminate contracting processes, as well as the Procurement Plan Execution System to plan and monitor procurement processes. It maintains a website that provides information on competitive bidding procurement processes, in addition to publication in national newspapers, as applicable. The most recent ex post review of procurements conducted by the Bank for program 2759/OC-PE indicates that the risk associated with procurement handled by the PEU is low, with some specific comments and observations that will be followed up on.
- 3.5 The PEU uses the Integrated Financial Administration System (SIAF) as an operating system for financial management. The 2015 audited financial statements for operation 2759/OC-PE received an unqualified opinion. Regarding internal control, except for some reportable conditions in the audit report, no other issues were observed that would compromise the operation's internal control structure.
- 3.6 The program's beneficiary municipios are responsible for the operation, maintenance, and reinvestment of the works. Prior to launch of the public bidding process for the works, the executing unit will sign interagency cooperation agreements with the corresponding municipios establishing, among other things, a guarantee of the necessary annual resources for conducting post-closure maintenance, monitoring, and control to the Bank's satisfaction. Municipios are not slated to make a contribution in the investment phase.

#### **IV. FIDUCIARY RISK EVALUATION AND MITIGATING MEASURES**

- 4.1 The risk assessment found that, on fiduciary matters, the execution unit's risk is low when specific support actions are taken.
- 4.2 The executing agency/PEU will be required to execute the program in accordance with the Program Operating Manual to the Bank's satisfaction, to ensure appropriate execution. The Program Operating Manual will primarily be required to: (i) clearly identify the roles, functions, and responsibilities of the parties involved in order to facilitate coordination between them; and (ii) identify the fiduciary process flows in terms of financial management and procurement, as well as the interactions of the parties involved.
- 4.3 There are also plans to organize a launch workshop with the PEU, as well as training sessions on Bank fiduciary policies, to strengthen the concepts of financial planning and execution monitoring to meet the project's objectives.

#### **V. CONSIDERATIONS FOR THE SPECIAL CONDITIONS OF THE LOAN CONTRACT**

- 5.1 As established in the Project Summary, selection of key personnel by the executing agency will be a condition precedent to the first disbursement.
- 5.2 Key personnel will include a general coordinator, an administrative coordinator, a procurement specialist, and an accounting and equity specialist. The terms of reference and evaluation criteria will be previously agreed upon with the Bank.
- 5.3 The executing agency/PEU will deliver audited annual and final financial statements for the project, with specific terms of reference acceptable to the Bank, within

120 days following the end of each fiscal year of the executing agency/PEU during the original disbursement period or any extensions thereof. The final audit report will be submitted within 120 days following the end of the original disbursement period or any extensions thereof.

- 5.4 The equivalence of the disbursement currency or approval currency of an eligible expense incurred in the borrower's local currency will be determined for accounting and expense justification purposes by using the exchange rate in effect on the date on which the approval currency or disbursement currency is converted to the borrower's local currency (Article 4.10(b)(i) of the General Conditions of the loan contract). The agreed-upon exchange rate to be used for determining the equivalence of expenses incurred in local currency and chargeable to the local contribution or of expense reimbursements chargeable to the loan proceeds will be the exchange rate in effect on the effective date on which the borrower, the executing agency, or any other legal entity or individual that has been delegated the authority to incur expenses makes the respective payments to the contractor, provider, or beneficiary.

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

- 6.1 **Procurement execution.** Procurements will be carried out in accordance with the Policies for the Procurement of Works and Goods Financed by the IDB of March 2011 (document GN-2349-9) and the Policies for the Selection and Contracting of Consultants Financed by the IDB (document GN-2350-9). Procurement and contracting carried out by public entities financed under this project will be executed in accordance with the aforementioned policies. Procurements made in the framework of projects with project resources, provided that the beneficiary entity is in the private sector, may be executed in accordance with Appendix 4 of the aforementioned policies.
- 6.2 **Procurement of works, goods, and nonconsulting services.** Contracts for works, goods, and nonconsulting services<sup>1</sup> arising under the project and subject to international competitive bidding will be executed using the Bank's standard bidding documents. Tenders subject to national competitive bidding will be executed using country bidding documents agreed upon with the Bank (or satisfactory to the Bank if not yet agreed upon). The project team leader is responsible for reviewing the technical specifications.
- 6.3 **Selection and contracting of consultants.** Consulting service contracts arising under the project will be executed using the standard request for proposals issued by the Bank or agreed upon with the Bank, regardless of the amount of the contract (or satisfactory to the Bank if not yet agreed upon). The project team leader is responsible for reviewing the terms of reference.
- 6.4 **Selection of individual consultants.** Consultants will be selected taking into account their qualifications to perform the work, based on a comparison of at least three candidates. When the circumstances so warrant, notices may be published in the local or international press. The threshold amount determining the use of international competitive bidding will be posted for the information of the borrower, through the executing agency, at [www.iadb.org/procurement](http://www.iadb.org/procurement). Below this threshold,

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<sup>1</sup> Under the Bank's procurement policies, nonconsulting services are treated as goods.

