



# Board of Executive Directors

## Simplified Procedure

On or after 25 July 2012

PR-3890  
10 July 2012  
Original: Spanish  
**Simultaneous Disclosure**

**To:** The Executive Directors  
**From:** The Secretary  
**Subject:** Peru. Proposal for a loan for the “Project for the Development of Solid Waste Management”

**Basic Information:** Loan type ..... Specific Investment Operation (ESP)  
Borrower ..... Republic of Peru  
Amount ..... up to US\$15,000,000  
Source ..... Ordinary Capital

**Inquiries to:** Carmina Moreno (telephone Country Office in Peru 511-215-1851) or Juan Rihm (extension 1702)

**Remarks:** This operation is included in document GN-2661-4, “2012 Operational Program Report”, approved by the Board of Executive Directors on 25 April 2012. The loan amount does not exceed the ceilings established for Group B countries. Therefore, the operation qualifies for approval by simplified procedure.

**Reference:** GN-1838-1(7/94), DR-398-11(4/11), GN-2661-4(5/12)



DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

**PERU**

**PROJECT FOR THE DEVELOPMENT OF  
SOLID WASTE MANAGEMENT SYSTEMS IN PRIORITY AREAS**

**(PE-L1092)**

**LOAN PROPOSAL**

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ELECTRONIC LINKS	
<b>REQUIRED</b>	
1.	Annual work plan (AWP) <a href="http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=36804408">http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=36804408</a>
2.	Monitoring and evaluation arrangements <a href="http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=36815347">http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=36815347</a>
3.	Procurement plan <a href="http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=36804475">http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=36804475</a>
4.	Environmental and social management report (ESMR) <a href="http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=36816209">http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=36816209</a>
<b>OPTIONAL</b>	
1.	Technical viability <a href="http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=36816385">http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=36816385</a>
2.	Socioeconomic viability <a href="http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=36816782">http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=36816782</a>
3.	Annual work plan for the first 18 months <a href="http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=3686356">http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=3686356</a>
4.	Program Operations Manual <a href="http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=36804479">http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=36804479</a>
5.	Environmental classification and safeguards <a href="http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=36816833">http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=36816833</a>

## ABBREVIATIONS

DIGESA	Dirección General de Salud Ambiental [Environmental Health Directorate]
FONCOMUN	Fondo de Compensación Municipal [Municipal Compensation Fund]
INEI	Instituto Nacional de Estadística e Informática [National Institute of Statistics and Information Technology]
INE/WSA	Water and Sanitation Division
IRR	Internal rate of return
JICA	Japan International Cooperation Agency
MEF	Ministry of Economy and Finance
MINAM	Ministry of the Environment
MINSa	Ministry of Health
MSW	Municipal solid waste
PEU	Project execution unit
PLANAA	Plan Nacional de Acción Ambiental [National Environmental Action Plan]
POD	Proposal for operation development
POM	Program Operations Manual
SNIP	Sistema Nacional de Inversión Pública [National Public Investment System]
SWMU	Solid waste management unit
WAL	Weighted average life
WTP	Willingness to pay

**PROJECT SUMMARY**

**PERU**

**PROJECT FOR THE DEVELOPMENT OF**

**SOLID WASTE MANAGEMENT SYSTEMS IN PRIORITY AREAS**

**(PE-L1092)**

Financial Terms and Conditions*			
<b>Borrower:</b> Republic of Peru		<b>Flexible Financing Facility:</b>	*
<b>Executing agency:</b> Ministry of the Environment (MINAM)		<b>WAL:</b>	Up to 12.05 years approximately <sup>1</sup>
		<b>Amortization period:</b>	Bullet payment due 15 September 2024
		<b>Grace period:</b>	Bullet payment <sup>2</sup>
		<b>Disbursement period:</b>	4 years, 6 months
<b>Source</b>	<b>Amount</b>	<b>Interest rate:</b>	Libor-based
IDB (OC)	15.0 million	<b>Inspection and supervision fee:</b>	**
Local	3.5 million	<b>Credit fee:</b>	**
<b>Total</b>	<b>18.5 million</b>	<b>Currency:</b>	U.S. dollars from the Bank's Ordinary Capital
Project at a Glance			
<p><b>Project objective/description:</b> The general objective is to improve environmental quality through the efficient and sustainable management of municipal solid waste in priority areas. The specific objectives are to benefit the participating regions and municipios of Amazonas (Bagua), Apurímac (Andahuaylas), Ayacucho (Huamanga), Lima (Chancay), Pasco (Oxapampa and Pozuzo), Junín (Yauyos), and Loreto (San Juan Bautista), through: (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 municipal solid waste; (iv) proper final disposal in a sanitary and environmentally safe manner; (v) efficient administrative and financial management of solid waste; and (vi) better practices by the population for the proper handling and management of municipal solid waste. This project is part of a larger program promoted by the Peruvian government that will cover a total of 31 cities. The IDB loan will finance the execution of eight investment projects in the regions and municipios, and funding from the Japan International Cooperation Agency (JICA) will be used for 23 additional cities. The specific projects in eight municipios to be financed by the IDB will benefit some 511,713 inhabitants of the eight cities through the following main actions: construction of sanitary landfills, purchase of collection equipment and vehicles, construction of basic infrastructure, purchase of recovery equipment, and the preparation and implementation of training plans for waste separation organizations. Among other outcomes, environmental and social communication strategies will be developed for the specific projects, and the administrative, technical, and financial management capacity of the municipios will be strengthened.</p>			
<p><b>Special conditions precedent to the first disbursement:</b> The executing agency will provide evidence, to the Bank's satisfaction, that the following conditions have been met: (i) the executing agency has approved the program Operations Manual with the Bank's prior no objection (see paragraph 3.2); and (ii) the executing agency has appointed the general coordinator through a competitive process, and engaged the key personnel of the project execution unit (PEU) on the terms described in paragraph 4.2 (see paragraph 3.2).</p>			
<p><b>Special execution conditions:</b> Before launching any competitive bidding process or request for proposals for works, goods, and services for each specific project, the executing agency will provide evidence, to the Bank's satisfaction: (i) that an interagency cooperation agreement has been signed between MINAM and each municipio for execution of the respective project; and (ii) that the trust agreement has been executed by MINAM, the respective municipio, and Banco de la Nación, to guarantee the counterpart contribution, incremental costs, and the sustainability of the relevant project.</p>			
<p><b>Retroactive financing:</b> The Bank may recognize as part of the loan proceeds up to US\$500,000 equivalent in expenditures incurred by MINAM from 15 June 2012 until the date of operation approval by the Bank's Board of Executive Directors, provided that such expenditures satisfy requirements substantially similar to those established in the loan contract and, specifically, in the Bank's procurement policies (see paragraph 3.6).</p>			
<b>Exceptions to Bank policies:</b> None.			
<b>Project consistent with country strategy:</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
<b>Project qualifies as:</b> SEQ <input checked="" type="checkbox"/> PTI <input type="checkbox"/> Sector <input type="checkbox"/> Geographic <input type="checkbox"/> Headcount <input type="checkbox"/>			

<sup>1</sup> If the contract signature date is prior to 1 August 2012, the weighted average life (WAL) may be longer. The original and final WAL for the loan will be determined on the loan contact signature date, and will be the applicable WAL for the life of the loan.

<sup>2</sup> See amortization period. This loan will be repaid in a single bullet payment due 15 September 2024.

\* Under the Flexible Financing Facility (document FN-655-1), the borrower has the option of requesting changes to the amortization schedule, as well as conversions of currency and interest rate. The Bank will take operational and risk management considerations into account when reviewing such requests.

\*\* The credit fee and inspection and supervision fee will be established periodically by the Board of Executive Directors as part of its review of the Bank's lending charges, in accordance with the applicable provisions of the Bank's policy on lending rate methodology for Ordinary Capital loans. In no case will the credit fee exceed 0.75% or the inspection and supervision fee exceed, in a given six-month period, the amount that would result from applying 1% to the loan amount divided by the number of six-month periods included in the original disbursement period.

