

**Document of
The World Bank**

Report No: ICR00001921

**IMPLEMENTATION COMPLETION AND RESULTS REPORT
(IBRD-76740/IBRD-78100/IBRD-79500)**

ON

PROGRAMMATIC LOANS

IN THE AMOUNT OF US\$455 MILLION

TO

THE REPUBLIC OF PERU

FOR THE

FIRST, SECOND, AND THIRD ENVIRONMENTAL DEVELOPMENT POLICY LOANS

September 30, 2016

Environment and Natural Resources Global Practice
Bolivia, Chile, Ecuador, Peru and Venezuela Country Management Unit
Latin America and the Caribbean Region

CURRENCY EQUIVALENTS
(Exchange Rate Effective September 8, 2016)

Currency Unit = Nuevos Soles (S/.)
US\$1.00 = S/.3.22

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

CEA	Country Environmental Analysis
CONAM	National Environment Council (<i>Consejo Nacional del Ambiente</i>)
DDO	Deferred Drawdown Option
DIGESA	General Directorate of Environmental Health (<i>Dirección General de Salud Ambiental</i>)
DPL	Development Policy Loan
ECA	Environmental Quality Standard (<i>Estándar de Calidad Ambiental</i>)
EIA	Environmental Impact Assessment (<i>Evaluación de Impacto Ambiental</i>)
ENVDPs	Programmatic Series of Peru Environmental DPLs
FONAM	National Environmental Fund (<i>Fondo Nacional del Ambiente</i>)
FONCOPEs	Fishing Compensation Fund (<i>Fondo de Compensación para el Ordenamiento Pesquero</i>)
GoP	Government of Peru
ICR	Implementation Completion and Results Report
IPF	Investment Project Financing
ISR	Implementation Status and Results Report
LCMR	Lima-Callao Metropolitan Region
LMCE	Maximum Catch Limit per Vessel (<i>Límite máximo de captura por embarcación</i>)
M&E	Monitoring and Evaluation
MEF	Ministry of Economy and Finance (<i>Ministerio de Economía y Finanzas</i>)
MEL	Mining Environmental Legacy
MEM	Ministry of Energy and Mines (<i>Ministerio de Energía y Minas</i>)
MINAM	Ministry of Environment (<i>Ministerio del Ambiente</i>)
MPL	Maximum Permissible Emission Level
MTC	Ministry of Transport and Communication (<i>Ministerio de Transporte y Comunicación</i>)
NGO	Nongovernmental Organization
NPA	Natural Protected Area
OEFA	Environmental Assessment and Control Agency (<i>Organismo de Evaluación y Fiscalización Ambiental</i>)
OSINERGMIN	Oversight Agency of Energy and Mining Investment (<i>Organismo Supervisor de la Inversión en Energía y Minería</i>)
PDO	Program Development Objective
PERCAN	Peru-Canada Cooperation Program

PRODUCE	Ministry of Production (<i>Ministerio de Producción</i>)
PROFONANPE	Fund for the Promotion of Natural Protected Areas of Peru (<i>Fondo de Promoción de las Áreas Naturales Protegidas del Perú</i>)
SEIA	National System of Environmental Impact Assessment (<i>Sistema Nacional de Evaluación de Impacto Ambiental</i>)
SENACE	National Service of Environmental Certification for Sustainable Investments (<i>Servicio Nacional de Certificación Ambiental para las Inversiones Sostenibles</i>)
SENAMHI	Peru National Service for Meteorology and Hydrology (<i>Servicio Nacional de Meteorología e Hidrología del Perú</i>)
SERNANP	National Service of Natural Protected Areas by the State (<i>Servicio Nacional de Áreas Naturales Protegidas por el Estado</i>)
SINANPE	National System of Natural Protected Areas by the State (<i>Sistema Nacional de Áreas Naturales Protegidas por el Estado</i>)
TAL	Technical Assistance Loan

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REPUBLIC OF PERU

First, Second, and Third Environmental Development Policy Loans

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A. Basic Information				
Program 1				
Country	Peru	Program	First Programmatic Environmental Development Policy Loan/DDO	
Program ID	P101471	L/C/TF Number	IBRD-76740	
ICR Date	9/30/2016	ICR Type	Core ICR	
Lending Instrument	DPL	Borrower	Ministry of Economy and Finance (<i>Ministerio de Economía y Finanzas, MEF</i>)	
Original Total Commitment	US\$330.00 million	Disbursed Amount	US\$330.00 million	
Implementing Agencies: MEF				
Cofinanciers and Other External Partners: n.a.				
Program 2				
Country	Peru	Program	Second Programmatic Environmental Development Policy Loan	
Program ID	P116152	L/C/TF Number	IBRD-76740, IBRD-78100	
ICR Date	9/30/2016	ICR Type	Core ICR	
Lending Instrument	DPL	Borrower	MEF	
Original Total Commitment	US\$50.00 million	Disbursed Amount	US\$50.00 million	
Implementing Agencies: MEF				
Cofinanciers and Other External Partners: n.a.				
Program 3				
Country	Peru	Program	Third Programmatic Environmental Development Policy Loan	
Program ID	P118713	L/C/TF Number	IBRD-78100, IBRD-79500	
ICR Date	9/30/2016	ICR Type	Core ICR	
Lending Instrument	DPL	Borrower	MEF	
Original Total Commitment	US\$75.00 million	Disbursed Amount	US\$75.00 million	
Implementing Agencies: MEF				
Cofinanciers and Other External Partners: KfW Development Bank				
B. Key Dates				
Peru First Programmatic Environmental Development Policy Loan/DDO				
Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	08/07/2008	Effectiveness:	09/25/2009	09/25/2009
Appraisal:	11/24/2008	Restructuring(s):	n.a.	06/01/2012
Approval:	02/17/2009	Mid-term Review:	n.a.	n.a.
		Closing:	02/17/2012	09/08/2015
Second Programmatic Environmental Development Policy Loan				
Concept Review:	09/10/2009	Effectiveness:	12/22/2009	12/22/2009
Appraisal:	10/16/2009	Restructuring(s):	n.a.	n.a.

Approval:	12/08/2009	Mid-term Review:	n.a.	n.a.
		Closing:	12/31/2012	12/31/2012
Peru Third Programmatic Environmental Development Policy Loan				
Concept Review:	06/07/2010	Effectiveness:	09/23/2010	09/23/2010
Appraisal:	06/16/2010	Restructuring(s):	n.a.	n.a.
Approval:	08/05/2010	Mid-term Review:	n.a.	n.a.
		Closing:	12/31/2013	12/31/2013

C. Ratings Summary

C.1 Performance Rating by ICR

Overall Program Rating	
<i>Outcome:</i>	Satisfactory
<i>Risk to Development Outcome</i>	Low
<i>Bank Performance</i>	Satisfactory
<i>Borrower Performance</i>	Satisfactory

C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)

Overall Program Rating			
Bank	Ratings	Borrower	Ratings
<i>Quality at Entry</i>	Satisfactory	<i>Government:</i>	Satisfactory
<i>Quality of Supervision:</i>	Satisfactory	<i>Implementing Agency/Agencies:</i>	Satisfactory
Overall Bank Performance	Satisfactory	Overall Borrower Performance	Satisfactory

C.3 Quality at Entry and Implementation Performance Indicators			
Implementation Performance	Indicators	QAG Assessments (if any)	Rating:
Peru First Programmatic Environmental Development Policy Loan/DDO			
<i>Potential Problem Program at any time (Yes/No):</i>	No	<i>Quality at Entry</i>	None
<i>Problem Program at any time (Yes/No):</i>	No	<i>Quality of Supervision</i>	None
<i>DO rating before Closing/Inactive status</i>	Satisfactory		
Second Programmatic Environmental Development Policy Loan			
<i>Potential Problem Program at any time (Yes/No):</i>	No	<i>Quality at Entry</i>	None
<i>Problem Program at any time (Yes/No):</i>	No	<i>Quality of Supervision</i>	None
<i>DO rating before Closing/Inactive status</i>	Satisfactory		
Peru Third Programmatic Environmental Development Policy Loan			
<i>Potential Problem Program at any time (Yes/No):</i>	No	<i>Quality at Entry</i>	None
<i>Problem Program at any time (Yes/No):</i>	No	<i>Quality of Supervision</i>	None
<i>DO rating before Closing/Inactive status</i>	Satisfactory		
D. Sector and Theme Codes			
Peru First Programmatic Environmental Development Policy Loan/DDO			
		Original	Actual
Sector Code (as % of total Bank financing)			
Animal production		25	25
General transportation sector		25	25
General water, sanitation and flood protection sector		25	25
Mining and extractives		25	25
Theme Code (Primary/Secondary)			
Biodiversity		33	33
Environmental policies and institutions		27	27
Participation and civic engagement		4	4
Pollution management and environmental health		36	36
Second Programmatic Environmental Development Policy Loan			
Sector Code (as % of total Bank financing)			
Central government (Central Agencies)		33	33
General agriculture, fishing and forestry		12	12
General transportation sector		33	33
Mining and extractives		22	22

Theme Code (Primary/Secondary)		
Biodiversity	11	11
Environmental policies and institutions	67	67
Pollution management and environmental health	22	22
Peru Third Programmatic Environmental Development Policy Loan		
Sector Code (as % of total Bank financing)		
Animal production	29	29
Forestry	29	29
General transportation sector	14	14
Mining and extractives	14	14
Oil and gas	14	14
Theme Code (Primary/Secondary)		
Biodiversity	13	13
Environmental policies and institutions	29	29
Pollution management and environmental health	29	29
Water resource management	29	29

E. Bank Staff

Positions	At ICR	At Approval		
		Peru First Programmatic Environmental Development Policy Loan/DDO	Second Programmatic Environmental Development Policy Loan	Peru Third Programmatic Environmental Development Policy Loan
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F. Results Framework Analysis

Program Development Objective (from Program Document)

The proposed Environmental Development Policy Loan (ENVDPL) Program aims at supporting the government's efforts to strengthen environmental governance and institutions in Peru, and mainstream environmental sustainability in the development agenda of key sectors (mining, fisheries, and urban transport and energy).

Revised Program Development Objectives (if any, as approved by original approving authority)

The program development objective (PDO) was not revised.

a) PDO Indicators				
First, Second, and Third Programmatic Environmental Development Policy Loans ¹				
	Baseline Value (from approval documents) ²	Original Target Values (from approval documents) ³	Formally Revised Target Values	Actual Values Achieved at Completion or Target Years
PDO Indicator 1: Number of Environmental Impact Assessments (<i>Evaluaciones de Impacto Ambiental</i> , EIAs) of large infrastructure/investment projects with potentially significant impacts reviewed by Ministry of Environment (<i>Ministerio del Ambiente</i> , MINAM).				
Value (quantitative or qualitative)	Zero	MINAM reviews at least 10 EIAs of large infrastructure/investment projects with potentially significant impacts per year	MINAM has the capacity to review EIAs of large infrastructure / investment projects with potentially significant impacts (select at least 10 projects per year based on technical and legal criteria)	MINAM has the capacity to review EIAs of large infrastructure / investment projects with potentially significant impacts. In 2011 and 2012, MINAM randomly reviewed 242 EIAs approved by sectoral agencies between 2001 and 2011 for projects with potentially significant impacts, based on technical and legal criteria.
Date Achieved	8/30/2008	12/31/2013	12/31/2013	12/31/2015
Comments (including % achievement)	Fully achieved and target surpassed. (Average of 22 EIAs per year for the period 2001-2011) The Program Document (PD) of the ENVDP III refined the result indicator to clarify the responsibilities of MINAM in relation to EIAs. The Ministry was mandated to randomly review EIAs approved by sectoral agencies in the three levels of the Government, in order to assess the National System for Environmental Impact Assessment (<i>Sistema Nacional de Evaluación de Impacto Ambiental</i> , SEIA) and determine the actions needed to improve and consolidate such system. On November 24, 2010, MINAM established the technical procedures, legal criteria and the unit in charge of such review, acquiring capacity to review EIAs as stated in the PDO indicator. The random review of EIAs provided MINAM with the analytical underpinnings for assessing SEIA. As a result of such assessment, the GoP created the National Service of Environmental Certification for Sustainable Investments (<i>Servicio Nacional de Certificación Ambiental para Inversiones Sostenibles</i> , SENACE), under the auspices of MINAM, to review and approve EIAs of projects with potentially significant impacts.			
PDO Indicator 2: The National Service of Natural Protected Areas by the State (<i>Servicio Nacional de Áreas Naturales Protegidas por el Estado</i> , SERNANP) applies financial strategy to increase funding for managing natural protected areas (NPA) from various sources (including private sector).				