- the selection method will be determined on the basis of the complexity and characteristics of the procurement, and this will be reflected in the procurement plan approved by the Bank.
- 6.5 **Prior review of procurements.** The Bank will review the selection and procurement processes as set forth in the procurement plan. At any time during project execution, the Bank may modify the review modality for these processes, by providing advance notice thereof to the borrower or the executing agency. Any changes approved by the Bank will be reflected in the procurement plan.
- 6.6 **Domestic preference.** No margins of domestic preference will apply.
- 6.7 **Use of the country procurement system.** In view of Board approval of the use of the subsystems for electronic reverse auctions and electronic catalogues of framework agreements in Peru, these subsystems will be used following the implementation of the actions described in the Agreement on the Partial Use of the Country Procurement System of the Republic of Peru along with the conditions described therein and the procurement plan has been amended accordingly.
- 6.8 **Initial procurement plan.** See the itemized [Procurement Plan](#) for the first 18 months. The executing agency will publish the procurement plan to Procurement Plan Execution System and update it at least semiannually or as required by the Bank to reflect actual project execution needs and the progress made.
- 6.9 **Procurement supervision.** Ex post evaluations by the Bank will cover a sample of contracts based on technical and professional criteria and will be performed by consultants or external auditors. Once use of the country procurement system has been implemented, these arrangements may be updated based on the fiduciary risks.<sup>2</sup>
- 6.10 **Records and files.** Files are to be kept in the offices of the execution unit under conditions that ensure the integrity and security of the documents.

## VII. FINANCIAL MANAGEMENT AGREEMENTS AND REQUIREMENTS

- 7.1 **Programming and budget.** Expenses related to project activities must have been assessed as viable in the framework of rules issued by the MEF. As of now, the National Public Investment System has been replaced by the National Multiyear Programming and Investment Management System (Invierte.pe) to streamline the approval of investment projects and allow flexibility in their execution at all three levels of government. The preparation of the annual programming plan and budget will be based on provisions of the MEF's Public Budget Office. The project's multiyear execution plan will be drawn up along with the annual budget on the basis thereof, taking the project's disbursement schedule into account. The budget assigned to the project will be approved by the MEF and the Congress of the Republic and reported annually to the Bank. The budget will be operated under the SIAF.

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<sup>2</sup> Once the reverse auction and framework agreement subsystems have been put to use as part of the strategy for the use of Peru's country system, executed procurements will be systematically monitored and supervised by tracking and verifying the stability of the country system.

- 7.2 **Accounting and information systems.** The SIAF's project execution module for project accounting and reporting will be used, as it offers transparency and specific controls on budget execution. Using this module, financial reports can be generated, including disbursement requests, exchange rate controls, project financial statements, and other reports required by the Bank. Accounts will be prepared on a cash basis and will follow international accounting standards and the directives issued by the National Public Accounting Office.
- 7.3 **Disbursements and cash flows.** The country's cash management system will be used, following the directives issued by the National Debt and Treasury Office. Expenditures are subject to the budget and financial execution process, and data on their formalization under the rules applicable to each of the stages (commitment, liquidation, authorization, and payment) will be reported in the SIAF's project execution module. The execution unit will keep a special bank account in U.S. dollars another in soles (monetization) to handle the proceeds from the loan.
- 7.4 Disbursements will be based on the project's actual liquidity needs (financial planning). The execution unit will submit disbursement requests to the Bank, along with a financial plan that will reflect the disbursement schedule for the entire project for the next 180 days. At least 80% of disbursements will be justified in the next request, using the Bank's forms.
- 7.5 The records and documents supporting activities and transactions will be subject to ex post review by the external auditors. All documents and records will be kept for a period of at least three years from the date of the last disbursement. Expenses that the Bank does not deem eligible will be repaid from the local contribution.
- 7.6 **Internal control and internal audit.** The control environment, control activities, communication and information, and monitoring of the activities of the executing agency/execution unit are governed by the country's regulations, which are based on the Law on the National Control System and the Office of the Comptroller General of the Republic (CGR).
- 7.7 The execution unit does not have an internal control area, but the internal control area of the executing agency is competent to perform control of the execution unit. The personnel of that area report to the CGR. The scope of work of the internal control area does not generally extend to projects, but the area will receive copies of the external auditor's reports through the government audit system (designed by the CGR), which it can use for inspection activities.
- 7.8 **External control and reports.** In the framework of the role of the CGR (lead agency in the National Control System) and the regulations governing it, external audits of projects are outsourced to independent audit firms acceptable to the Bank. Eligible independent audit firms are evaluated periodically by the Bank. The CGR authorizes the executing agency/execution unit to select and contract an independent audit firm in accordance with Bank policies for the entire project execution period, including any extensions of the final disbursement period. A tier I or II independent audit firm will need to be selected.
- 7.9 The project financial statements include: cash flow statement, cumulative investment statement, notes on those statements, and the declaration by project management (executing agency/execution unit). The audit report will include the evaluation of the internal control system.

- 7.10 The cost of the external audits will be covered from the loan proceeds and is estimated at US\$350,000 for the five years of execution of the loan.
- 7.11 **Financial supervision plan.** The plan may be adjusted in accordance with execution of the project and the external audit reports.

**Table 1. Supervision Plan**

Activities	Nature/Scope	Frequency
Financial	Portfolio review with the executing agency and the MEF	Twice per year
	Financial audit and delivery of financial statements	Annual and final
	Review of disbursement requests and attached reports	4/5 times per year
	Inspection visit/review of project progress/analysis of executing agency's control environment	Annual

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

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

Peru. Loan \_\_\_/OC-PE to the Republic of Peru  
Program to Recover Locations Degraded  
by Solid Waste in Priority Areas

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 Peru, as Borrower, for the purpose of granting it a financing to cooperate in the execution of a program to recover locations degraded by solid waste in priority areas. Such financing will be for the amount of up to US\$30,000,000 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 \_\_\_\_\_)