## I. BACKGROUND AND DESCRIPTION

### A. The solid waste sector

- 1.1 **Problem to be addressed.** In Peru, the rate of per capita municipal solid waste (MSW) generation is 0.75 kilograms per person per day, for an estimated total of 23,000 tons daily (INEI 2010). Very few dumpsters have been installed to hold the solid waste generated in medium- to high-traffic pedestrian walkways and public areas (avenues, plazas, parks, boulevards, etc.). Solid waste collection and transportation is done by compactor trucks, dump trucks, stake bed trucks, cargo bikes, vans, and in some cases converted pickup trucks, most of which are obsolete and in poor condition. Recovery activities in the program target communities are performed in an informal and very basic manner, which is reflected in the low annual volume of organic and inorganic solid waste treated, but because this waste is treated in improper conditions, the service cannot be considered adequate. In terms disposal, 14.7% of the waste generated is recycled, and only 43.5% of waste is sent to sanitary landfills for final disposal<sup>1</sup> (according to IDB data, there are only eight sanitary landfills and one controlled dump in the country, most of which are located in the region around Lima). The remainder is dumped improperly into the environment in controlled or open air dumps (55.9%), discharged into bodies of water, or disposed of in uncontrolled burns (0.6%). The situation is even worse in small and medium-sized cities with under 300,000 inhabitants, constituting a serious sanitary and environmental problem. At the national level, solid waste collection and transportation have 88% coverage, but there are operational problems associated with, among other things, problems in service quality such as frequency of collection and episodes of waste piled up on sidewalks and similar areas, stemming from ineffective waste collection planning and inefficient transportation (improvable routes, insufficient frequency), lack of equipment (e.g., dumpsters) in terms of sufficient quantity and quality, and an uncommitted and poorly educated population in terms of their role in solid waste management.<sup>2</sup>
- 1.2 In addition, the revenue collected for public waste disposal services do not cover the cost of the service, and late payment rates are high, averaging 67% in the 31 communities analyzed in the program described in paragraph 1.7. People do not pay for the service, since there is no culture of payment, and collection systems are inefficient as a result of weak tax administration capacity in the municipios, particularly in terms of planning and determining the cost of the public waste collection service, as well as the system for collecting the municipal services tax.

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<sup>1</sup> <http://www6.iadb.org/Residuos/informacion/InfoPais.bid;jsessionid=8C605B8D9919A6E10F8D51>, “Evaluación regional del manejo de residuos sólidos urbanos en América Latina y el Caribe, del año 2010” [Regional assessment of municipal solid waste management in Latin America and the Caribbean for 2010]. IDB/AIDIS/PAHO.

<sup>2</sup> <http://www6.iadb.org/Residuos/informacion/InfoPais.bid;jsessionid=746B51E4288C605B8D9919A6E10F8D51>, Regional assessment of municipal solid waste management in Latin America and the Caribbean for 2010. IDB/AIDIS/PAHO.



The direct revenue intake for solid waste services is less than the cost of providing this public service.

- 1.3 There is little public involvement and participation in the integrated management of solid waste, and little credibility regarding the management of revenues collected from the municipal services tax, given the low quality of service received by the public. In summary, the causes affecting the quality of integrated solid waste services are: (i) ineffective storage and street sweeping; (ii) inefficient operating capacity of collection and transport activities; (iii) inappropriate recycling of solid waste; (iv) improper final disposal; (v) inefficient administrative and financial management; and (vi) improper waste handling and management practices on the part of the public, with the final disposal step being the most critical in all of the cities.
- 1.4 **Legal and institutional framework.** This framework is provided by the Solid Waste Act of 2000 (Law 27314), amended in 2008 by Legislative Decree 1065, which favors an integrated approach to solid waste management, from generation to final disposal. The legislative decree provides for the gradual implementation by the provincial municipios of programs for separation at the source and the selective collection of municipal solid waste (MSW). The “Law Governing the Activities of Recyclers” (Law 29419) encourages local governments to include waste pickers as part of the local solid waste management system. Sector functions are distributed as follows: (i) the Ministry of the Environment (MINAM) is responsible for the formulation of sector policies, strategies and programs for the environmental management of solid waste, development of regulatory proposals, and management of financing for public investments in solid waste at the national level; (ii) the Ministry of Health (MINSA) is responsible for health and sanitation oversight in waste management, and environmental impact studies are approved by its Environmental Health Directorate (DIGESA); (iii) the rural municipios set rules and control the final solid waste disposal process in the provincial setting, and have the option of participating in the public waste collection and solid waste treatment system, whenever economies of scale make it efficient to centralize this service at the provincial level; and (iv) the municipios in urban areas ensure the delivery of street sweeping services on streets and in public areas, as well as municipal solid waste collection and transport services. The Sector Strategic Plan was formulated in 2008 under the IDB’s Water and Sanitation Initiative, and identified problems that still persist.
- 1.5 **The country’s strategy.** The National Environmental Policy set by MINAM promotes ecoefficient municipios through three priority lines of action: (i) recycling and safe final disposal of MSW; (ii) treatment and reuse of domestic wastewater; and (iii) land use planning for sustainable development. In addition, the country has a “National Environmental Action Plan 2011-2021” (PLANAA), a long-term national environmental planning tool that contains priority environmental targets for the next 10 years. Solid waste is a top priority in the PLANAA due to the magnitude of the environmental problem identified in the country. National targets

have been set of 60% recycling and 70% coverage of safe final disposal of MSW by 2017, and 100% for both strategic areas 2021.

- 1.6 In this context, one of the strategic actions planned by MINAM is the Program for the Development of Solid Waste Management Systems in Priority Areas, which will help to ensure effective integrated solid waste management in 31 cities of the country.
- 1.7 **The program.** Within this framework, and in coordination with the regional and local governments, since 2008 the Ministry of Health (MINSA), the Ministry of Economy and Finance (MEF), and the Ministry of the Environment (MINAM) have been preparing the Program for the Development of Solid Waste Management Systems in Priority Areas of Puno, Piura, Ancash, Tumbes, Apurímac, Ica, Huánuco, Puerto Maldonado, San Martín, Junín, Lambayeque, Loreto, Ayacucho, Amazonas, Lima, and Pasco,<sup>3</sup> to finance a group of 31 projects in priority areas, in order to propose technically viable and comparable alternatives to address the problem of municipal solid waste management. The 31 priority areas were identified using criteria of comprehensiveness (encompassing all steps in the MSW management process), considering the potential degradation of environmental quality, health risks (in critical areas identified by DIGESA), the amount of waste generated, whether or not they are located in a tourist area, and the willingness of the local governments. Public investment projects (PIPs) were formulated for the 31 priority areas in accordance with the requirements of the National Public Investment System (SNIP).
- 1.8 **The project.** Under this operation, the IDB will finance the execution of eight investment projects in the regions and municipios of Amazonas (Bagua), Apurímac (Andahuaylas), Ayacucho (Huamanga), Lima (Chancay), Pasco (Oxapampa and Pozuzo), Junín (Yauyos), and Loreto (San Juan Bautista), while the Japan International Cooperation Agency (JICA) will provide separate parallel financing for the remaining 23 projects. This project will target cities that have no sanitary landfills and a serious shortage of public MSW storage capacity, as well as accumulated waste, dirty streets, personnel who fail to do the work assigned to them, a lack of personal protection gear and equipment, etc. The project is associated with a population of 511,713 people in project year 0 in Amazonas (Bagua), Apurímac (Andahuaylas), Ayacucho (Huamanga), Lima (Chancay), Pasco (Oxapampa and Pozuzo), Junín (Yauyos), and Loreto (San Juan Bautista). The principal indicators on current MSW management are those in Table I-1, which also shows the average in Peru and Latin America for some of the values included in the table, to provide some context for the current service quality level.

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<sup>3</sup> [IDBDOCS 36771122](#). Investment program at the feasibility level. April 2012. Program for the Development of Solid Waste Management Systems in Priority Areas of: Puno, Piura, Ancash, Tumbes, Apurímac, Ica, Huánuco, Puerto Maldonado, San Martín, Junín, Lambayeque, Loreto, Ayacucho, Amazonas, Lima, and Pasco.

## B. The Bank's strategy

- 1.9 The project is consistent with the version of the Bank's country strategy with Peru 2012-2016 that has been distributed to the Board. Specifically, this operation supports the development of area (v), "water, sanitation, water resources, and solid waste," through the construction of infrastructure for the collection and final disposal of MSW, institutional strengthening of the national and subnational governments from the legal, regulatory, and technical standpoint, and support for the formalization of waste pickers. In terms of the Ninth General Capital Increase (GCI-9), this project falls within the IDB's second strategic objective, "Promote social development and inclusion," and contributes to the outcomes of a greater number of municipios that have integrated MSW management; it also falls within the lending program priority targets, in the area of climate change mitigation.