¹ Annex 3 includes detailed information to the status of the PDO indicators throughout the programmatic series.

² Approval documents do not specify some baseline value dates. In those cases, the ICR team considered the approval date of ENVDP I (i.e. August 30, 2008) as the baseline value date for the PDO indicators.

³ Approval documents do not specify the date when some target values were expected to be achieved. In those cases, the ICR team considered the target date as the original closing date of the ENVDPs, scheduled for December 31, 2013.

Value (quantitative or qualitative)	NPA funding of US\$14.2 million	Increase NPA funding by at least US\$2 million per year	n.a.	NPA funding increased from US\$19 million in 2012 to US\$28.5 million in 2015.
Date Achieved	8/30/2008	12/31/2013		12/31/2015
Comments (including % achievement)	Fully achieved The indicator refers to increasing the NPA funding by at least US\$2 million per year from December 31, 2013, onward. The actual value achieved by 2015 included (a) SERNANP's budget (that is, ordinary resources, directly collected resources, donations, and transfers) in the amount of US\$22.3 million, and (b) additional resources from the Peruvian Trust Fund for National Parks and Protected Areas (<i>Fondo de Promoción de las Áreas Naturales Protegidas del Perú</i> , PROFONANPE) in the amount of US\$7.4 million.			
PDO Indicator 3: Air quality data for the Lima-Callao Metropolitan Region (LCMR) widely published and disseminated (in real time) through a harmonized and integrated monitoring network				
Value (quantitative or qualitative)	Air quality data for LCMR is not disseminated in real time	Harmonized monitoring network publishes air quality data in real time for LCMR.	n.a.	Air quality data for LCMR is published by the Peru National Service for Meteorology and Hydrology (<i>Servicio Nacional de Meteorología e Hidrología del Perú</i> , SENAMHI) in real time and by the General Directorate of Environmental Health (<i>Dirección General de Salud Ambiental</i> , DIGESA).
Date Achieved	1/7/2008	12/31/2013		12/31/2015
Comments (including % achievement)	Partially achieved (50%). 1 of the 2 monitoring networks currently publishes air quality data in real time. In December, 2009, by the time of ENVDP L II approval, both SENAMHI's and DIGESA's monitoring networks disseminated air quality information from monitoring stations in LCMR in real time. Currently, only SENAMHI disseminates its monitoring data in real time. DIGESA publishes an annual report with the results of its monitoring network.			
PDO Indicator 4: Air quality contingency plans developed and implemented when pollution levels largely exceed quality standards in cities				
Value (quantitative or qualitative)	Zero	Air quality contingency plans are developed and implemented in the five most polluted cities.	n.a.	Three out of the five most polluted cities (Ilo, La Oroya and Arequipa) developed and implement air quality contingency plans.
Date Achieved	9/28/2008	12/31/2013		12/31/2015
Comments (including % achievement)	Partially achieved (60% i.e. three out of the five most polluted cities implement contingency plans). La Oroya and Ilo developed pollution contingency plans. Arequipa's air quality plan			

	includes a section on ‘Alert Measures’, referring to interventions designed and ordered by the Ministry of Health. Clean Air Action Plans of Lima-Callao and Chimbote (the other two most polluted cities) envisage the preparation of contingency plans, based on the national alert standards.			
PDO Indicator 5: Priority Mining Environmental Legacies (MELs) identified following the priority setting update of MELs’ inventory and resources for remediating priority public/private MELs				
Value (quantitative or qualitative)	Zero	At least 10 priority MELs are identified following the priority setting update of MELs inventory and resources for remediating priority public/private MELs confirmed.	n.a.	MEM identified 8,616 MELs, and prioritized those legacies by risk levels. 2,546 MELs are of very high risk, and 1,735 are of high risk. The GoP has confirmed resources to remediate 801 priority MELs (of high and very high risk) in 44 mining units.
Date Achieved	9/30/2008	12/31/2013		12/31/2015
Comments (including % achievement)	Fully achieved and target surpassed. The 801 priority MELs comprise: (a) 119 priority MELs in 8 mining units in Cajamarca; (b) 407 legacies in 21 former mining units to be remediated by the state-owned company <i>Activos Mineros</i> , and (c) 275 priority legacies in 15 mining units to be remediated by MEM.			
PDO Indicator 6: Number of mining sites with environmental participatory monitoring projects				
Value (quantitative or qualitative)	35 community-based monitoring pilots underway	Environmental participatory monitoring undertaken in at least 60 mining sites	n.a.	101 mining sites with environmental participatory monitoring (committees or programs)
Date Achieved	9/30/2008	12/31/2013		12/31/2015
Comments (including % achievement)	Fully achieved and target surpassed (41 mining sites on top of the target of 60 mining sites). MEM reviewed environmental management plans (EMPs) approved for mining projects between 2008 and 2012, and found that 101 mining sites adopted environmental participatory monitoring. The Environmental Assessment and Control Agency (<i>Organismo de Evaluación y Fiscalización Ambiental</i> , OEFA), which is charge of supervising those EMPs, found irregularities in terms of environmental monitoring (deadline, scope and/or frequency) in 5 out of 202 supervised sites in 2013 and none out of 206 supervised sites in 2014.			
PDO Indicator 7: Percentage of gas stations in main cities supplying clean diesel (less than 50 ppm of sulfur content)				
Value (quantitative or qualitative)	Zero	At least 30% of gas stations in main cities (approximately 750) supplying clean diesel (less than 50 ppm of sulfur content) by 2010	n.a.	All 2,096 gas stations in the departments of Lima, Arequipa, Cusco, Puno, Madre de Dios, and the constitutional province of Callao supply diesel with less than 50 ppm of sulfur content.

Date Achieved	9/30/2008	12/31/2010		12/31/2015
Comments (including % achievement)	Fully achieved and target surpassed. The GoP prohibited gas stations from supplying B2 diesel with more than 50 ppm of sulfur content, for automotive purposes, in Lima and Callao provinces on January 1, 2010. The commercialization of B5 diesel with more than 50 ppm of sulfur content, for all types of purposes, was banned in Lima, Arequipa, Cusco, Puno and Madre de Dios departments, and the Callao province on July 16, 2013. Additionally, on January 1, 2016, the GoP required all gas stations (376) in Junín, Moquegua, and Tacna departments to supply clean diesel.			
PDO Indicator 8: Number of vehicles converted to natural gas and number of service stations supplying natural gas in Lima				
Value (quantitative or qualitative)	35,000 vehicles converted to natural gas in Lima	At least 80,000 vehicles converted to natural gas and 90 service stations are installed and operating in Lima.	n.a.	Approximately 210,000 vehicles converted to natural gas and 236 service stations offering natural gas are installed and operating in Lima.
Date Achieved	9/30/2008	12/31/2013		12/31/2015
Comments (including % achievement)	Fully achieved and target surpassed.			
PDO Indicator 9: Number of vehicle inspection and maintenance systems operating in Lima and other three largest cities				
Value (quantitative or qualitative)	Six inspection lanes operational in Lima for heavy duty vehicles and about 60,000 vehicles inspected in Lima	Vehicle inspection and maintenance system operating in Lima with at least 20 lanes (with at least 600,000 vehicles inspected), and at least three lanes in each of the three largest cities (with at least 80,000 vehicles inspected)	Vehicle inspection and maintenance system operating in Lima (with at least 600,000 vehicles inspected), and each of the three largest cities (with at least 80,000 vehicles inspected)	20 vehicle inspection and maintenance systems were operating in Lima and Callao, 7 in Arequipa and 4 in La Libertad. More than 1,000,000 vehicles inspected in Lima and Callao in 2015. Another 47,688 vehicles were inspected in Arequipa and 29,263 in La Libertad in 2012.
Date Achieved	9/30/2008	12/31/2013	12/31/2013	12/31/2015
Comments (including % achievement)	Fully achieved and target surpassed. During the preparation of the ENVDPL III, the Task Team refined the target value to focus on the number of the inspected vehicles: 600,000 vehicles in Lima, and a total of 80,000 in Callao, Arequipa and La Libertad. At that time, the GoP had already achieved the original target value (as approved in ENVDPL I and II) in regards to the number of inspection lanes. In July 2010, there were 29 lanes operating in Lima, 8 lanes in Callao, 5 lanes in Arequipa and 3 lanes in Trujillo (La Libertad).			

PDO Indicator 10: Percentage of <i>anchoveta</i> fleet under the quota system				
Value (quantitative or qualitative)	0 out of 1,166 vessels	100% of the <i>anchoveta</i> fleet under the quota system	n.a.	100% of the <i>anchoveta</i> fleet (900 vessels) regulated by the quota system
Date Achieved	9/30/2008	12/31/2013		12/31/2015
Comments (including % achievement)	Fully achieved. The quota system regulates the commercial fishing of <i>anchoveta</i> for indirect human consumption (Legislative Decree No. 1084 of June 28, 2008). The fleet is comprised of all vessels used for such type of fishing.			
PDO Indicator 11: Number of workers that benefit from economic incentives for leaving the sector				
Value (quantitative or qualitative)	Zero workers	At least 5,000 workers benefit from economic incentives for leaving the sector.	At least 3,000 workers benefit from economic incentives for leaving the sector.	2,283 workers benefited from the economic incentives for voluntarily leaving the fisheries sector provided by the Fishing Compensation Fund (<i>Fondo de Compensación para el Ordenamiento Pesquero, FONCOPE</i> s).
Date Achieved	9/30/2008	12/31/2013	12/08/2009	12/31/2015
Comments (including % achievement)	Partially achieved (76%). As envisaged in Decree 1080/2008, FONCOPEs provided economic incentives to workers to voluntarily leave the fisheries sector. A second group was comprised of workers who opted to receive the compensation envisaged in Peru's labor legislation, kept their fishing permits, and joined a fleet rotation system. As a consequence, they did not need to leave the sector. As the PDO indicator referred only to those workers who left the sector, the Bank reduced the indicator target during the preparation of the ENVDPL III.			

(b) Intermediate Outcome Indicator(s)

Not applicable.

G. Ratings of Program Performance in ISRs				
Peru First Programmatic Environmental Development Policy Loan/DDO - P101471				
No.	Date ISR Archived	DO	IP	Actual Disbursements (US\$, millions)
1	04/13/2009	Satisfactory	Satisfactory	0.00
2	11/29/2009	Highly Satisfactory	Satisfactory	20.00
3	05/17/2010	Satisfactory	Satisfactory	20.00
4	02/14/2011	Satisfactory	Satisfactory	20.00
5	08/10/2011	Satisfactory	Satisfactory	20.00
6	04/27/2012	Satisfactory	Satisfactory	20.00
7	11/17/2012	Satisfactory	Satisfactory	20.00
8	06/22/2013	Satisfactory	Satisfactory	20.00
9	01/04/2014	Satisfactory	Satisfactory	20.00
10	09/08/2015	Satisfactory	Satisfactory	330.00
Second Programmatic Environmental Development Policy Loan - P116152				

No.	Date ISR Archived	DO	IP	Actual Disbursements (US\$, millions)
1	02/03/2010	Satisfactory	Satisfactory	50.00
2	03/01/2011	Satisfactory	Satisfactory	50.00
3	07/09/2012	Satisfactory	Satisfactory	50.00
Peru Third Programmatic Environmental Development Policy Loan - P118713				
No.	Date ISR Archived	DO	IP	Actual Disbursements (US\$, millions)
1	02/23/2011	Satisfactory	Satisfactory	75.00
2	07/09/2012	Satisfactory	Satisfactory	75.00

H. Restructuring

Peru First Programmatic Environmental Development Policy Loan /DDO - P101471					
Restructuring Date(s)	Board Approved PDO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring in USD millions	Reason for Restructuring & Key Changes Made
		DO	IP		
06/01/2012	n.a.	S	S	20.00	Because the ENVDPPL I included a DDO, most of the funds were kept as contingency funds until the originally planned closing date. In April 2012, the MEF requested the World Bank to extend the first operation's closing date until September 8, 2015.