**Table I-1: Solid Waste Management and Handling Figures in the Project Communities**

Department	Municipio	Population	Generation of MSW	Street sweeping <sup>4</sup>	Collection	Separators	Payment arrears	User charges
		2007 Census	kg/day/inhabitant	%	%	#	%	Soles/dwelling/month <sup>5</sup>
Amazonas	Bagua	39,531	0.493	48	52	10	50	3.8
Apurímac	Andahuaylas	44,980	0.493	100	60.7	6	75	2.3
Ayacucho	Huamanga	192,158	0.683	63	75	200	47.4	1.6
Lima	Chancay	58,028	0.410	82	87	30	51.6	2.8
Pasco	Oxapampa	9,102	0.560	12	70		100	1.8
	Pozuzo	8,758	0.410	77	62	Yes	38	1.1
Junín	Yauyos	9,718	0.490	73	88	7	99	0.1
Loreto	San Juan Bautista	94,292	0.548	76	93	75	93	1.9
Benchmark average Peru <sup>6</sup>	-	-	0.75	77.8	84	9,597 <sup>7</sup>	-	-
Benchmark average LAC <sup>8</sup>	-	-	0.93	82.3	93.4	401,725	-	-

Source: MINAM. Program feasibility study.

<sup>4</sup> This indicator refers to the surface area, measured by the distances swept. To determine the quality of the service, this is combined with the reduction of critical points of accumulation of household solid waste (see Annex II).

<sup>5</sup> Exchange rate: 2.75 Peruvian soles to the U.S. dollar.

<sup>6</sup> Regional assessment of municipal solid waste management in Latin America and the Caribbean for 2010. IDB/AIDIS/PAHO.

<sup>7</sup> This is the total reported in the country. The total reported for the eight specific projects (approximate number) corresponds more or less to 3% of the national total; however, the population associated with these eight subprojects represents approximately 2%, so it proportionally exceeds the national average.

<sup>8</sup> Regional assessment of municipal solid waste management in Latin America and the Caribbean for 2010. IDB/AIDIS/PAHO.

- 1.10 **The Bank's sector policies.** This project meets the objectives of the Bank's Operational Policy on Public Utilities (OP-708) in that it promotes the use of a cost recovery mechanism and the use of municipal management units, thereby contributing to sustainability and economic efficiency, and to the quality of the services. The institutional and legal framework establishes the structure of the MSW sector, with a separation of the policy formulator and regulator functions, where MINAM has the role of policy formulator, and the municipios provide collection service throughout the country (except in Lima); although there is still a need (as in most countries of the region) to clarify and strengthen the distribution of these functions.

**C. Project design**

- 1.11 The project will finance the construction of sanitary landfills and the procurement of goods to build capacity for collection, transport, compacting, covering, and other activities. It also includes the construction of basic infrastructure and the purchase of separation, recycling and composting equipment, as well as the preparation and implementation of training plans for separator organizations, community awareness-raising, and the execution of pilot plans for selective collection with separation at the source. In order to ensure operational sustainability, the project includes the strengthening or creation of solid waste management units (SWMUs), and enhancement of the management, operating, and supervision capacity of the SWMU technical team, as well as social and environmental communication strategies. In terms of financial considerations, a study will be conducted to determine the proposed user charge structure needed to recover the costs of providing the services, and training activities and consulting engagements will be conducted to improve the collection of municipal revenues.

## **II. OBJECTIVE, COMPONENTS, COSTS, AND EXPECTED OUTCOMES**

**A. Objective**

- 2.1 The general objective is to improve environmental quality through the efficient and sustainable management of municipal solid waste (MSW) in priority areas. The specific objectives are to benefit the participating regions and municipios of Amazonas (Bagua), Apurímac (Andahuaylas), Ayacucho (Huamanga), Lima (Chancay), Pasco (Oxapampa and Pozuzo), Junín (Yauyos), and Loreto (San Juan Bautista), through: (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 MSW; (iv) proper final disposal in a sanitary and environmentally safe manner; (v) efficient administrative and financial management of solid waste; and (vi) better practices by the population for the proper handling and management of MSW.

## B. Components

2.2 **Component I: Projects** (total of US\$15.1 million, IDB contribution: US\$11.7 million). This component will include activities for waste storage and street sweeping, collection and transport, reuse of organic and inorganic waste, and final disposal. These activities will include the purchase of trash bins, dumpsters, personal protection gear, basic tools, collection and transport vehicles, recycling infrastructure, construction of sanitary landfills, and purchase of machinery for compacting and covering MSW. With these investments, each subproject will have the materials for proper storage of solid waste and street sweeping, and the operating capacity for solid waste collection and proper final disposal. These investments are directed to achieve the project outcomes.

2.3 **Component II. Management** (total of US\$3.5 million, IDB contribution: US\$3.3 million). This component will include administrative and financial management activities, activities targeting the public, and support to the project execution unit (PEU). To strengthen the administrative and financial management of the municipios, consulting services will be provided in the following areas: specialized management, monitoring and supervision of public cleaning services, assessment of taxes for municipal services, billing and collection, design of strategies to increase intake of taxes for municipal services, and design of a system to monitor collection. Additionally, the activities targeting the public will include preparation and implementation of training plans for separator organizations, community awareness-raising, and the execution of pilot plans for selective collection with separation at the source. Support to the PEU will include auditing services and consulting studies for the baseline, midterm evaluation, and outcome and impact evaluations).

## C. Cost and financing

2.4 The project's total cost is US\$18.5 million, of which the IDB will finance US\$15.0 million with resources from the Bank's Ordinary Capital. This operation is designed and will be executed as an investment program. The local counterpart will be US\$3.5 million, with MINAM and the beneficiary municipios responsible for this contribution. The expected distribution of costs by source is given in Table II-1 below.

**Table II-1: Cost Table**  
(US\$ millions)

	Total		IDB		Local			
	Amount	%	Amount	%	MINAM	Municipios	Total Local	%
<b>I. Projects</b>	15.0	81.62	11.8	78.67	1.2	2.1	3.3	94.3
<b>II. Management</b>	3.3	17.84	3.1	20.67	0.2	0.0	0.2	5.7
<b>III. Audit</b>	0.1	0.54	0.1	0.66	0.0	0.0	0.0	0.0
	<b>18.5</b>	<b>100.0</b>	<b>15.0</b>	<b>81.0</b>	<b>1.4</b>	<b>2.1</b>	<b>3.5</b>	<b>19.0</b>
<b>Total</b>	<b>18.5</b>	<b>100.0</b>	<b>15.0</b>	<b>81.0</b>	<b>3.5</b>			

- 2.5 **Expected outcomes.** The expected outcomes during project execution include: (i) the construction and commissioning of eight sanitary landfills; (ii) the conversion of improper disposal sites to sanitary landfills; (iii) increased coverage of street sweeping, and MSW collection and transport; (iv) the upgrading of separation centers; (v) the technical, financial, and administrative training of municipal employees, as well as the proposed actions to ensure financial sustainability and improve tax revenues; and (vi) the design and implementation of strategies for community awareness-raising and economic inclusion. The impact, output, and outcome indicators are described in detail in the Results Matrix (see Annex II). The main output indicators are: (i) the construction (including design) of sanitary landfills for each of the specific projects; (ii) equipment purchased and installed in each specific project; (iii) the execution of technical, financial, and administrative training and consulting services for each specific project. The main outcome indicators are: (i) by project end, at least 432 tons/day of MSW will be sent to sanitary landfills in total for the eight specific projects; (ii) the percentage of public MSW storage capacity in the eight specific projects will increase from 22% to 90%; and (iii) the percentage of the current expenses of providing the service recovered through the collection of revenues from the SWM system (revenues from the collection of user charges/cost to operate and maintain the services) will increase from 35.6% to at least 55%.

### III. FINANCING STRUCTURE AND RISKS

#### A. Financing structure

- 3.1 **Terms of the financing.** The Bank loan will be repaid in a single bullet payment due on 15 September 2024. The disbursement period will be four years and six months.
- 3.2 **Special conditions precedent to the first disbursement. As conditions precedent to the first disbursement of the loan proceeds, included in the loan contract, the executing agency will provide evidence, to the Bank's satisfaction, that the following conditions have been met: (i) the executing agency has approved the program Operations Manual with the Bank's prior no objection; and (ii) the executing agency has appointed the general coordinator through a competitive process, and engaged the key personnel of the project execution unit (PEU) on the terms described in paragraph 4.2.** The special execution conditions will be as follows: Before launching any competitive bidding process or request for proposals for works, goods, and services for each specific project, the executing agency will provide evidence, to the Bank's satisfaction: (i) that an interagency cooperation agreement has been signed between the Ministry of the Environment (MINAM) and each municipio for execution of the respective project; and (ii) that the trust agreement has been signed by MINAM, the respective municipio, and Banco de la Nación, to guarantee the counterpart contribution, incremental costs, and the sustainability of the relevant project.

3.1 The projected disbursement timetable is given in Table III-1.

**Table III-1: Disbursement Timetable**

Source	Total (US\$000s)	Year			
		1	2	3	4
IDB	15.0	1.50	7.00	5.00	1.50
MINAM	1.4	0.34	0.53	0.49	0.04
Municipios	2.1	0.20	1.00	0.60	0.30
Total	18.5	2.04	8.53	6.09	1.84
%	100%	11%	46%	33%	10%

3.4 **Disbursements.** Disbursements will be based on the actual liquidity needs of the project (see Annex III).

3.5 The executing agency will use the e-disbursements tool on the IDB's Extranet website to request disbursements, once the loan contract has been signed and all contractual conditionalities have been fulfilled.

3.6 **Reimbursement of expenditures against the loan proceeds.** The Bank may recognize as part of the loan proceeds up to US\$500,000 equivalent in expenditures incurred by MINAM from 15 June 2012 to the date of operation approval by the Bank's Board of Executive Directors, provided that such expenditures satisfy requirements substantially similar to those established in the loan contract and, specifically, in the Bank's procurement policies, in compliance with Operational Policy OP-504. The expenditures will be to commission consulting services enabling the project to begin, such as determining the size of initial investments, collection routes, and determining the number of dumpsters and collection and transport equipment needed. The loan proceeds may also be used to reimburse expenditures already made or to finance expenditures incurred from the date of operation approval to the effective date of the contract, provided that the aforementioned requirements have been met.

## **B. Environmental and social safeguards**

3.7 The project will have a positive environmental impact given that one of its chief objectives is to provide sanitary landfills for the population of the eight specific projects, as well as to "formalize" waste pickers, and improve the coverage of the municipal solid waste (MSW) collection and transport system. In particular, the process of building sanitary landfills has adverse environmental impacts that are local and short-term. Specific activities have been included in the project to mitigate the potential adverse social impact related to limiting the waste pickers' source of income since they will be unable to access the worksite for their scavenging activities, and specific guidelines have been formulated to "formalize" or include them in the new formal MSW management system. The project calls for no resettlement.

3.8 The project team has followed the guidance of the Bank's Environment and Safeguards Compliance Policy (Operational Policy OP-703) and proposes classification of the operation as category "B," based on the fact that the final

disposal infrastructure created will make it possible to close uncontrolled open air dumps, and the process of building manual and semimechanized sanitary landfills has short-term adverse local environmental impacts, for which there are proven and effective mitigation measures. No gender issues were identified for inclusion in the design and execution of the project. Pursuant to Peruvian laws and regulations, there is an environmental impact assessment (EIA) for one of the subprojects (Huamanga), and for the other seven the Environmental Health Directorate (DIGESA) or MINAM will determine during the investment phase whether an EIA or environmental impact statements will be required, based on the size of the project (population and tonnage).

### **C. Other key issues and risks**

- 3.9 **Fiduciary risk.** As part of the project's design, a risk management exercise was performed following the Bank's methodology, yielding a general risk rating of medium. Among the issues identified were: (i) inadequate coordination between the PEU and the eight municipios during execution; and (ii) MINAM's lack of experience for the execution of projects financed by international agencies. These risks will be mitigated by the following activities: training of PEU officers; interagency cooperation agreements with the municipios, establishing the modality MINAM will use to execute the resources transferred to finance the project; appointment of a liaison coordinator by the municipios, who will act as their representative for a given period of time to conduct all activities necessary to execute the project. In addition, the program operations manual has been prepared and periodic supervision visits have been planned, with qualified personnel hired to support project execution.
- 3.10 **Institutional risk/purchase and ownership of land.** Generally in projects of this kind, certainty as to the availability of land for works execution and operation is a critical variable. The current status of ownership rights to the real estate where the projects will be built is as follows: (i) municipal property in the cases of Pozuzo, Yauyos, Bagua, Andahuaylas, and Chancay; (ii) assignment of use to the municipio by the National Agricultural Directorate, in the case of San Juan Bautista; and (iii) expected assignment of use to the municipio by private owners in the cases of Huamanga and Oxapampa. As a special execution condition, the executing agency will obtain the respective property deeds, legal possession, or other relevant rights necessary to begin the works procurement process, in accordance with local legislation.
- 3.11 **Social opposition.** Usually with projects involving the final disposal of MSW there is social opposition to the construction of infrastructure (NIMBY).<sup>9</sup> Site selection included consultation with the neighboring population, in order to minimize this issue. The specific projects have identified the ownership of land for the construction of infrastructure. However, as a mitigation measure, a subcomponent

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<sup>9</sup> "Not In My Backyard."



on public information and participation was included in the technical assistance component during project design.

- 3.12 **Financial sustainability.** In the project's financial design, the municipal counterpart of investment costs was determined as a percentage ranging from 0 to 20, based on the municipios' financial capacity, determined from an analysis of their most recent budgets. The Government of Peru will cover the remaining investment costs with own resources and the proceeds of the IDB loan, which will be taken on by the government. It has been agreed that any incremental costs arising during execution will be covered by the municipios. Actual revenue flows (intake) from providing the service are insufficient to cover current costs (operation and maintenance and replenishment of investment), and therefore those of the new service. To bridge the gap, the municipios agreed to defray these costs out of their own budgets, to ensure the sustainability of the initial investments over time, and to ensure the continuity of the service. To this end, the municipios are expected to add the actual funds generated by the system to the use of the Municipal Compensation Fund (FONCOMUN), which the Ministry of Economy and Finance will transfer directly to each municipio's trust accounts, bypassing the local treasury office; however, they will be budgeted each year by the respective municipios. The project strategy and the activities to be conducted, especially under Component II, are intended to improve collection management and the administration and operation of the services to be provided. This will give the municipios an incentive to take action and follow the resulting recommendations to free the FONCOMUN resources tied up in the trusts for use in other priority projects to benefit the municipio. Since MINAM will procure all goods and services through the PEU, it must include in its institutional budget the loan proceeds and MINAM's counterpart funding, as well as the counterpart provided by the municipios. To that end, the fiduciary agent will transfer the corresponding resources from the trust, which will be included by MINAM in the source of grants and transfers. A specific analysis of the FONCOMUN balances of each municipio (see the financial annex), where the average execution of funds for the period 2005-2010 remains constant, showed that future balances of these resources could be allocated to cover all of the incremental reinvestment, operation, and maintenance costs in six municipios, whereas 94% would be covered in Huamanga, and 85% in Andahuaylas. For this reason very small reductions should be made in the current use of FONCOMUN (0.8% and 1.5%, respectively), if 100% coverage of incremental costs is to be achieved solely using FONCOMUN resources, without recording the increase in actual revenues. In summary, the actual revenues are those collected through the municipal services taxes levied to cover the costs of providing the service.
- 3.13 Accordingly, the funds for reinvestment, operation, and maintenance to be covered by the municipios with FONCOMUN resources will be budgeted by the municipios and transferred directly by the Ministry of Economy and Finance to the trust accounts created especially for each project, which will be administered by Banco de la Nación. This constitutes an innovative approach to mitigating the financial risks of the operation. A legal agreement between the municipios and MINAM will

be required for the counterpart contribution, as well as the resources to cover operation and maintenance. The municipal mayors have already sent letters to MINAM committing their resources and agreeing to participate in the trust. The trustee will be Banco de la Nación, and the municipio will be the trustor and beneficiary, represented by the Oficina General de Administración [General Administration Office] and by the agency charged with operation, maintenance, and reinvestment, respectively, and MINAM will provide oversight of the terms of the trust agreement. The municipios, through the solid waste management units (SWMUs), will be responsible for providing the services. In the future, and subject to evaluation, the operation and maintenance service may be provided by specialized operators, which may be semipublic enterprises, service companies, and/or private companies.