1. Program Context, Development Objectives and Design

1.1 Context at Appraisal

1. **By the early 2000s, the Government of Peru (GoP) identified environmental degradation as a significant challenge for sustained economic growth.** According to the Country Environmental Analysis (CEA), prepared with World Bank support, the main causes of environmental degradation had an estimated cost of S/.8.2 billion (approximately US\$2.3 billion), an amount equivalent to 3.9 percent of the gross domestic product in 2003. The highest costs were caused by outdoor air pollution and lead exposure in urban areas; inadequate water supply, sanitation, and hygiene; natural disasters; indoor air pollution; and agricultural soil degradation. The majority of these costs reflected increased morbidity and mortality, as well as decreased economic productivity. The CEA also found that the burden of these costs fell heavily on the most vulnerable groups, with more severe health effects on the poor and children under five. Additionally, the CEA found that natural resources were under significant pressure, threatening their sustainability and that of the economic activities that depended on them. Key threats included illegal deforestation and overfishing.

2. **Addressing the environmental and natural resource challenges faced by the GoP required a reform agenda targeting two key areas:** (a) strengthening the legal and institutional framework for environmental management and (b) mainstreaming principles of sustainable development in key economic sectors. As of early 2008, Peru lacked a ministry with a clearly defined mandate and centralized responsibilities for environmental management. The core responsibilities for environmental management had been shared by more than a dozen agencies within several ministries, and sectoral environmental agencies, which diluted overall efficiency and often resulted in a duplication of functions. Most entities working on environmental issues had to cope with inadequate public funding and depended mainly on resources provided by donors. Technical and human resource capacities also varied from one agency to another. Peru's 'sectorized' approach to environmental management had exacerbated these problems, because agencies had focused on promoting their specific sectoral interests.

3. **The reform agenda to strengthen the legal and institutional framework for environmental management required several, phased actions that would be best supported by a programmatic development policy loan approach.** Such actions included the creation of Peru's Ministry of Environment (*Ministerio del Ambiente*, MINAM) and its line agencies, which would, in turn, call for the clarification of the roles and responsibilities of key agencies in areas such as environmental licensing. Additional reforms were needed to develop a suite of tools that would help Peru address priority environmental problems, such as outdoor air pollution in urban areas or water quality problems. Tools to be adopted ranged from emission and environmental quality standards (*Estándares de Calidad Ambiental*, ECAs) to making information available to support decision making and increase transparency and accountability in environmental management. Finally, actions were needed to ensure that the new organizations had the resources to fulfill their mandates, including financial resources.

4. **Mainstreaming sustainable development principles in key economic sectors was fundamental to address core environmental issues in high-growth, natural resource-based,**

and leading export sectors. The fisheries sector met these characteristics and was in need of reforms, as evidenced by declining biomass and yields, as well as by the overcapacity of fishing vessels and processing plants. Mining was another such sector, both making significant contributions to the Peruvian economy and increasingly being associated with environmental and social conflicts. In other cases, the mainstreaming approach recognized that the causes and effects of Peru's priority environmental problems extended beyond the environment sector. This was the cause of urban air pollution, where crafting feasible responses required policy reforms in sectors such as transportation and energy.

5. **The macroeconomic policy framework was adequate for the programmatic series of Peru Environmental Development Policy Loans (ENVDPLs).** At the beginning of the ENVDPLs, which included three operations (ENVDPL I, ENVDPL II, and ENVDPL III), Peru faced the global economic crisis after a period of broad-based rapid economic growth. Before the global economic crisis, Peru displayed one of the strongest growth performances in the Latin America and Caribbean region, with growth accelerating from 6.4 percent in 2005 to 9.8 percent in 2008. While the slowdown in growth in 2009 was acute, Peru was one of the few economies in the region that avoided negative growth. Following a rapid pickup in economic activity from the end of 2009 driven by both domestic demand and a recovery of commodity prices, the most likely scenario for 2010 was one of substantial recovery. Growth was expected to increase to around 6 percent in 2010 and to hover around 5.5 percent over the medium term. In light of the global economic crisis at the time of the preparation of the ENVDPL I, the GoP elected a deferred drawdown option (DDO) for US\$310 million, or approximately 94 percent of the total amount of the loan amount of US\$330 million, as a disbursement option for the first operation. This instrument allowed the GoP to proactively manage risk in light of the financial downturn.

1.2 Original Program Development Objectives (PDO) and Key Indicators (as Approved)

6. **The PDO of the ENVDPLs was to support the GoP's efforts to strengthen environmental governance and institutions in Peru, and mainstream environmental sustainability in the development agenda of key sectors (mining, fisheries, and urban transport and energy).** The objectives of ENVDPL II and ENVDPL III were to continue supporting the GoP to achieve the program's overarching development objectives.

1.3 Revised PDO (as Approved by Original Approving Authority) and Key Indicators, and Reasons/Justification

7. The PDO was not revised during the ENVDPLs. Although the Key Indicators were not formally revised, the World Bank and the GoP agreed to revise three targets during the preparation of the ENVDPL II and ENVDPL III:

- (a) The World Bank refined the target value description of PDO Indicator 1 to clarify the responsibilities of MINAM in relation to Environmental Impact Assessments and their review, maintaining the target number of randomly reviewing 10 EIAs per year (from 2003 to 2012) and emphasizing that such review would be undertaken in accordance with legal and technical criteria.

- (b) During the preparation of the ENVDPDPL III, the GoP had already achieved the original target value (as approved in ENVDPDPL I and II) in regards to the number of inspection lanes. In July 2010, there were 29 lanes operating in Lima, 8 lanes in Callao, 5 lanes in Arequipa and 3 lanes in Trujillo (La Libertad). As a consequence, it was agreed to refine the target value of Results Indicator 9 to focus on (i) the “number of inspection and maintenance systems”, as described in the PDO Indicator, and (ii) the number of the inspected vehicles, which had not been achieved at that time.
- (c) During the preparation of ENVDPDPL II, the GoP noticed that a significant portion of the *anchoveta* fleet workers opted to receive the compensation envisaged in Peru’s labor legislation, kept their fishing permits, and joined a fleet rotation system – instead of leaving the sector. The fleet rotation allowed the GoP to implement the *anchoveta* quota system with a reduced number of workers leaving the sector and, consequently, a reduced social burden. Because of these new circumstances, as PDO indicator 11 referred only to those workers who left the sector, the indicator target was reduced upon approval of the ENVDPDPL II.

1.4 Original Policy Areas Supported by the Program (as Approved)

8. **The ENVDPDPLs responded to the GoP’s request for support in two main areas: (a) strengthening the legal and institutional framework for environmental management and (b) mainstreaming principles of sustainable development in key economic sectors.** The programmatic approach provided the GoP with sustained support to implement a series of reforms in a phased approach, building on the initial achievements to further the reform agenda, under a clearly defined policy framework. The first loan (ENVDPDPL I, with a DDO) focused on enacting laws and issuing various decrees to define roles, set environmental standards, and approve regulations to improve environmental sustainability in the mining, urban transport, and fisheries sectors. The second loan (ENVDPDPL II) built on the previous operation and supported the development and implementation of various programs, strategies, and initiatives to strengthen environmental governance and address environmental concerns in the key sectors. The third operation (ENVDPDPL III) continued efforts to boost environmental sustainability and enhance capacity building and public participation.

9. **World Bank support of reforms to strengthen the environmental institutional and legal framework aimed to back and provide further stimuli to the efforts that the GoP had initiated to consolidate an organizational structure more capable of responding to the country’s environmental challenges.** In 1994, the National Environment Council (*Consejo Nacional del Ambiente*, CONAM) had been established as a coordinating body with a mandate to propose, manage, and evaluate national environmental policy. Nonetheless, one of CONAM’s biggest challenges was to resolve overlapping and/or ambiguous environmental mandates between Peru’s public institutions and to promote further coordination. The organizational structure that was in place faced severe limitations that hindered an efficient response to the country’s current and future environmental challenges. Those limitations stemmed mainly from (a) the absence of an integrated environmental planning system; (b) the lack of sufficient technical and management capacity; (c) weak accountability and monitoring and enforcement capabilities; and (d) insufficient financial and human resources.

10. **Key areas where the GoP wanted to implement reforms included (a) accountability; (b) updating of ECAs; (c) environmental monitoring capacity; (d) environmental licensing; and (e) environmental enforcement.** Accountability had been weak because of (a) the absence of clear responsibilities and capacities among agencies; (b) the lack of an effective voice for the poor, stemming from a lack of awareness and the absence of sound mechanisms for public participation; and (c) a diluted government commitment to remediating environmental problems. Monitoring capacity had been constrained by (a) a lack of reliable and updated ECAs and maximum permissible emission levels (MPLs); (b) missing time series data and baselines on the state of the environment and natural resources; (c) the absence of a system of results-focused indicators of environmental quality; (d) a deficient communications strategy whereby key information was not shared with decision makers (government agencies and the public in general); and (e) a lack of resources to ensure an adequate institutional presence in the field. Environmental licensing had been constrained by (a) the uneven capacity in each sector to process EIAs and issue timely environmental licenses; (b) the weak role of the National Institute of Natural Resources (*Instituto Nacional de Recursos Naturales*, INRENA) and CONAM in the review process of EIAs; (c) the failure to discriminate between projects with minimal environmental impacts and those with complex environmental and social issues; and (d) the weak enforcement of EIA commitments. Enforcement had been suboptimal mostly because the enforcement power ultimately rested with the same ministries that were responsible for promoting sector investments and development, and also because quality standards needed to be defined in many areas. In addition, there was a lack of efforts to link monitoring data with contingency planning and enforcement.

11. **The absence of a formal mechanism for environmental priority setting had been associated with inadequate funding for the environmental sector and reductions in the national government's total environmental expenditure.** For instance, between 1999 and 2005, annual environmental expenditure averaged around 0.01 percent of the gross domestic product and was low by international standards, particularly when compared to other countries in the region.⁴ Peru's declining budget allocations for the environmental sector had taken place within a favorable economic context and could therefore indicate a relative loss of importance of the environmental agenda relative to other social concerns.

12. **The selection of policy areas supported by the program was based on the GoP's commitment, broad stakeholder consultations, and rigorous analytical work.** Efforts to mainstream principles of sustainable development in key economic sectors focused on mining, fisheries, and urban transport and energy sectors. The selection of these sectors was based on World Bank analytical work⁵ and a comprehensive series of consultations with stakeholders led

⁴ For instance, MINAM's predecessor (that is, CONAM) had an operating budget of close to US\$3 million in 2006 while El Salvador, a country significantly smaller in size and in economic terms, allocated US\$5.3 million to its Ministry of Environment.

⁵ The analytical work included the following studies and reports: Country Environmental Analysis; Environmental and Social Dimensions of the Mining Sector in Peru; Wealth and Sustainability: The Environmental and Social Dimensions of the Mining Sector in Peru; *La Industria Anchoyetera Peruana: Costos y Beneficios: Un Análisis de su Evolución Reciente y de los Retos para el Futuro* (which examined the industry's economic condition and estimated benefits from capacity reduction), and *Estudio de línea de base sobre la repercusión social de la reforma de la flota pesquera de anchoveta en el Perú* (which analyzed employment and other social impacts relating to fleet reduction).

by the Ministry of Economy and Finance (*Ministerio de Economía y Finanzas*, MEF), with the outputs and active participation of various government agencies and consultations with other donors. Other factors that influenced the selection of sectors were the existence of supplementary support from other loans/grants⁶ and the level of sectoral support and commitment. Consultations with the mining sector stakeholders started under the framework of the ‘Environmental and Social Dimensions of the Mining Sector in Peru’ (2005) report. Seminars were held for specific groups of stakeholders, such as nongovernmental organizations (NGOs), the private sector, and indigenous communities, to incorporate their views into the report. Similarly, the CEA was prepared through an open participatory process. An initiation workshop built consensus on the importance, scope, and methodologies of the analysis. The CEA’s preliminary findings were presented in the Sixth Ecodialogue.⁷ The findings and recommendations were disseminated in a workshop held in Lima in June 2007. A broad range of stakeholders participated in these workshops, including representatives of several government agencies (such as environment, health, finance, agriculture, energy, and mines), regional environmental authorities, business organizations, NGOs, indigenous communities, and development agencies.

13. Policy reforms in the mining sector were needed to address both the environmental and social impacts of past mining operations and to account for those impacts of new activities. Under Law No. 28271/2004, the GoP was responsible for cleaning up and rehabilitating abandoned (orphan) mining sites and their legacies. Although MELs⁸ impacts have been well known at least for several decades, it was not until the second half of the 1990s that the government attempted to categorize, prioritize, appraise, and map them under the Environmental Legacies Elimination (*Eliminación de Pasivos Ambientales*) Project. In 2003, the project resulted in a preliminary inventory of 610 MELs and reported that nearly 72 percent of them involved legitimate mining rights (that is, an identifiable concession/owner), whereas 28 percent had neither a right nor identifiable owners (orphan). According to a study carried out by the National Environmental Fund (*Fondo Nacional del Ambiente*, FONAM) in 2006, the inventory comprised 850 MELs, but was considered to be invalid by experts because of a questionable MEL assessment methodology. Subsequent efforts were undertaken to support MELs identification and remediation such as the Peru-Canada Cooperation Program (PERCAN), which developed a methodology to assess priority MELs in key watersheds, thus contributing to the updating of a MEL inventory built on environmental and health impacts. The GoP also recognized its need to develop a systematized database of MELs to help identify priority legacies, hence improving the actions toward remediation.

⁶ Issues such as water resource management (identified as critical in the Peru CEA) were not included in the proposed ENVDPs because they were already being addressed by two separate loans financed by the Inter-American Development Bank, as well as a technical assistance loan from the World Bank that was under preparation at the time. Similarly, the forest policy was being covered within the framework of the Free Trade Agreement and through a loan financed by the Latin American Development Bank (CAF).

⁷ This event took place in Iquitos on March 22 - 24, 2006. The event counted with the participation of more than 400 representatives from public entities, indigenous peoples, professional associations, academic centers, Non-Governmental Organizations and civil society, who engaged in an open dialogue about Peru’s most pressing environmental challenges (World Bank, 2007).

⁸ Environmental mining legacies are installations, effluents, emissions, remains or deposits of waste produced by mining operations, abandoned or inactive, that constitute a permanent and potential risk to human health, surrounding ecosystem and property (Law 28271/2004, Article 2).

14. **High levels of particulate matter and other air pollutants were the main contributors to poor air quality and consequent health problems in Peru’s cities.** The CEA found that urban air pollution was most critical in the country’s industrial corridors, such as Lima-Callao, and was responsible for an estimated 3,900 premature deaths per year. Several reports showed that vehicles contributed the dominant part of urban air pollution in Arequipa (76 percent) and Lima-Callao (70 percent), the two largest cities in Peru. To address this growing concern, the GoP took several steps, including the issuance of regulations in 2001, for National Environmental Standards for Air Quality for sulfur dioxide (SO₂), particulate matter (PM₁₀), carbon monoxide (CO), nitrogen dioxide (NO₂), and ozone (O₃). However, the GoP was interested in developing a more comprehensive agenda to address the severe costs of outdoor air pollution, including through actions aiming to (a) promote replacement of existing diesel with an option with lower sulfur content; (b) implement a vehicle scrappage program to replace older, polluting vehicles with newer, natural gas vehicles; (c) promote the conversion of vehicles to natural gas through technological and financial measures; and (d) implement vehicle inspection and maintenance programs.

15. **Peru’s fishing grounds are the richest in the world and anchoveta remains the world’s largest single stock fishery.** Over 300 million metric tons (MT) of fish have been harvested from Peruvian waters during the almost 50 years of commercial fishing. However, the sustainability of Peru’s fisheries was critically threatened by the extreme resource volatility caused by the periodic occurrence of El Nino, which, in combination with huge overcapacity and inadequate management, led to periodic collapses of the fishery stock and severe environmental impacts. The Bank’s analytical work, particularly the CEA, identified the following main challenges: (a) ensuring the environmental sustainability of fish resources; (b) improving and strengthening the governance and management of the sector; (c) reducing the over-capacity of the fishing sector, particularly in *anchoveta* fisheries; (d) improving the social and equity issues in the industry and mitigating the social costs of restructuring, including easing the transition of fishermen and other individuals employed in the fisheries sector into other economic activities; and (e) increasing the added value of the sector, including through the development of a domestic market for direct consumption of *anchoveta*, which represents a potential protein source for segments of society threatened by malnutrition.

1.5 *Revised Policy Areas.* Not applicable.

1.6 *Other Significant Changes (in Design, Scope and Scale, Implementation Arrangements and Schedule, and Funding Allocations)*

The closing date of ENVDP I was originally scheduled for September 8, 2012. The closing date of the ENVDPs was originally planned for December 31, 2013, which was the closing date of the third operation. Because the ENVDP I included a DDO, most of the funds were kept as a contingency fund until the closing date. In April 2012, the MEF requested the World Bank to extend the first operation’s closing date until September 8, 2015. This date is considered the closing date of the ENVDPs and, for the purpose of measuring the PDO indicators, the “end of the program date.”

2. Key Factors Affecting Implementation and Outcomes

2.1 Program Performance

16. The ENVDPs consisted of three operations for a total amount of US\$455 million. The three operations were approved by the World Bank's Board between January 2009 and July 2010. All prior actions agreed had been met at the time of signing the loan agreements (see table 2).

Table 1. Status of Prior Actions for the ENVDPs

Prior Actions	Status
ENVDP I	
Objective A: Strengthening environmental governance and institutions in Peru	
Approval of the Legislative Decree No. 1013 creating the MINAM, establishing its organization and key functions	Completed
Issuance of regulation establishing functions of the SERNANP	Completed
Issuance of the Supreme Decree No. 002-2008-MINAM and No. 003-2008-MINAM, which sets the ECAs and MPLs for water and air emissions.	Completed
Objective B: Mainstreaming environmental sustainability in the development agenda of key sectors (mining, fisheries, and urban transport and energy).	
<i>Mining Sector</i>	
Approval of Legislative Decrees No. 1042 and No. 28526, which modify the MEL's Law No. 28271, and placed the onus for remediation on a private holder (even after mining title/concession has expired) and forbids granting new mining concessions to companies that have not remediated their MELs	Completed
Issuance of Supreme Decree No. 028-2008-EM, which approved a regulation defining public and community participation during the concession, exploration, exploitation, execution, and closing of mining processes	Completed
<i>Urban Transport Sector</i>	
Enactment of Law No. 28694 establishing reduction of sulfur in diesel to 50 ppm by 2010	Completed
Issuance of Supreme Decree No. 016-2008-MTC, which approved a regulation promoting vehicle conversion from gasoline to natural gas and establishment of stations supplying natural gas	Completed
<i>Fisheries Sector</i>	
Approval of Legislative Decree No. 1084 regulating <i>anchoveta</i> fishing quotas by vessel and the social protection measures for displaced workers	Completed
ENVDP II	
Objective A: Strengthening environmental governance and institutions in Peru	
The GoP has defined the roles and responsibilities of MINAM in the evaluation of EIAs for large projects and key sectors pursuant to the issuance of the borrower's Supreme Decree No. 019-2009-MINAM (Regulation of Law No. 274446 for the National System of Environmental Impact Assessment [<i>Sistema Nacional de Evaluación de Impacto Ambiental, SEIA</i>])	Completed
MINAM has approved the financial strategy of the NPAs System (<i>Plan Financiero del Sistema de Areas Naturales Protegidas por el Estado</i>), pursuant to the issuance of Presidential Resolution No. 123-2009-SERNANP. Approval of the Action Plan for NPAs System (Plan Director), pursuant to the issuance of Supreme Decree No. 016-2009-MINAM	Completed
The GoP has issued regulatory measures to promote private sector financing and management of NPAs, as evidenced by (a) the SERNANP's approval of "Guidelines for the Creation of Trust in National Protected Areas" and (b) the issuance of Supreme Decree No. 018-2009-MINAM, which regulates tourism activities within NPAs.	Completed
Publication and dissemination on SENAMHI's and DIGESA's websites of daily air quality monitoring data for the cities of Lima and La Oroya	Completed

Prior Actions	Status
Objective B: Mainstreaming environmental sustainability in the development agenda of key sectors (mining, fisheries, and urban transport and energy).	
<i>Mining Sector</i>	
The GoP has (a) approved Directorial Resolution No. 173-2009-MEM-DGM, which mandates the application of PERCAN's methodology for the identification and prioritization of all MELs, and (b) approved a three-year work program with budget for calendar year 2010 to identify, rank, and manage MELs.	Completed
The GoP, through the Ministry of Energy and Mines (<i>Ministerio de Energía y Minas</i> , MEM), has (a) issued a Ministerial Resolution No. 304-2008-MEM/DM, which approved norms to regulate the process of participatory environmental monitoring and surveillance in mining exploitation activities, and (b) started the operation of at least 40 initiatives of environmental participatory monitoring.	Completed
<i>Urban Transport Sector</i>	
The GoP has issued Supreme Decree No. 061-2009-EM, which prohibits the supply of diesel with more than 50 ppm of sulfur content in the cities of Lima and Callao.	Completed
The GoP has continued the promotion and implementation of vehicle conversions to natural gas, as evidenced by an allocation in the proposed budget for calendar year 2010.	Completed
The GoP has issued Directorial Resolution No. 11645-2008-MTC/15, which regulates the implementation of a vehicle inspection and maintenance system according to a timetable based on license plate numbers in the Lima metropolitan region.	Completed
<i>Fisheries Sector</i>	
The GoP has issued Supreme Decree No. 021-2008-PRODUCE (Regulation of Legislative Decree No. 1084), which mandates (a) the implementation of fishing quotas by vessel; (b) the implementation of the social compensation fund for fisheries; and (c) the implementation of the retirement pension fund for fisheries.	Completed
ENV DPL III	
Objective A: Strengthening environmental governance and institutions in Peru	
Adoption of a master plan with three action plans all conducive to the financial sustainability of National System of Natural Protected Areas by the State (<i>Sistema Nacional de Áreas Naturales Protegidas por el Estado</i> , SINANPE), as evidenced through the issuance of the SERNANP Presidential Resolution No. 052-2010-SERNANP, which enacted such master plan, dated March 24, 2010 and published on the website www.sernanp.gob.pe	Completed
Adopted mechanisms to promote private sector financing and management in favor of four newly established private conservation areas, as evidenced through Ministerial Resolutions No. 072-2010-MINAM; No. 073-2010-MINAM; No. 074-2010-MINAM; and No. 075-2010-MINAM, all dated May 6, 2010 and published in the borrower's Official Gazette (<i>El Peruano</i>) on May 7, 2010	Completed
Objective B: Mainstreaming environmental sustainability in the development agenda of key sectors (mining, fisheries, and urban transport and energy).	
<i>Mining Sector</i>	
Development of technical guidelines for the adequate remediation (including maintenance, monitoring, and follow-up activities) of MELs, as evidenced through the issuance of the borrower's Directorate Resolution No. 124-2010-MEM/AAM dated April 15, 2010 as published on the website www.mem.gob.pe	Completed
<i>Urban Transport Sector</i>	
Adoption, as a follow-up action to Supreme Decree No. 061-2009-EM, dated September 5, 2009, as published in the borrower's Official Gazette dated September 5, 2009, of an investment plan for the modernization of PETROPERU's refinery in Talara that reduces the sulfur content of the diesel fuel as evidenced through PETROPERU letter (<i>Oficio</i>) No. GAPP-038-2010, dated March 29, 2010	Completed
Implementation of an effective inspection and maintenance system in Lima and three additional cities through the introduction of an information and communication system, as evidenced through the issuance of Directorate Resolution No. 3041-2009-MTC/15 dated September 23, 2009, and the issuance of Supreme Decree No. 015-2010-MTC dated March 16, 2010, as published in the borrower's Official Gazette (<i>El Peruano</i>) on March 17, 2010, which requires the mandatory use of filming equipment to ensure proper identification of inspected vehicles	Completed

Prior Actions	Status
<i>Fisheries Sector</i>	
Established <i>anchoveta</i> fishing quota allocations for the first fishing season in 2010 for the borrower's north-central region, as evidenced through the issuance of Ministerial Resolution No. 100-2010-PRODUCE, dated April 16, 2010 as published in the borrower's Official Gazette (<i>El Peruano</i>) on April 18, 2010	Completed
Enacted measures required for the monitoring and enforcement of said quota system, as evidenced through the issuance of Supreme Decree No. 002-2010-PRODUCE dated February 24, 2010 as published in the borrower's Official Gazette (<i>El Peruano</i>) on February 25, 2010	Completed

2.2 Major Factors Affecting Implementation

17. In addition to solid macroeconomic policies, there were several factors that positively affected the operation's implementation, as follows:

- (a) **Strong government commitment to the reform program.** The GoP was intent on pursuing an ambitious agenda to strengthen the environmental institutional and legal framework because there was increasing awareness that its previous organizational structure was inadequate, resulting in significant impacts on human health and the environment. In addition, the linkages between environmental management, competitiveness, and economic growth were evident, particularly in Peru's natural resource-based economic sectors, including mining and fisheries.
- (b) **In-depth dialogue between the GoP and the World Bank.** The World Bank's dialogue with the GoP was significantly strengthened with the preparation of analytical work, such as the mining assessment and the CEA. This work provided the analytical underpinnings of the operations, presenting a clear picture of environmental degradation in Peru and proposing specific actions that could be implemented in the short to medium term to tackle priority problems. The CEA was also crucial in enhancing the dialogue between the GoP and the World Bank, because it demonstrated the value added of the World Bank's assistance. Moreover, its preparation through a participatory process contributed to build consensus by a broad stakeholder base on the proposed reforms. In addition, through a technical assistance grant funded by the Institutional Development Fund, the World Bank contributed to ensuring that MINAM and MEF monitor the implementation of specific measures and reforms under the ENVDPs.
- (c) **Long-standing dialogue through a programmatic series.** The operation built on the operational experience gained and the progress achieved, in supporting reforms through programmatic DPLs in other countries. The series of Programmatic ENVDPs implemented in Mexico, and later in Brazil and Colombia, provided evidence that this type of approach allows a sustained support to gradually implement a series of reforms, taking advantage of early achievements to build on subsequent actions. This is particularly important for DPLs supporting environmental policy reforms, whose implementation and outcomes are seen in the medium to long term. Additionally, the DDO of ENVDP I extended the program's closing date, which allowed (i) the task team to follow up the program's

implementation for almost seven years, and (ii) the GoP to better demonstrate the program's sustainability and outcomes.