- 3.14 The impact of the new costs on the finances of the participating municipios will be marginal. A comparison of the incremental costs the municipios will incur in 2013 with the municipal outflows in 2009 shows that these costs never exceed 4.6%, and in three towns the impact was less than 1%. A calculation was also made (see the financial annex) to determine the average rates that should be imposed in each municipio in order to recover the costs of program execution with funds generated from payments for the service. The rates obtained represent between 0.6% and 2.2% of the population's estimated average income in each town. A detailed study will be conducted during project execution to determine the rate structure that should be implemented to recover the costs of providing the services. That study will recommend targeted subsidy levels using financing from the central or municipal government for the first and second deciles, or cross-subsidies, increasing the user charges for the population with the ability to pay. This is one of the studies included in the operation, which calls for other activities to improve municipal fiscal revenue intake.
- 3.15 **Technical viability.** For each of the eight specific projects, alternative solutions were analyzed based on different waste collection, treatment, or final disposal systems, and the best ones were selected on the basis of their cost-effectiveness. Studies on the selection of final disposal sites were conducted in each town, comparing climate, geological, topographic, social, economic, physical, hydrological, biological, landscape, and cultural considerations of various alternatives, to select the most suitable site in each case. All of the projects satisfied the technical criteria established in the regulations governing solid waste treatment in Peru, including the Solid Waste Act (LGRS) and the national building code, and have been declared technically viable in terms of the National Public Investment System (SNIP). These projects have a favorable technical opinion from the Regional Health Directorate in the respective jurisdictions, which provides assurance that distinctive local features have been taken into account, and technically viable alternatives developed, based on the analysis of specific issues, considering the geographic and climatologic features, the quantity and composition of solid waste, as well as the habits, customs, and culture of the population, environmental conditions and the economic circumstances of each local

government. In addition, to ensure the project outcomes (particularly in terms of minimizing the risk that improper final disposal sites such as open air and controlled dumps receive waste from the towns associated with the eight specific projects), MINAM has requested nonreimbursable technical cooperation funding from the Bank (operation PE-T1237) in order to conduct studies aimed at proposing a program to close existing dumps for the 31 specific projects, which will provide the design of the required closures specifically associated with the eight specific projects in this operation. Given the features of the subprojects financed by this project (populations under 100,000 in seven of the eight subprojects), the designs of the required closures should not present major technical challenges. In the case of the only larger municipio, Huamanga, the specific closure project, although greater in scope, is not technically complex since it concerns a controlled dump; this is a final disposal site not designed and operated well enough to be considered a sanitary landfill, but its control measures are much better than for an open air dump, so the closure work should not present any major problems. This dump is reaching the end of its useful life, so it will have to be closed once the landfill to be built goes into operation.

- 3.16 **Institutional viability.** This project is the first type of financing for the MSW sector, and the first loan executed by MINAM. For these reasons, a project execution unit (PEU) will be created to support the group already in place. The PEU will have financial and administrative autonomy, technical and operational capacity, and support from consultants for the monitoring and supervision of works and other activities related to communication, awareness-raising, and municipal capacity-building. In the operation and maintenance stage, the municipios will perform these tasks on force account and/or through contracted specialized operators, or through public-private arrangements. Institutional strengthening actions are planned as part of the project in the areas of street sweeping and urban sanitation.
- 3.17 **Economic viability.** Following the usual practice in projects of this kind, an analysis of alternatives was conducted in each of the eight towns regarding identification of the final disposal site and technologies for service delivery. In each case the alternative selected for financing by the project satisfies the cost-effectiveness criterion (least cost in US\$/ton, proper disposal, including the present value at 12% of the costs of investment, operation, and maintenance). Details can be found in the link, “Economic analysis.” The values found range from US\$13/ton to US\$54/ton. These are in line with other, similar integrated solid waste management projects in the region, and lower than the average costs corresponding to proper management in Latin America.<sup>10</sup> Based on this analysis, financing is recommended for these eight projects. However, the projects will be reevaluated when the final engineering studies are available, to ensure that they remain cost-effective, before final eligibility is declared.

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<sup>10</sup> See background information at <http://www6.iadb.org/Residuos>. Regional Assessment of Municipal Solid Waste Management in Latin America and the Caribbean for the year 2010. IDB/AIDIS/PAHO.

- 3.18 In addition, as part of the knowledge development efforts of the Water and Sanitation Division (INE/WSA), a methodology was designed and implemented to determine benefits, based on the concept of measuring maximum willingness to pay (WTP) for these services, through contingent valuation surveys. This is a methodology being developed by the division for projects in the solid waste subsector. A total of 2,400 heads of households were surveyed, who were randomly selected among the populations of the cities of Ayacucho, Oxapampa, and Chancay. The preliminary processing of the results is given in detail in the socioeconomic evaluation link, based on which an average WTP was established of about US\$2.57 per family/month. Using this information, a cost-benefit analysis was done for all projects, showing that one of them, the city of Huamanga, has a very high internal rate of return (IRR) of 52%, and that two others show a return, although smaller (IRR of between 13% and 14%) and a benefit/cost ratio of over 1. The rest of the projects showed returns of between 6% and -20% (see the economic analysis link). Work should continue on the analysis of this and other methodologies being developed by INE/WSA, so that the cost-benefit analysis can be incorporated into all projects in the subsector at the appropriate time. The final costs resulting from the development of the technical files will be analyzed during the subproject investment phase, and reviewed in detail for each of the subprojects found to have a negative social return at the preinvestment stage, in order to achieve cost-effective projects.
- 3.19 **Social equity and poverty reduction.** This operation qualifies as a social equity enhancing project, as described in the indicative targets mandated by the Bank's Eighth Replenishment (document AB-1704). Furthermore, it qualifies automatically as part of the target for lending to support climate change initiatives (document GN-2650).

#### IV. IMPLEMENTATION AND MANAGEMENT PLAN

##### A. Execution arrangements

- 4.1 **Borrower and executing agency.** The borrower will be the Republic of Peru. The executing agency will be the Ministry of the Environment (MINAM), acting through a unit with administrative, financial, and economic autonomy tasked with execution of the program. That project execution unit (PEU) will be responsible for administration, finance, accounting, and coordination of technical activities, as well as coordination with the municipios participating in the program.
- 4.2 The PEU's key personnel—a general coordinator, technical coordinator, administrative coordinator, budget specialist, accounting and assets specialist, and procurement specialist—will be engaged with local counterpart resources through competitive processes in accordance with terms of reference and evaluation criteria previously agreed upon with the Bank. The program will have a Steering Committee to provide strategic guidance to the PEU. The Steering Committee may include two representatives of the Ministry of Economy and Finance (MEF), one

representative of MINAM, who will act as chairman, and two representatives of the participating municipios. The program Operations Manual will establish the rules of procedure for the Steering Committee.

- 4.3 **Municipio participation in the project.** MINAM will enter into interagency cooperation agreements with the municipios that establish the modality whereby MINAM will execute the resources transferred to finance the project, specifying the mutual obligations related to technical assistance, monitoring, and supervision in order to guarantee transparency in execution and the outcomes obtained. To ensure the timeliness of the municipios' counterpart contributions and to cover possible incremental costs of the specific projects, trusts will be set up at Banco de la Nación for management by MINAM of the resources transferred from the MEF, as described in paragraphs 3.12 and 3.13. Each of the municipios involved in the project will establish a solid waste management unit (SWMU) and strengthen its technical and administrative capacity. These SWMUs will coordinate with the PEU and facilitate project implementation. In addition, the municipios will appoint a liaison coordinator who will act as their representative for a given period of time to conduct all activities necessary to execute the project. The PEU will conduct competitive bidding processes in a centralized manner, as necessary to complete the project's investment stage. Works supervision during the investment stage will be the responsibility of specialized companies.
- 4.4 **Program Operations Manual.** The project will be executed in accordance with the Program Operations Manual (POM), which will include the responsibilities, rules and procedures for scheduling activities and preparing work plans, reviewing and approving projects; procurement; handling and record-keeping of supporting documentation for competitive bidding processes; financial/accounting management; audits; and the monitoring and evaluation system (see link, "Program Operations Manual"). The Operations Manual will have an annex containing an environmental and social management plan.

## **B. Procurement**

- 4.5 **Procurement.** The procurement of works, goods, and consulting services financed in whole or part with the loan proceeds will be conducted in accordance with the IDB policies contained in documents GN-2349-9 and GN-2350-9. The maximum recommended thresholds for international competitive bidding, based on the analyses of the institutional capacity and procurement experience of MINAM and the MEF, are given in Annex III. Project procurement processes will be subject to ex ante review, except as otherwise specified in the procurement plan. The frequency of ex post reviews will be a maximum of every six months, and the executing agency's capacity assessment will be updated annually, in the judgment of the procurement specialist at the Country Office. All procurements to be conducted during a period must be included in the procurement plan approved by the IDB, and will comply with the methods and ranges established therein.