18. Other factors negatively affected the program implementation. The main challenges originated from the operation's design:

- (a) **Coordination and institutional capacity of agencies involved the program at national and subnational levels.** MINAM, MEM, Ministry of Transport and Communication (*Ministerio de Transporte y Comunicación*, MTC), and Ministry of Production (*Ministerio de Producción*, PRODUCE) satisfactorily implemented policy reforms that fell exclusively under their mandate. However, the GoP required coordinated efforts from different agencies, at both national and subnational levels, to implement the policy reforms and achieve results indicators envisaged in Component 1.3 “*Strengthen the framework for environmental quality standards, emissions levels, and environmental monitoring.*” Although MINAM supported local governments to develop air quality action plans and contingency plans, the final approval and implementation depended on municipal governments. In regards to air quality monitoring, the program's implementation was affected by insufficient technical and financial resources to integrate the monitoring networks of SENAMHI and DIGESA, which are part of two different ministries.
- (b) **Need to refine some PDO indicators.** Some indicator targets would have benefited from a better alignment with the policy actions. For example, PDO Indicator 2 referred to SERNANP's financial strategy without considering that, although growing faster at the beginning of strategy implementation, the increased rate of NPA funding would become more modest over the years. Instead of the annual budget increase, the target of PDO Indicator 2 should have been the annual budget achieved in a target year, as envisaged in the financial strategy. Another example is PDO Indicator 3, which refers to a harmonized and integrated air quality monitoring network for Lima and Callao. Although originally envisaged as a trigger for ENVDP II, the approval of a protocol to harmonize different air quality monitoring networks in metropolitan Lima was removed from the policy matrix. In addition, the Bank revised the target value of PDO Indicator 11 at approval of ENVDP II because an important portion of the *anchoveta* fleet workers opted for receiving the compensation envisaged in Peru's labor legislation, kept their fishing permits, and joined a fleet rotation system – instead of leaving the sector. However, the revised target value should have been less ambitious. At that time – and at approval of ENVDP III, the Bank and the GoP had more information on the trends of the *anchoveta* quota system, which started in 2008.

2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization

19. **M&E design.** Despite some design constraints, such as the imprecision of some PDO indicators and target values, the M&E design allowed for adequate follow up on the program's implementation. A set of outcome indicators was agreed with the GoP during preparation of the first operation and maintained throughout the series, with slight adjustments to three indicator targets (for PDO indicators 1, 9 and 11) during the preparation of ENVDP II and III. The M&E

system established effective mechanisms for data collection, taking into account existing information and methodologies, such as air quality data from air quality monitoring systems; regular supervision by Environmental Assessment and Control Agency (*Organismo de Evaluación y Fiscalización Ambiental*, OEFA) of environmental management plans involving participatory monitoring; continuous follow-up by the Fishing Compensation Fund (*Fondo de Compensación para el Ordenamiento Pesquero*, FONCOPE). FONCOPE of job reinsertion of workers who left the *anchoveta* fleet. At GoP's request, the World Bank used additional methodologies outside the program (for example, estimate of the economic cost of environmental degradation) to assess the results of the ENVDPs (see Section 5.1 on Bank Performance). All PDO indicators had clear baselines, which were established before policy reforms supported by the ENVDPs entered into force. These indicators were all measurable under the M&E system. Most of them were associated with recommendations from the CEA, which had broad consultations with stakeholders, particularly those agencies in charge of policy implementation. Monitoring and reporting on progress of the various policy reforms was the responsibility of each of the sectoral agencies involved (for example, MINAM, DIGESA, MEM, MTC, and PRODUCE). At the broader level, the MEF, in close coordination with MINAM, was responsible for coordinating actions and monitoring progress among the concerned agencies.

20. **M&E implementation.** Despite some constraints in the program's implementation, given the need to refine the design of some indicators and challenges in coordinating actions with subnational governments, the MEF, MINAM, MEM, and other executing agencies effectively monitored and evaluated the actions included in the Policy Matrix, collecting data needed from the various units within these institutions, as well as the other participating agencies, on time. World Bank staff worked with the key agencies to ensure joint supervision in the monitoring of project activities and allowing for an active flow of policy dialogue. The GoP assessed and supervised implementation of the program, focusing on whether key agencies were carrying out the agreed policy reforms and undertaking due diligence in attaining the development objectives in conformity with the legal agreement. As part of this process, three PDO indicators were revised during the preparation of ENVDP II and III in order to improve their precision and reduce ambition in target value. In addition, the World Bank supported the GoP through non-lending technical assistance, Strengthening Environmental and Natural Resource Institutions (P123881), which was co-financed by a small grant from the Spanish Trust Fund for Latin America and the Caribbean. This technical assistance supported MINAM in monitoring the implementation of specific measures and reforms under the DPL program, as well as identifying the next stage of environmental policy reforms.

21. **M&E utilization.** The GoP disseminated to stakeholders relevant data collected by the M&E system through reports and institutional websites.⁹ The M&E findings went beyond

⁹ For example, MINAM publishes reports on the status of its strategic plan, operational plan, budget and other relevant information in its website (<http://www.minam.gob.pe/transparencia-/planeamiento-y-organizacion/>). SERNANP's budget is publicly available in its webpage (<http://www.sernanp.gob.pe/transparencia>). SENAMHI and DIGESA also disseminate air quality data collected by their monitoring systems (<http://www.senamhi.gob.pe/?p=0410>; http://www.digesa.sld.pe/depa/aire_lc/lima_callao.asp) The list of MELs is publicly available at MEM's website (http://www.minem.gob.pe/_detalle.php?idSector=1&idTitular=5769&idMenu=sub5768&idCateg=961). Also, the Supervision Agency of Energy and Mining Investments (*Organismo Supervisor de la Inversión en Energía y Minería*, OSINERGMIN) maintains a public registry of all gas stations supplying clean diesel and natural gas in

measuring input application or outputs, and measured the extent of outcomes achieved with the policy reforms (see Section 3.2 on Achievement of Program Development Objectives). The M&E data informed the GoP not only on possible adjustments during the DPL series, particularly in regards to triggers and results indicators, but also on new policies and investments. For instance, based on the results of the EIA reviews carried out by MINAM (PDO Indicator 1), the GoP reformed the country's environmental impact assessment system and created the National Service of Environmental Certification for Sustainable Investments (*Servicio Nacional de Certificación Ambiental para Inversiones Sostenibles*, SENACE). As part of the M&E of the mining component, the GoP gathered key information to better allocate resources for remedying priority MELs. Similarly, the M&E of the air quality management component provided relevant information to the GoP, which was used for defining new policies (for example, reducing sulfur content from diesel) and preparing investments from MINAM, SEMANHI and DIGESA to support further air quality monitoring.

22. Overall, the M&E system as designed and implemented was sufficient to assess the achievement of the objectives and test the links in the results chain, but there were moderate constraints in M&E design and implementation. The quality of the M&E is rated *Substantial*.

2.4 Expected Next Phase/Follow-up Operation

23. The ENVDPLs supported first-generation reforms, such as enacting policies and instruments, strengthening institutional capacity, and establishing pollution standards. These reforms have provided the institutional and regulatory conditions for improved environmental management and outcomes. There is a need for further investment in more complex reforms and actions that build upon the foundations of the ENVDPLs. In this context, based on preliminary assessments of policy reforms,¹⁰ the GoP requested the World Bank's support through an investment loan, the "*Peru Investments for Environmentally Sustainable Development*" (P147342), which is under preparation. This operation aims to support the GoP to improve its environmental monitoring and analytical capacity, to enable the public to have timely access to environmental quality information, and to promote informed public participation in

Peru

(<http://www.osinergmin.gob.pe/empresas/hidrocarburos/Paginas/RegistroHidrocarburos/RegistrosHidrocarburos.htm>). OEFA's website includes a search system for documents issued in the context of oversight activities (for example, administrative resolutions, decision on appeals, among other), as well as sectoral and annual reports summarizing OEFA's activities and environmental performance of key sectors (<https://www.oefa.gob.pe/raa-rina>; <https://www.oefa.gob.pe/publicaciones>). PRODUCE regularly discloses the list of workers included in the rotation system of each *anchoveta* fishing season (<http://www.produce.gob.pe/index.php/dechi/decreto-legislativo-1084-lmce>), and FONCOPEs publishes the list of beneficiaries and results of the program (<http://www.foncopes.com.pe/index.php/foncopes/transparencia/beneficiarios.html>).

¹⁰ The Bank assessed the policy reforms through ENVDPLs supervision and the non-lending technical assistance "*Peru: Strengthening Environmental and Natural Resource Institutions*" (P123881). The latter supported the following technical assistance activities: (i) inclusion of aspects related to biodiversity offsets in the Peru's environmental regulations; (ii) analysis of the mining-related environmental reforms; and (iii) analysis of air quality in Peru. The findings of the third component are compiled in the following reports: "Baseline report for the prioritization of air quality management policies in the Metropolitan Area of Lima and El Callao" and "Environmental health in Peru – An economic assessment of health effects". In addition, the Bank prepared the following studies: (i) identification and prioritization of MELs in Peru; (ii) assessment of design and implementation of fisheries reforms in Peru (2006-2012); (iii) environmental management reforms in Peru (1990-2013); (iv) air quality management in Lima and Callao; and, (v) environmental impact assessment reform in Peru.

environmental quality management. In addition, the World Bank supported the GoP with the analytical work “*Peru: Policies to Enhance Socioenvironmental Conflict Resolution in Mining*” (P145711), which proposed a series of policy, investment and capacity building options to consolidate environmental aspects in the mining sector.

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design and Implementation

24. **Relevance of objectives.** Strengthening environmental management institutions and mainstreaming environmental sustainability is relevant to Peru’s development priorities and the World Bank’s support program in the country, as envisaged in the Strategic Plan for National Development and the Strategic Axes for Environmental Management.¹¹ Peru contains a wealth of natural resources. As a rapidly developing middle-income country whose economy depends to a large extent on its natural resources, there are important environmental challenges that must be carefully managed in order to sustain Peru’s progress over time. The operation’s objectives were also consistent with one of the key pillars of the 2006 Country Partnership Strategy (CPS) for Peru for FY07–FY11 (and the 2009 CPS progress report) on ‘making growth environmentally sustainable’, laying out a strategy to support the GoP to achieve its goals of sustained economic growth. The DPL series was specifically mentioned in the Indicative Bank Lending Program in the CPS. The objectives of the ENVDPLs continue to be highly relevant to the GoP’s continued efforts to strengthen the environmental institutional and legal framework, as envisaged in “Strategic Objective 3: Sustainable growth and productivity” of the 2011 CPS for Peru for FY12–F16. The relevance of objectives is rated *High*.