**C. Monitoring and evaluation**

- 4.6 **Monitoring and evaluation.** Monitoring and evaluation will be performed using the supervision tools of the executing agency and the Bank, based on a program execution plan, a procurement plan, and a plan for gathering Results Matrix information prepared by the PEU and accepted by the Bank. The costs of these activities will be duly included in the program budget. The executing agency will conduct two independent evaluations: a midterm evaluation once 50% of the loan proceeds have been disbursed, or 24 months after the loan contract signature date, whichever occurs first; and a final evaluation once 90% of the loan proceeds have been disbursed. An ex post evaluation will be performed within three years after the end of the disbursement period. The terms of reference for these evaluations will be agreed upon with the Bank.
- 4.7 Each year the PEU and the IDB will agree on an annual work plan (AWP) for project monitoring. The PEU will delivery six-monthly reports within 30 days after the end of each calendar semester period, reporting on the progress based on the activities included in the AWP, the results achieved through these activities, and an action plan for the following six-month period, which will serve as the basis for preparing the project monitoring reports. The attainment of the project's objectives will be reviewed each year, any problems arising during execution will be analyzed, and any pertinent adjustments will be mutually agreed upon. The agreement between MINAM and the municipios must specifically establish the reporting, monitoring, and supervision obligations of the municipios, to comply with the requirements of the respective reports to be submitted to the Bank.
- 4.8 **External audit.** Each year during the execution period, the PEU will deliver the program's audited financial statements 120 days after the close of each fiscal year. The external audit will be conducted by independent auditors acceptable to the Bank, pursuant to its requirements and based on previously approved terms of reference. The costs of the audit will be financed with the loan proceeds.

Development Effectiveness Matrix			
Summary			
I. Strategic Alignment			
1. IDB Strategic Development Objectives	Aligned		
Lending Program	Lending to support climate chance initiatives, renewable energy and environmental sustainability.		
Regional Development Goals	Stabilization of CO2 equivalent emissions (metric tons per habitant).		
Bank Output Contribution (as defined in Results Framework of IDB-9)			
2. Country Strategy Development Objectives			
Country Strategy Results Matrix	GN-2472-2	Environmental Sustainability.	
Country Program Results Matrix	GN-2661-4	To be presented after respective CS approval.	
Relevance of this project to country development challenges (If not aligned to country strategy or country program)			
II. Development Outcomes - Evaluability			
	Highly Evaluable	Weight	Maximum Score
	8.4		10
3. Evidence-based Assessment & Solution	9.2	25%	1
4. Ex ante Economic Analysis	8.8	25%	1
5. Monitoring and Evaluation	5.5	25%	1
6. Risks & Mitigation Monitoring Matrix	10.0	25%	1
Overall risks rate = magnitude of risks*likelihood		Medium	
Environmental & social risk classification		B	
III. IDB's Role - Additionality			
The project relies on the use of country systems (VPC/PDP criteria)			
The project uses another country system different from the ones above for implementing the program			
The IDB's involvement promotes improvements of the intended beneficiaries and/or public sector entity in the following dimensions:			
Gender Equality			
Labor	Yes	The program will finance the design of a Plan for Social Inclusion of Recyclers, which will be implemented by the participating municipalities.	
Environment	Yes	The program will finance the design of strategies for social and environmental communication, which will contribute to reducing solid waste and improving citizen responsibility regarding its discharge.	
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	ATN/OC-12369-RG / PE-L1110.
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.			

The project's general objective is to contribute to reducing the negative impacts on the environment of eight cities of Peru caused by the inadequate management of their solid wastes. This will be achieved by: increasing the coverage of collection and transportation of solid wastes; improving the storage of solid waste and the cleaning of streets; maximizing the use of solid waste; the sanitary and environmentally safe disposal; improvements in the efficiency of the financial and administrative management of solid wastes; and improvements in the behavior of the population regarding their management and disposal of solid wastes.

The POD presents the problems to be addressed by the project as well as the factors causing them, and these are substantiated by empirical evidence. The proposed interventions are clearly linked to the problems identified in the diagnosis. The magnitudes of the problems are provided as is the empirical evidence with respect to the internal and external validity of the interventions.

The results matrix has vertical logic. The impact indicator is SMART and has a baseline, target and sources of information. The outcomes are clearly presented and all outcomes have indicators. However, not all outcome indicators are SMART given that some are not specific and do not present clear units of measurement. For example, the indicator "percentage of public storage capacity of solid waste" does not specify the variables in the ratio that will need to be measured to obtain the desired percentage. With respect to the outputs, the following indicators are not phrased as outputs: training and technical, financial, and administrative consultancies for each sub-project; elaboration of communication strategies regarding social and environmental aspects of the program for each sub-project; and design and/or optimization of collection routes for each sub-project. Every output has an indicator. The output indicator "training and technical, financial, and administrative consultancies" is not SMART since it is not specific and is difficult to measure. For example, how will we know if the training was provided? If the training will be provided through workshops, a specific output would be "workshops completed". All outcome and output indicators have baselines, targets and sources of information. With regards to the data for the PMR, all outputs have annual targets, however, the project costs are not broken down by outputs as are presented in the results matrix.

All projects were analyzed using cost-efficiency. An analysis of alternatives was undertaken for each of the eight cities and the solution that generated the lowest cost per ton of treated solid waste was selected. The analysis does not include a sensitivity analysis.

The project has a monitoring and evaluation plan, however the evaluation plan does not follow the DEM guidelines. The plan indicates which could be some of the evaluation questions, but it does not present in a concrete manner all the questions that will be responded through the evaluation. The evaluation plan includes the results matrix and the section on indicators makes reference to the matrix. Although the matrix presents the sources of information, the plan does not include the formula for each indicator nor the frequency of measurement. The project will be evaluated using a cost-benefit analysis and a reflexive methodology.

Finally, the risk matrix presents the projects risks which are rated for magnitude and probability. Mitigation measures are presented for each risk as well as indicators to monitor its implementation.

Results Matrix							
Objective:	The general objective is to improve environmental quality through the efficient and sustainable management of municipal solid waste (MSW) in priority areas. Eight investment projects will be executed in the regions and municipios of Amazonas (Bagua), Apurímac (Andahuaylas), Ayacucho (Huamanga), Lima (Chancay), Pasco (Oxapampa and Pozuzo), Junín (Yauyos), and Loreto (San Juan Bautista). This will be accomplished through: (i) improved solid waste storage and street sweeping; (ii) improved operating capacity of solid waste collection and transport activities in the selected municipios; (iii) reuse of MSW; (iv) proper final disposal in a sanitary and environmentally safe manner; (v) efficient administrative and financial management of solid waste; and (vi) better practices by the population for the proper handling and management of MSW.						
Impact indicators (includes the country strategy indicators to which this operation contributes)							
	Baseline	Year 1	Year 2	Year 3	Year 4	Target	Comments/Mean of verification
Percentage of MSW disposed of in sanitary landfills in Peru	43.5%	43.5%	43.5%	43.8%	44.6%	45.1%	The baseline is calculated as 22,000 ton/day * 0.435 (according to the information in section 1.1 of the proposal for operation development), each value is calculated with the increase of MSW in sanitary landfills for the eight investment projects / Annual report of the solid waste management unit (SWMU) from information provided by the agencies responsible for the public waste collection service in the selected local governments.
Outputs							
Equipment purchased and installed for each of the eight investment projects, <sup>1</sup> unit	0	2	4	2	0	8	Measured as an aggregate unit, from execution of the procurement process for collection equipment and vehicles / SWMU report on the completed installation of trash bins and other equivalent items.
Design and/or optimization of collection routes for each of the eight investment projects, <sup>2</sup> unit	0	0	2	3	3	8	For each of the eight investment project s, the consulting services include review, optimization, and/or design of MSW collection routes / Municipal resolution or equivalent document approving the route plan and ordering its implementation.

<sup>1</sup> Output indicator associated with objective (i). The equipment includes: trash bins, dumpsters, personal protection gear, basic tools, collection, transport, and compacting vehicles. Also includes the inspection equipment necessary for the monitoring associated with the results of (vi). The specific quantity varies with each subproject.

<sup>2</sup> Output indicator associated with objective (ii).