25. **Relevance of design.** The Development Policy Financing was the adequate lending instrument to support Peru’s environmental policy reforms, while providing general budget support to the country. Selecting a programmatic series was particularly important because environmental policies’ implementation and outcomes tend to be seen in the medium to long term. Because of its programmatic nature, the ENVDPLs supported policy reforms that needed to be implemented in different stages. This programmatic approach allowed the GoP to learn from the first years of the program’s implementation and, in the context of subsequent operations, refine the program’s design. As the DDO allowed the extension of the operation’s closing date, the GoP had more time to strengthen its environmental management institutions, especially the recently created MINAM. This was essential to implement the policy reforms supported by the ENVDPLs. In addition, the operations targeted the appropriate level of government: many overarching environmental laws and policies are approved at the national level – by MINAM and other sectoral agencies – and the national government is largely responsible for implementing and enforcing those policies or, as applicable, coordinating and supporting subnational government to implements those regulations. The causal chain between the program’s outcomes, sub-objectives, policy actions and triggers are adequate. Notwithstanding, the results framework lacked precision in regards to PDO Indicators 1 and 2,

¹¹ The Strategic Axes for Environmental Management were prepared by a multi-sectoral commission comprised by the president of Ministries Council and the ministries of Agriculture, Culture, Energy and Mining, Economy and Finance, Health, Production; Development and Social Inclusion; and Environment (Supreme Resolution No. 189-2012-PCM).

and were overambitious in regards to PDO Indicators 3 and 4. For those reasons, the relevance of design is rated *Modest*.

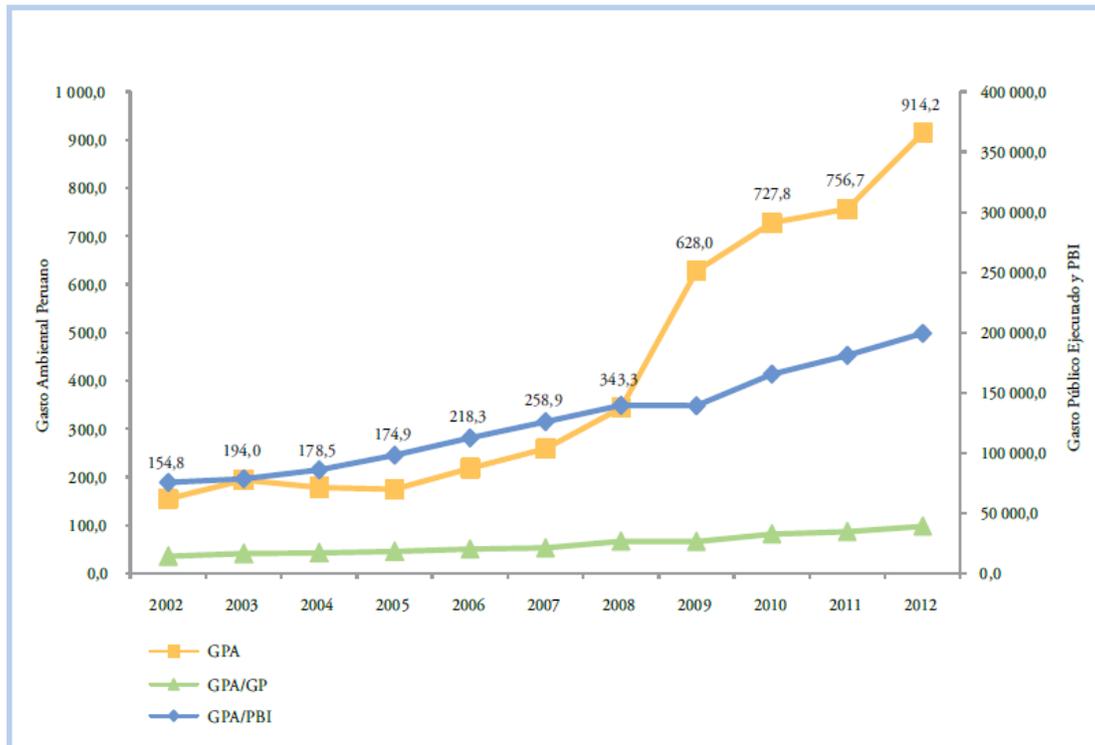
3.2 Achievement of Program Development Objectives

Objective A: Strengthening environmental governance and institutions in Peru

3.2.1 Sub-objective A.1 – Strengthen the Legal and Institutional Framework for Environmental Management

26. **With the support of the ENVDPLs, the GoP strengthened its environmental management institutions**, by (i) creating the Ministry of Environment, establishing its organization and key functions, and (ii) regulating the National System of Environmental Impact Assessment. These policy reforms represented a fundamental achievement toward advancing environmental management in Peru. The environmental agenda is now consolidated under the auspices of MINAM, with a well-defined mandate and higher budget than the former National Environmental Commission. MINAM’s current budget (FY16) is comprised mostly of ordinary resources (56.5%) and credit operations resources (39%). Moreover, the creation of the new ministry is associated with an exponential increment in the environmental public expenditure (see figure 1). Between 2002 and 2012, the executed environmental public expenditure increased six fold: from US\$ 5.8 to US\$ 30.3 per capita.

Figure 1. Environmental Public Expenditure (GPA), Public Expenditure (GP) and Gross Domestic Product (PBI) – Peru, 2002-2012



Source: MINAM, 2015 (based on MEF and INEI data)

27. **During the ENVDPs implementation, the GoP adopted further reforms in National System of Environmental Impact Assessment.** With the issuance of Supreme Decree No. 019-2009-MINAM, the GoP regulated Law No. 27,446/2001 on SEIA. According to this regulation, MINAM was mandated to randomly review EIAs approved by sectoral authorities in the three levels of the Government. The review aimed to assess the SEIA, and determine the actions needed to improve and consolidate such system. On November 24, 2010, MINAM enacted Ministerial Resolution No. 239-2010-MINAM on technical procedures and legal criteria for randomly reviewing approved EIAs. The regulation mandated the Ministry's General Directorate of Environmental Management Policies, Norms and Instruments to lead the random review of EIAs approved since Law 27,446/2001. As a result, MINAM reviewed 242 EIAs of infrastructure and investment projects in Category II and III, which were approved between 2001 and 2011 by sectoral agencies. The review concluded that 89 percent of those EIAs were incomplete and/or did not have detailed information according to the norms, technical criteria, and/or required procedures. Based on the reviews, MINAM identified policy options to further strengthen SEIA, particularly the creation of the National Environmental Certification Service (*Servicio Nacional de Certificación Ambiental para las Inversiones Sostenibles*, SENACE) (Law 29,968/2012). SENACE's functions include, among other, the review and approval of the detailed EIAs, except those that are excluded by a supreme decree and the vote of approval of the council of ministers, at the request of the corresponding sector; and the implementation of a 'single-window' system for environmental certification, to simplify and expedite administrative procedures.

28. **In addition to the ENVDP-supported policies, the GoP strengthened the National System of Environmental Assessment and Oversight, by creating the Office of Environmental Assessment and Control (Law 29,325/2009).** OEFA is the leading agency of that system, directly supervising compliance with environmental regulations in four sectors: (a) medium- and large-scale mining, (b) hydrocarbons and electricity, (c) commercial fisheries and large-scale aquaculture, and (d) the brewery, papermaking, cement, and tannery industries. Between 2012 and 2015, OEFA and MINAM approved 65 norms to strengthen environmental enforcement in Peru. OEFA's annual executed budget increased approximately US\$66.5 million between 2011 and 2015—an increment of 766 percent. OEFA has also increased the number of monitoring and enforcement activities (see table 3). By the end of 2015, the agency had solved 99.6 percent of the 3,070 administrative cases transferred from the Oversight Agency of Energy and Mining Investment (*Organismo Supervisor de la Inversión en Energía y Minería*, OSINERGMIN) and PRODUCE.

29. **The GoP achieved the outcome of strengthening the legal and institutional framework for environmental management.** Although slightly changing the target description of PDO Indicator 1, the ENVDP III maintained the number of EIAs to be reviewed by MINAM. The Ministry exceeded the result indicator set for this component. In 2010, MINAM acquired capacity to review EIAs of large infrastructure and investment projects with potentially significant impacts. In 2011 and 2012, MINAM randomly reviewed 242 EIAs approved by sectoral agencies between 2001 and 2011 for projects classified as Category II and III, based on technical and legal criteria. Moreover, the creation of MINAM has been essential to boost the number of reforms in environmental management in Peru, including the creation of SENACE, the adoption of sector-specific regulations, strengthening of OEFA, and increasing budget

allocations for environmental management. For those reasons, the GoP achieved this sub-objective A.1.

3.2.2 Sub-objective A.2 – Strengthen Institutional and Legal Framework for Biodiversity Conservation and NPAs Management

30. **With the support of the ENVDPLs, the GoP established the overarching institutional and policy framework for biodiversity conservation and PAS management, including technical guidelines and financing mechanisms.** As a prior action, the GoP established an independent agency, the National Service of Natural Protected Areas, to manage the National System of Natural Protected Areas (*Sistema Nacional de Áreas Protegidas*, SINANPE). In addition, the GoP adopted the Sustainable Financial Strategy for SINANPE (2009–2019), aimed at addressing the financial gap of NPA management with a larger proportion of resources generated directly by SERNANP, increasing the treasury’s commitment (national public budget), while reducing the relative contribution from international donors. In addition, MINAM updated the Action Plan for the Natural Protected Areas System (Plan Director), which includes a general conceptual framework, guidance on the management of NPAs, and planning issues relating to the management of SINANPE.

31. **As part of the ENVDPLs, the GoP also adopted additional regulatory measures to promote private sector financing and management of NPAs.** The GoP developed guidelines for the establishment of trust funds for NPAs, to channel financial resources, mainly from bilateral and multilateral agencies and foundations, to on-the-ground conservation projects based on the NPA master plans throughout Peru. MINAM also modified the Natural Protected Areas Law to establish measures to develop tourism activities in national NPAs. The provision of tourism services by the state to third parties has generated economic compensation to guarantee the conservation and preservation of the natural landscape. It also simplified procedures for granting five types of tourism rights within NPAs, namely, concessions, contracts of tourism service, permits, authorizations, and agreements.

32. **Following up on the policies supported by the ENVDPLs, the GoP undertook numerous actions aimed at further strengthening the management and scope of the country’s protected areas.** SERNANP advanced on several complementary actions to (a) promote greater involvement of regional governments in financing NPA management to increase the conservation area for key ecosystems (and biodiversity hotspots); (b) establish new protected areas, especially the National Reserve System of Islands, Islets, and Guano Capes, given the small proportion of this critical ecosystem under protection; and (c) support the elaboration of technical guidelines to mainstream environmental concerns in the development of extractive industries activities in NPAs and their buffer zones, responding to the expansion of mining and hydrocarbon concessions in the Amazon basin. The GoP also approved Law No. 30,215/2014 on Mechanisms for Ecosystem Services Compensation, which regulates and supervises compensation mechanisms based on voluntary agreements that envisage actions of conservation, recuperation, and sustainable use of ecosystems. Other actions contributed to enhance NPA management, such as the replacement of park rangers with NPA managers and the training program on fund-raising and financial management.