Separation centers and composting center built, either new or expanded, in the project area, <sup>3</sup> unit	0	0	1	2	1	4	Separation centers and composting center built, either new or expanded. / Acceptance and delivery of the construction work. PEU report indicating the completed construction of the centers.
Sanitary landfills built for each of the eight investment projects, <sup>4</sup> unit	0	0	1	3	4	8	Sanitary landfills built, unit / Report on the acceptance and delivery of the construction work and equipment, submitted by each SWMU through the PEU.
Technical, financial, and administrative training and consulting services for each of the eight projects, <sup>5</sup> unit	0	0	2	4	2	8	Execution of the activity for each of the eight investment projects / Report on approval and acceptance of the service, submitted by the PEU.
Formulation of the program's social and environmental communication strategies for each of the eight projects, <sup>6</sup> unit	0	0	2	4	2	8	Execution of the activity for each of the eight investment projects / Report on approval and acceptance of the service, submitted by the PEU.
<b>Outcomes</b>							
Percentage of MSW street sweeping coverage for the project <sup>7</sup>	55%	55%	62%	70%	78%	85%	The measurement is calculated as a ratio of kilometer swept in the urban area per average population per block over the total blocks for collection. / Annual report of the SWMU from information provided by the agencies responsible for the public waste collection service in the selected local governments.
Percentage of public MSW storage capacity for the eight investment projects <sup>8</sup>	22%	22%	50%	65%	75%	90%	Measured as an average for the eight investment projects. / SWMU report on the completed installation of trash bins and other equivalent items.

<sup>3</sup> Output indicator associated with objective (iii).

<sup>4</sup> Output indicator associated with objective (iv). Includes a detailed design, completed environmental assessment, and completed construction and procurement of equipment, ready to operate.

<sup>5</sup> Output indicator associated with objective (v). Includes completed studies and consulting work (as described in Component II and sections 3.12 to 3.14 of the proposal for operation development.

<sup>6</sup> Output indicator associated with objective (vi). Includes completed studies and consulting work.

<sup>7</sup> Outcome indicator associated with objective (i). Presented as an average of the total for the investment projects.

<sup>8</sup> Outcome indicator associated with objective (i). Includes waste in public streets and parks, where trash bins are used, located in high-traffic areas with a greater tendency to accumulate solid waste or critical areas, as well as dumpsters in marketplaces.

Percentage of coverage of MSW collection and transport service in the eight investment projects <sup>9</sup>	76%	76%	80%	84%	88%	90%	Measured as the population served in capital cities <sup>10</sup> The measurement is calculated as a ratio of kilometer collected in the urban area per average population per block over the total blocks to be collected. / Annual report of the SWMU, submitted through the PEU or agencies responsible for the public waste collection service in the selected municipios.
Coverage of reuse of recyclable solid waste for the eight investment projects <sup>11</sup>	0%	0%	2%	4%	6%	10%	The value will be calculated as the increase over the baseline of wastes generated in year 0, i.e., 342 ton/day. / Annual report of the SWMU, submitted through the PEU or agencies responsible for the public waste collection service in the selected municipios.
Tons of MSW sent to sanitary landfills for the eight investment projects, ton/day <sup>12</sup>	0	0	10	70	240	342	Total of tons reported as generated each day in the baseline for the eight investment projects. / Annual report of the SWMU, submitted through the PEU or agencies responsible for the public waste collection service in the selected municipios.
Percentage of the current expenses of providing the service recovered through the collection of revenues from the SWM system (revenues from the collection of user charges/cost to operate and maintain the services) <sup>13</sup>	35.6% (2010)	36%	39%	42%	48%	55%	Average indicator for the eight investment projects. / MEF and PEU reports

<sup>9</sup> Outcome indicator associated with objective (ii). Presented as an average of the total for the eight investment projects.

<sup>10</sup> The capital cities coincide with the eight subprojects, except in (i) Bagua, whose capital city is Bagua (this indicator does not include La Peca, El Parco, Copallin, Amarago), (ii) Andahuaylas, whose capital city is Andahuaylas (this indicator does not include San Jerónimo and Talavera), and (iii) Haumanga, whose capital cities are Ayacucho, Carmen Alto, San Juan Bautista, Jesús Nazareno.

<sup>11</sup> Outcome indicator associated with objective (iii). The recyclable waste will be defined based on the design and construction of each plant (for example, the component for compost is different for the paper recycling component).

<sup>12</sup> Outcome indicator associated with objective (iv).

<sup>13</sup> Outcome indicator associated with objective (v).

Decrease in critical points of accumulation of household solid waste, % <sup>14</sup>	100%	95%	85%	70%	60%	50%	<p>A survey will be conducted through the SWMU in each of the eight investment projects on critical points reported in year 0 (complaints regarding the accumulated waste, dirty streets, personnel who fail to do the work assigned to them, a lack of personal protection gear and equipment). This will yield a total, on which the % of expected decrease each year will be calculated.</p> <p>/ Report submitted by the office or agencies responsible for the public waste collection service in the selected municipios.</p>
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<sup>14</sup> Outcome indicator associated with objective (vi).

## **FIDUCIARY AGREEMENTS AND REQUIREMENTS**

### **I. Executive summary**

At the request of the Government of Peru, the executing agency is the Ministry of the Environment (MINAM). Given the complexity of the program and MINAM's lack of experience in executing projects financed by multilateral agencies, a project execution unit (PEU) will be established within MINAM. The technical features of the project, the outcome of the risk analysis exercise, meetings and interviews with key personnel, and meetings with the project team were all taken into consideration in determining the PEU's structure, as was the Bank's experience and knowledge from working in the sector.

### **II. Fiduciary context of the executing agency and PEU**

The PEU will be created as part of the operation's approval process. Functionally and administratively, this unit will report the Office of the Vice Minister of Environmental Management. An area tasked with fiduciary execution of the project's resources will be established within the PEU. Liaison coordinators will be contracted in each of the municipios for project supervision. Execution will be centralized in the PEU.

### **III. Fiduciary risk evaluation and mitigation measures**

The risk assessment conducted during the design stage found that the fiduciary risk in terms of financial management and procurement is medium.

### **IV. Considerations for the Special Conditions of the loan contract**

1. Conditions precedent to the first disbursement: program Operations Manual approved by the Bank.
2. Exchange rate for financial reporting: Monetization rate.
3. Audited annual financial statements, with specific terms of reference.
4. As a condition for the submission of bids or proposals and/or for contract awards, suppliers or consultants will not be required: (i) to be registered in Peru; (ii) to have a representative in Peru; or (iii) to partner or enter into subcontracts with Peruvian suppliers, contractors, or consultants.
5. Calls for bids, bidding documents, reports on the opening of bids, requests for expressions of interest, and the pertinent summary of reports on bid evaluations and the respective proposals for all goods, nonconsulting services, and consulting services, as applicable, will be published on the website of the Government Contracting Supervision Agency (OSCE) in a manner acceptable to the Bank.
6. A difference between the amount of qualified bids and the baseline value will not be considered automatic cause for invalidation of the bidding process, unless it is determined to the Bank's satisfaction upon investigation of the reasons for

the cost difference that the reference value is correct and in line with actual conditions. The borrower will publish the procurement plan in the Procurement Plan Execution System (SEPA), updating the plan at least every six months or as required by the Bank to reflect the actual needs of project execution and progress achieved.

## **V. Agreements and requirements for procurement execution**

The fiduciary agreements and requirements for procurement establish the rules applicable to the execution of all planned procurements under the project.

### **1. Procurement execution**

Procurement will be carried out in accordance with documents GN-2349-9 and GN-2350-9.

- a. Procurement of works, goods, and nonconsulting services:** Contracts for works, goods, and nonconsulting services<sup>1</sup> generated under the project and subject to international competitive bidding (ICB) will be procured using the Bank's standard bidding documents (SBDs). Bidding processes subject to national competitive bidding (NCB) will be executed using national bidding documents agreed upon with the Bank (or satisfactory to the Bank if not yet agreed upon). The project's sector specialist is responsible for reviewing the technical specifications for procurements during preparation of the procurement processes.
- b. Selection and contracting of consultants:** Contracts for consulting services generated under the project will be executed using the standard request for proposals (RFP) issued by the Bank or agreed upon with the Bank, regardless of the contract amount (or satisfactory to the Bank if not yet agreed upon). The project's sector specialist is responsible for reviewing the terms of reference for the contracting of consulting services.
  - b1 Selection of individual consultants:** The selection will be based on the individual consultant's qualifications to do the work, and will require a comparison of the qualifications of at least three candidates. When circumstances so require, notices may be published in the local or international press.

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<sup>1</sup> Under IDB procurement policies, nonconsulting services are treated as goods.

## 2. Table of threshold amounts (US\$)

Works			Goods <sup>2</sup>			Consulting services	
International competitive bidding	National competitive bidding	Shopping	International competitive bidding	National competitive bidding	Shopping	International publicity	Short list 100% national
≥ 3,000,000	< 3,000,000 and ≥ 250,000	< 250,000	≥ 250,000	< 250,000 and ≥ 50,000	< 50,000	≥ 200,000	< 350,000

The thresholds for prior review are determined by type of procurement risk presented by the project, which was rated as medium. The following are the thresholds for prior review to be used when the processes are conducted by the executing agency:

Thresholds for prior review <sup>3</sup>		
Works	Goods <sup>4</sup>	Consulting services
Processes for more than US\$3 million; the first two processes of each method regardless of amount; all direct contracting.	Processes for more than US\$250,000; the first two processes of each procurement method regardless of amount; all direct contracting.	Processes for more than US\$200,000; the first process of each selection method regardless of amount; all single-source contracting.

**c. Domestic preference:** No domestic preference margins will apply.

<sup>2</sup> Includes nonconsulting services.

<sup>3</sup> The Bank may modify the thresholds for prior review during project execution, if it determines that the fiduciary context of the executing agency and/or country has changed. In such case, the Bank will notify the executing agency of its decision, and the executing agency will reflect the new execution conditions in the procurement plan.

<sup>4</sup> Includes nonconsulting services.

### 3. Initial procurement plan

Activity	Type of bidding process	Estimated date	Estimated amount (US\$000)
<b>Goods</b>			
Purchase of trash bins, dumpsters, sweeping equipment, staffing	NCB	March 2013	188
Collection and transport equipment	ICB	May 2013	714
Heavy equipment, dump trucks, vehicles, motorcycles	ICB/S	August 2013	4,700
<b>Firms<sup>5</sup></b>			
Consulting to develop PIPs and technical files, route plan, works supervision, awareness-raising and municipal capacity-building, and monitoring.	QCBS	December 2012	1,800
Information and awareness-raising strategies, and promotion of good practices	QCBS	March 2013	350
<b>Works</b>			
Infrastructure for the final disposal of solid waste in eight cities	ICB	January 2014	5,000

#### Procurement plan for the first 18 months

### 4. Procurement supervision

Given the project's medium level of fiduciary risk, there will be at least one inspection visit per year. In addition, the executing agency's capacity and knowledge of Bank procurement procedures were taken into account in establishing the supervision arrangement. Ex post reviews will be conducted on an annual basis. Ex post reviews by the Bank will include a sample of contracts based on professional judgment, and will be conducted by Bank staff, consultants, and/or external auditors.

### 5. Records and files

Records will be kept at the offices of the executing agency/PEU under appropriate security.

## VI. Financial management agreements and requirements

### 1. Programming and budget

Annual programming and the budget will be prepared in accordance with the requirements of the Public Budget Directorate (DGPP) of the Ministry of Economy and Finance (MEF). The Investment Policy Directorate, in coordination with the Office of Planning, Investment, and Budget, will formulate the project's annual budget on the basis of the project disbursement timetable, and will identify and agree upon priorities for external financing under the project in question. The budget will be operated under the Integrated Financial Administration System (SIAF). The budget allocated to the project will be approved by the MEF and by the Congress of the Republic, and will be reported to the Bank annually. It will be reflected in the SIAF, conducting the committed activities under the project. The executing agency will have budgetary autonomy for project execution.

<sup>5</sup> In the case of consulting services, this means that the short list will comprise firms of different nationalities. See paragraph 2.6 of the "Policies for selection and contracting of consulting services financed by the Inter-American Development Bank" (document GN-2350-9).

## **2. Accounting and information systems**

The project will use the SIAF's project execution module for project accounting and reports during execution, which affords transparency and specific controls for budgetary execution. This module is used to keep the project accounts and produce financial reports, including disbursement requests, exchange rate control, and project financial statements, in accordance with Bank requirements. A cash basis accounting system will be used, in line with international accounting standards and the directives issued by the National Public Accounting Directorate (DNCP).

Financial statements will be required for project supervision, and will include: statements of cash received and disbursements made, statement of cumulative investments and the notes to these financial statements, report on the reasonableness of procurement processes, supporting documentation for expenditures, and evaluation of the internal control system. These reports will be submitted annually.

## **3. Disbursements and flow of funds**

The project will use the country's cash management system, following the directives of the National Borrowing and Treasury Directorate (DNET). Expenditures are subject to the financial and budgetary execution process. Data related to their execution under the laws applicable to each stage (commitment, liquidation, authorization, and payment) will be recorded in the SIAF project execution module. The country's cash management system has still not fully implemented a general treasury account system, so separate accounts are used.

Disbursements will be based on the project's actual liquidity needs (financial planning). The PEU will submit disbursement requests to the Bank, along with a schedule of expenditures for each annual work plan activity for the next 180 days. Support for at least 80% of the disbursement amount will be provided in the next request, through the statement of expenditures and statement of investments.

The PEU will deliver the project's initial financial plan to the Bank, which will contain the disbursement schedule for the entire project, and may be updated periodically. The PEU will open a bank account exclusively for management of the Bank funds.

Supporting documentation on expenditures will be subject to ex post review by Bank staff and/or consultants, and by the external auditors. Reports will be issued for each ex post review visit.

The exchange rate will be the monetization rate, understood as the exchange rate on the date of conversion from U.S. dollars to soles.

Any expenditures deemed ineligible by the Bank will be reimbursed with the counterpart contribution or other resources, depending on the nature of the ineligibility.

## **4. Internal control and internal audit**

The control environment, control activities, communication and information, and the monitoring of the activities of the executing agency/PEU are governed by country laws and regulations, which are based on the National Control System Act.



The internal audit function at MINAM resides with the Internal Control Office (OCI), whose staff report to the Office of the Comptroller General of the Republic (CGR). Although the OCI's scope of work generally does not extend to projects, it will receive copies of the external audit reports through the SAGU government audit system designed by the CGR, on which basis it may perform inspections depending on time and resource availability.

The PEU will be required to include the principal internal control processes in the program Operations Manual, to ensure that controls are working effectively.

## 5. External control and reports

The CGR, as apex agency of the national control system, outsources the external audit of projects to independent audit firms eligible for the Bank. Independent audit firms eligible for the Bank are evaluated periodically by the Bank to ensure their high quality.

The CGR authorizes the executing agency/PEU to select and engage the independent audit firm in accordance with Bank policies for the entire project execution period, including any extensions of the final disbursement period.

Due to the program's complexity given the diversity of the subprojects to be financed and their geographical separation, the following requirements have been established:

1. Selection of a Tier I or II independent audit firm
2. Delivery audited annual financial statements.

The cost of the external audits, estimated at US\$130,000 for the four-year period, will be covered with the loan proceeds.

## 6. Financial supervision plan

Supervision activity	Supervision plan			
	Nature and scope	Frequency	Responsibility	
			Bank	Third party
OPERATIONAL	Review of progress of the projects in each municipio vs. disbursement level. Inspection visits to municipios based on samples.	Annual	Fiduciary and technical team	-
	Portfolio review with executing agency and MEF.	Four-monthly	Fiduciary and technical team	MEF
FINANCIAL	Ex post review of disbursements.	Annual	Fiduciary team	External auditor
	Financial audit.	Annual	Fiduciary team	External auditor
	Review of disbursement requests and attached reports.	2-3 times per year	Fiduciary team	-
	Inspection visit / analysis of internal control and control environment at the executing agency.	Annual	Fiduciary team	-
COMPLIANCE	Annual allocation of budgetary resources necessary for project execution.	Annual	Fiduciary team	Executing agency
	Delivery of financial statements	Annual	Fiduciary and technical team	External auditor / Executing agency
	Conditions precedent to the first disbursement.	Once	Fiduciary and technical team	-

## **7. Execution arrangements**

Given the execution mechanism described in the proposal for operation development, an administrative/financial execution arrangement centralized via the PEU will be required, with the PEU responsible for annual budgeting of both the local counterpart and the IDB contribution. The PEU will also be responsible for making payments and processing disbursements, submitting supporting documentation on the use of funds to the Bank, and coordinating all activities with the municipios. These processes will be clearly described in the program Operations Manual.

## **8. Other financial management agreements and requirements**

Given the nature and complexity of the project, the PEU is required to have an efficient system for monitoring and supervision of the project activities in general, and of each of the projects in the municipios. In addition, the personnel responsible for the project's fiduciary management must have ample experience in public administration and management of projects financed by multilateral agencies.

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-\_\_\_\_/12

Peru. Loan \_\_\_\_/OC-PE to the Republic of Peru  
Project for the Development of Solid Waste Management  
Systems in Priority Areas of Peru

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 project for the development of solid waste management systems in priority areas of Peru. Such financing will be for an amount of up to US\$15,000,000 from the Ordinary Capital resources of the Bank, and will be subject to the Financial Terms and Conditions and the Special Contractual Conditions of the Project Summary of the Loan Proposal.

(Adopted on \_\_\_\_\_ 2012)

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PE-L1092