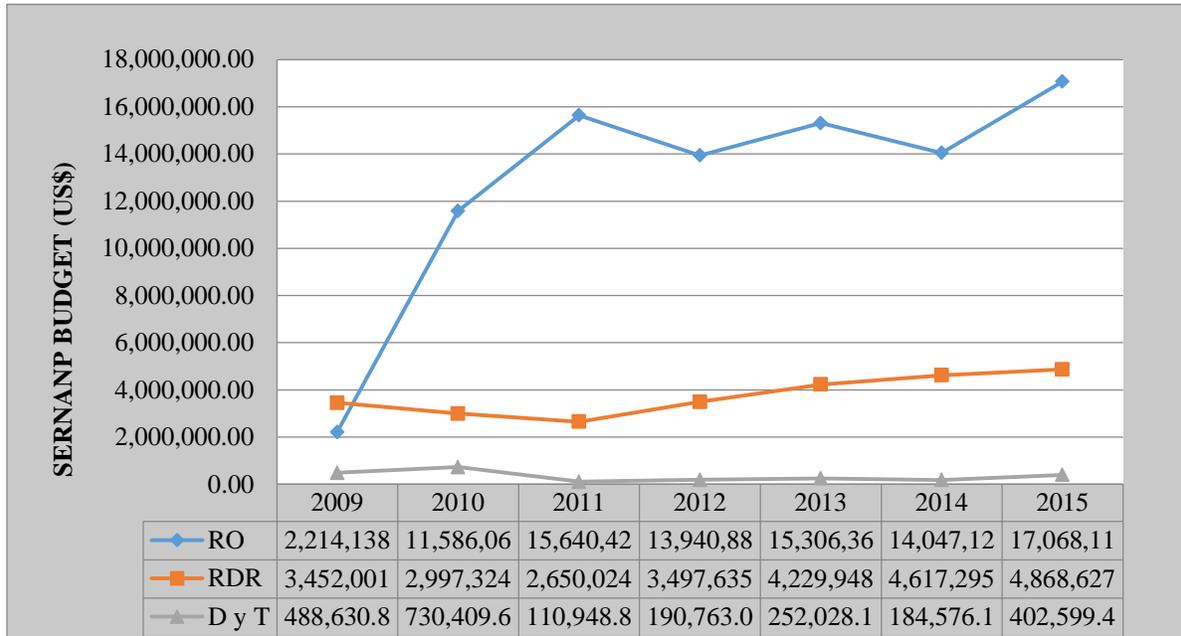
33. **As a result of those policies and initiatives, SINANPE has experienced a steady growth. Currently, 17 percent of the country’s territory is covered by a total of 190 NPAs, and more than 94 percent of ecosystems located in NPAs are in optimal status.** From January 2009 to July 2016, the GoP created 17 nationally administered NPAs, 14 regional conservation areas, and 84 private conservation areas.¹² By granting permits for local communities to carry out small-scale or subsistence activities in NPAs, SERNANP has generated economic benefits for 35,414 families—mostly low-income households. Additionally, the number of visitors in NPAs has had an annual increase of 17 percent since 2011, generating important revenues to SINANPE.

34. **The new regulations and financial strategy of SINANPE consolidated financial sustainability for the management of NPAs.** As envisaged in the financial strategy, there has been a clear shift in shares of SINANPE’s budget, confirming the Government’s commitment to increase contributions from the national public budget to the NPA funding. SINANPE’s budget includes resources from SERNANP and the Fund for the Promotion of Natural Protected Areas of Peru (*Fondo de Promoción de las Áreas Naturales Protegidas del Perú*, PROFONANPE).¹³ Between 2009 and 2015, SERNANP’s budget increased from US\$6.1 million to US\$22.3 million in 2015 (see figure 2). These revenues come primarily from allocations from the national government (ordinary resources), the payment of income from visitors (directly collected resources), and donations and transfers from PROFONANPE for financially executing special projects. SERNANP’s budget does not cover management expenditures of private conservation areas, which are maintained by private entities or individuals with their own resources. In those areas, SERNANP’s resources are used only for supervision purposes.

¹² SERNANP, 2016. *Sistema de Áreas Naturales Protegidas del Perú*. Available at: http://www.sernanp.gob.pe/documents/10181/165150/Lista_Pagina_Web_OFICIAL_2016-07-14.pdf/6d59d6bd-e0f0-4109-bbec-824d554aa0b5.

¹³ PROFONANPE was created in 1992, aimed at providing stable long-term financing for the conservation of the country’s biological diversity. Part of PROFONANPE’s resources are transferred and directly executed by SERNANP.

Figure 2. SERNANP Budget Increase (2009–2015)



Note: OR = ordinary resources; DCR = directly collected resources; D&T = donations and transfers from PROFONANPE.

35. **The objective of strengthening Peru’s institutional and legal framework for biodiversity conservation and NPAs management was accomplished.** The GoP accomplished the objective of increasing funding for managing NPAs, particularly by incrementing SERNANP’s ordinary resources and creating new private conservation areas. Moreover, the GoP not only increased the number of NPAs, but also ensured that 94 percent of ecosystems located in NPAs are in optimal status. As the NPA funding increased from US\$19 million in 2012 to US\$28.5 million in 2015, the GoP exceeded the target value set for the results indicator (i.e. increasing the NPA funding by at least US\$2 million per year from December 31, 2013, onward). For those reasons, the GoP achieved this sub-objective A.2.

3.2.3 Sub-objective A.3 – Strengthen the Framework for ECAs, Emissions Levels, and Environmental Monitoring

36. **As part of the ENVDPLs, the GoP established environmental quality standards and maximum permissible limits for air and water emissions.** This has included the approval of air quality standards for PM_{2.5} and PMLs for industrial activities (such as paper, cement and industrial boilers), as well as for mobile sources (such as motorcycles and heavy duty natural gas vehicles). Additionally, the ENVDPLs supported the dissemination of air quality information by DIGESA and SEMANHI to improve transparency and public disclosure of the monitoring data.

37. **During the program’s implementation, MINAM has facilitated consistency in the monitoring protocols of the several air quality monitoring networks in Peru.** DIGESA operates a network of air quality monitoring stations in five points in Lima and Callao and in the cities of Piura, Iquitos, Chiclayo, Trujillo, Chimbote, Cerro de Pasco, La Oroya, Huancayo, Pisco, Ilo, Arequipa, and Cusco. The stations provide information on air quality for particulate parameters (Persistent Toxic Substances, PM₁₀, and PM_{2.5}) and SO₂ and NO₂ gases, which is

disseminated through DIGESA's website. In addition, SENAMHI operates nine automatic monitoring stations in Lima and Callao, disseminating air quality data in real time.¹⁴ SENAMHI and DIGESA have worked to harmonize and integrate the monitoring systems. They are both members of the Management Committee of the Clean Air Initiative for Lima and Callao.

38. As part of the ENVDP's results framework, MINAM has supported local governments to develop air quality action plans in order to address growing urban air quality concerns. MINAM developed contingency plans for Ilo and La Oroya, including (a) the legal framework, (b) objectives, (c) activation and deactivation of alert phases, (d) coordination mechanisms, (e) strategy and measures to be implemented, (f) assessment of measures, (g) enforcement, and (h) financing. In addition, MINAM has also developed Clean Air Action Plans (*Planes de Acción 'A Limpiar El Aire'*) for Arequipa,¹⁵ Chimbote, Ilo, La Oroya, and priority atmospheric zones. These action plans establish warning levels in the event pollution levels exceed air quality standards. They also contain information about the responsible parties, the deadlines to design contingency actions, and the budget for piloting contingency measures.

39. Additional interventions have contributed to address the growing health concerns associated with the rising concentrations of particulate matter and other air pollutants in Peruvian cities. As the next stage of air quality policies, MINAM revised the MPLs of vehicle emissions in the road network,¹⁶ complemented ECA provisions¹⁷ and established Fuel Harmfulness Indexes for 2014/2015.¹⁸ Under MINAM's leadership, the Clean Air Act in Peru is in the final stages for approval by the GoP. This act will establish the legal framework for preserving air quality and reducing atmospheric pollution through environmental management actions such as control, surveillance, enforcement, and penalties. As a consequence, measurable improvements in air quality in Lima have already been observed since 2008, when the GoP adopted the ENVDP-supported policies (figure 3).

Figure 3. Air Quality Indicators in Lima and Callao (2008–2014)

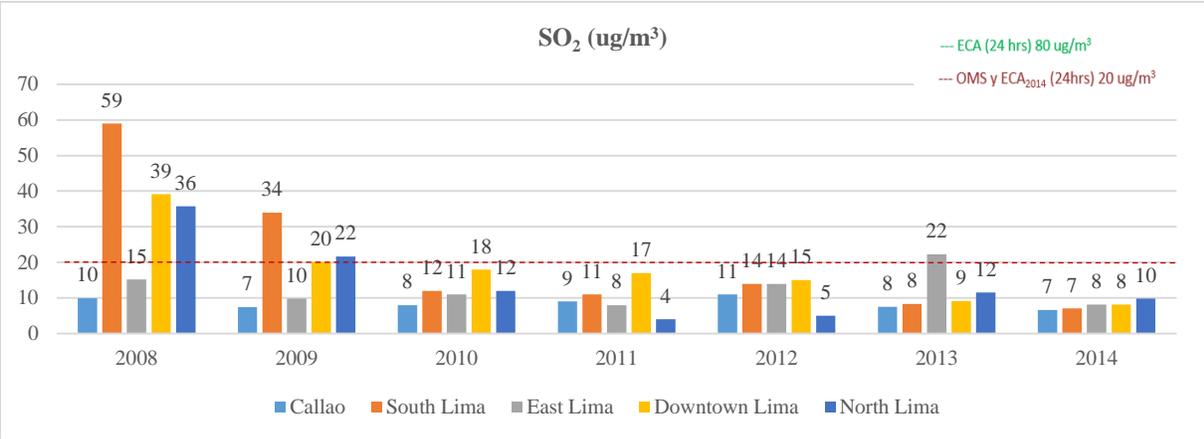
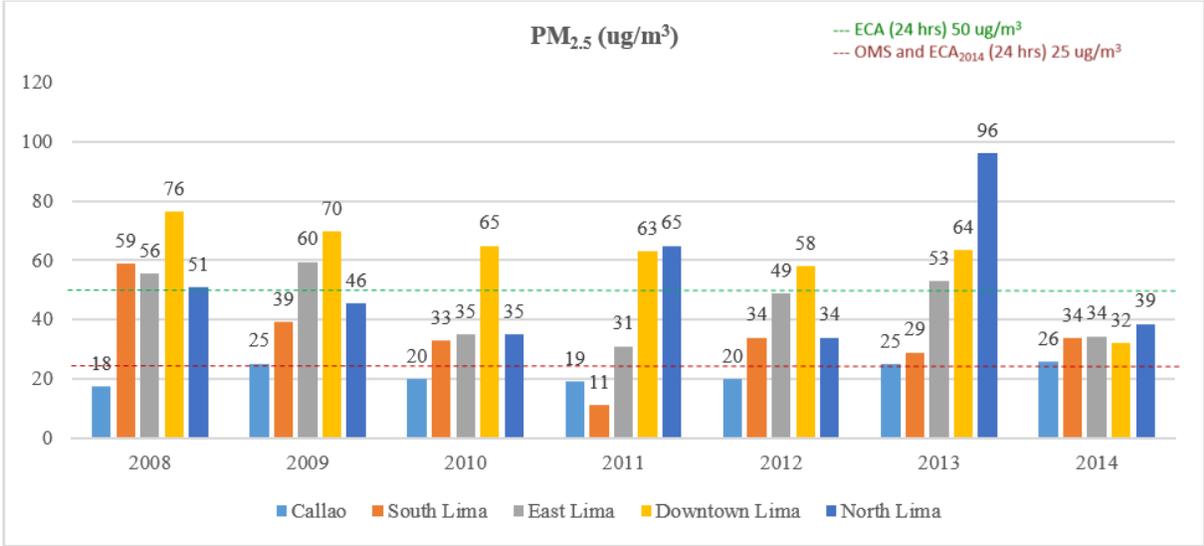
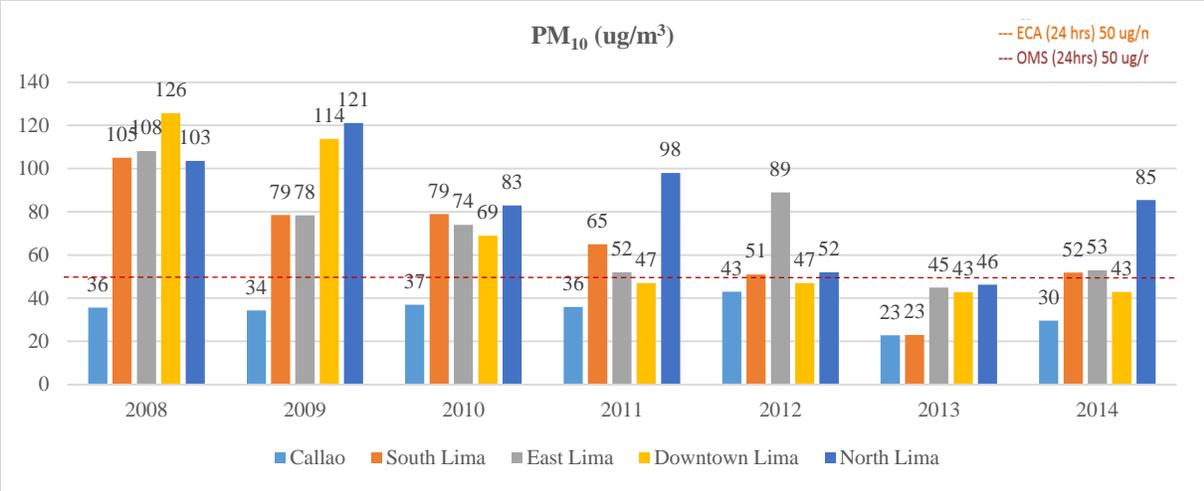
¹⁴ Districts of Ate, San Borja, Jesus Maria, Villa Maria del Triunfo, Santa Anita, Puente Piedra, Carabayllo, San Martin de Porres, and San Juan de Lurigancho.

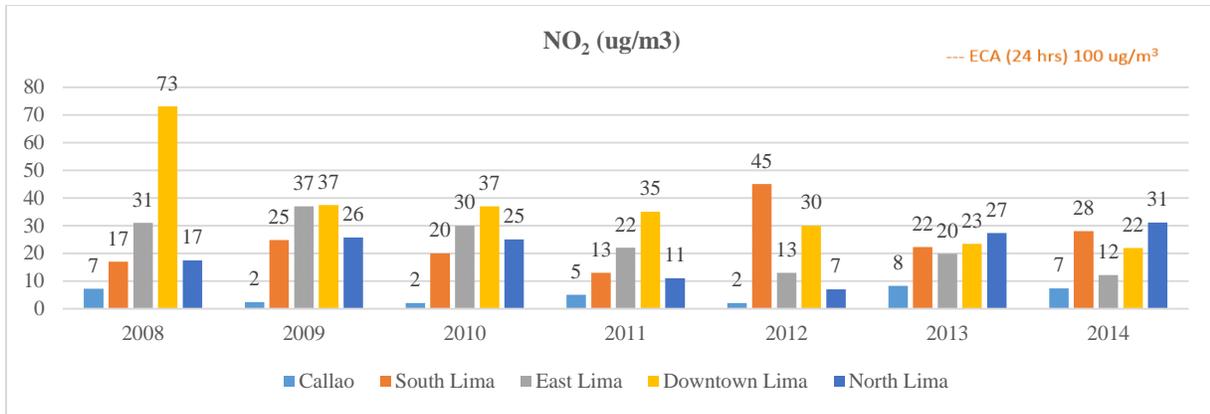
¹⁵ The Action Plan for Arequipa includes a section on alert measures, making reference to interventions that would be adopted by the Ministry of Health.

¹⁶ Supreme Decree 009-2012-MINAM and Supreme Decree 004-2013-MINAM.

¹⁷ Supreme Decree 006-2013-MINAM and Supreme Decree 205-2013-MINAM.

¹⁸ Supreme Decree 009-2015-MINAM.





Source: DIGESA.

Note: ECA = Environmental quality standard of Peruvian Law; OMS = Environmental quality standard of the World Health Organization.

40. **The GoP made important strides in strengthening environmental regulations through the approval of ECAs and MPLs.** The GoP partially achieved the PDO indicators for this sub-objective. Air quality data for Lima and Callao is published and disseminated by SENAMHI in real time and DIGESA through annual reports. Only La Oroya and Ilo developed pollution contingency plans, and Arequipa included in its air quality plan section on ‘Alert Measures’, referring to interventions designed and ordered by the Ministry of Health. Despite the shortcomings in the design of the PDO indicators for this sub-objective, the GoP took important steps in air quality monitoring and dissemination in priority cities. Those initiatives are reflected in the improvement of air quality in Lima and Callao, despite demographic expansion and increased vehicular fleet.

41. In light of the above, the GoP achieved Objective A “Strengthening environmental governance and institutions in Peru”, and its Sub-Objectives A.1, A.2 and A.3. Achievement of Objective A is rated as ***Substantial***.

Objective B. Mainstreaming Environmental Sustainability in the Development Agenda of Key Sectors (Mining, Urban Transport and Fisheries)

3.2.4 Sub-Objective B.1 – Improve Information and Capacity to Remediate MELs and Strengthen Environmental and Social Governance in the Mining Sector

42. **As part of the ENVDPs, the GoP approved the regulations to transfer the onus of remediating mining environmental legacies from the state to the mining title or concession holders, even after such title or concession has expired.** Law 28526/2009 and Legislative Decree 1042 mandate responsible parties of MELs to present an MEL Closing Plan. It also requires that the state accept remediation tasks only for those MELs whose responsible parties cannot be identified. The decree stipulates that any MEL that is part of the inventory prepared by MEM and that has an economic value may be reused (for example, machinery, land, and so forth). The decree also prohibits new mining concessions to be granted to companies that have not remediated their MELs. The GoP also approved a methodology for identifying and prioritizing MELs, a 3-year work program to identify, rank, manage those legacies, and technical guidelines for MELs remediation. With the support of the ENVDPs, the GoP also approved a

regulation aimed at strengthening environmental and social governance in the mining sector by defining public and community participation during the concession, exploration, exploitation, execution, and closing of the mining process (Ministerial Resolution No. 304-2008-MEM/DM). In this context, the GoP regulated the process of participatory environmental monitoring and surveillance in mining activities.

43. **The Ministry of Energy and Mining has made significant progress in establishing an inventory and classification of mining liabilities.** MEM used the methodology developed by PERCAN, which comprises four stages: (a) MELs inventory update and MELs identification and prioritization by watershed, (b) responsible party determination, (c) development of engineering studies for remediation, and (d) remediation works. The first inventory, published in 2006, identified 850 legacies. In March 2015, the inventory was updated, totaling 8,616 legacies identified as a result of field work carried out in 19 watersheds. Each legacy has been recorded with the information that will allow the characterization of its waste to determine the associated risk level and, thus, their remediation priority. Based on this inventory, MEM identified 2,546 MELs of very high risk, and 1,735 MELs of high risk.

44. **Based on Law 28526/2009 and Legislative Decree 1042, several mining companies have remedied the legacies that were within their mining properties.** Examples of firms that initiated remediation actions include Barrick operations in Alto Chicama (La Libertad) and Xstrata-Glencore in Las Bambas (Apurimac). The Chinese company, Chinalco, invested more than US\$40 million to build a plant to treat acidic waters in the Kingsmill tunnel to reuse some of the water in its operations in the Toromocho (Junin) mine, thus solving one of the most complicated Peruvian mining legacies. The mining companies Buenaventura, Yanacocha, and Goldfields, with operations in Cajamarca, donated S/.3 million (approximately US\$900,000) to FONAM to start remediation of legacies in the Hualgayoc province, located in this region. Buenaventura is completing the closure of its mine, Colquirrumi, also located in this district, where it has invested more than US\$15 million.

45. **In parallel, the GoP strengthened environmental monitoring carried out by local communities to boost ownership and reduce mistrust among the stakeholders.** A growing number of environmental participatory committees were created to ensure community oversight during all stages of the mining process. According to MEM, 101 mining projects had established participatory environmental monitoring activities, based on the obligations undertaken by the mining operators in EIAs and environmental management plans.¹⁹ Currently, OEFA is in charge of gathering information on the implementation of participatory environmental monitoring, as part of its supervision functions. According to OEFA, mining projects presented irregularities in terms of environmental monitoring (deadline, scope and/or frequency) in 5 out of 202 supervised sites in 2013 and none out of 206 supervised sites in 2014.²⁰ In 2014, OEFA adopted specific rules for public participation in environmental monitoring actions of mining projects (Board Resolution No. 032-2014-OEFA/CD), in order to complement MEM's provisions.

¹⁹ MEM. *Informe No. 084-2014-MEM/DGAAM/DNAM*. 22 January 2014.

²⁰ OEFA. *El impacto de la fiscalización ambiental en el desempeño de las empresas mineras*. Documento de Trabajo No. 001-2016-OEFA/DFSAI/SDSI. 2016, pp. 36 and 48. Available at: http://www.oefa.gob.pe/?wpfb_dl=18972.

46. **The GoP exceeded the target of identifying priority MELs and confirming resources to remediate those legacies.** The target value should have specified whether the identification of MELs would be measured by mining sites or by contaminated spots within each mining site. As a result of this imprecision, the target value of the PDO Indicator seems modest in comparison to the government's achievements in this area. The GoP has taken full ownership of the priority setting procedure, as demonstrated by its continued use and the growing MEL inventory: 8,616 MELs were identified and prioritized by risk levels. In 2010, the GoP confirmed resources to remediate 119 priority MELs legacies in 8 mining units in Cajamarca.²¹ In 2012 and 2014, the state-owned agency *Activos Mineros* has allocated resources to remediate 407 legacies in 21 former mining units.²² In 2014 and 2015, the GoP approved budget allocation for MEM to remediate 275 priority legacies in 15 mining units. In addition, the GoP is working with Japan International Cooperation Agency to develop a loan that will enable remediation of 927 MELs in 49 mining units.²³ The GoP also surpassed the results indicator of participatory monitoring in mining operation: 101 mining sites had established committees or programs of environmental participatory monitoring.

3.2.5 Sub-Objective B.2 – Improve Fuel Quality and Vehicle Performance

47. **With the support of the ENVDPs, the GoP adopted important policies to reduce urban air pollution in the energy and urban transportation sectors.** In particular, the GoP reduced sulfur content in diesel; promoted vehicle conversion from diesel to natural gas; and regulated vehicle inspection and maintenance system in the Lima metropolitan area and three other cities. Through Law 28694 and Supreme Decree No. 061-2009-EM, the GoP prohibited gas stations to supply B2 diesel with more than 50 ppm of sulfur content, for automotive purposes, in Lima and Callao provinces on January 1, 2010. With the issuance of Supreme Decree 213-2007-EF, the GoP created a temporary scheme to encourage the scrapping of older diesel vehicles to gradually reduce the consumption of diesel and/or make more efficient use of oil by promoting the use of petrol or natural gas vehicles. Supported by ENVDP II, the government included a budget allocation amounting to S/.192 million (approximately US\$68 million) under its 2010 budget toward the provision of economic incentives to support vehicle conversions to natural gas. Owners of older diesel vehicles were given the equivalent of the market price of their vehicle, to be applied toward the purchase of a natural gas vehicle.

48. **The ENVDPs also supported the implementation of the government's Vehicle Inspection and Maintenance System according to a timetable based on license plate numbers in the Lima Metropolitan Region.** Vehicles operating on public roads were forced to submit to a technical inspection according to the schedule established in the resolution, for certifying the proper functioning and maintenance of motor vehicles and compliance with the conditions and technical requirements. As a result of these measures, approximately 1,000,000 vehicles are inspected yearly in Lima, and some 80,000 vehicles are inspected in the rest of the cities.

²¹ Ministerial Resolution No. 129-2010-MEM/DM.

²² Ministerial Resolutions N° 482-2012-EM and N° 094-2013-EM.

²³ MEM. *Remediación de Pasivos Ambientales Mineros en el Perú*. November, 2015. Available at: <http://www.minam.gob.pe/calidadambiental/wp-content/uploads/sites/22/2015/12/PRESENTACION-3-MINEM-PERU.pdf>.

49. **After the ENVDPL III, the GoP continued to adopt policies to improve fuel quality and promote conversion of vehicles to natural gas.** In July, 2013, the commercialization of B5 diesel with more than 50 ppm of sulfur content, for all types of purposes, was banned in Lima, Arequipa, Cusco, Puno and Madre de Dios departments, and the Callao province. Similarly, on January 1, 2016, the GoP required all gas stations to supply clean diesel in Junin, Moquegua, and Tacna departments. In total, 2,472 gas stations supply diesel with less than 50 ppm of sulfur content in those eight departments and the Callao province. Among the government's actions to promote vehicular conversion were the following: free importation of vehicle conversion kits (to natural gas) and equipment for gas stations that supply natural gas; exemption from import taxes for vehicles under 1,500 cubic centimeters; and exemption from the selective consumption tax for the import of vehicles already converted to natural gas. Furthermore, the Development Finance Corporation (*Corporación Financiera de Desarrollo*) has channeled US\$100 million (in public funds) to private financial entities toward establishing lines of credit that will finance the conversion of vehicles to natural gas. OSINERGMIN raised awareness about natural gas vehicles and disseminated information on the process of converting vehicles to natural gas and establishing natural gas service stations. There are about 151 conversion shops in Lima and Callao that have been authorized by the MTC.

50. **By implementing the policies supported by the ENVDPLs, the GoP achieved important results in pollution control in the transport sector.** Approximately 210,000 vehicles were converted to natural gas, and 236 service stations offering natural gas are operating in Lima.²⁴ In 2015, seven inspection and maintenance systems were operating in Lima and Callao (with more than 1,000,000 vehicles inspected). Other 47,688 vehicles were inspected in Arequipa and 29,263 in La Libertad in 2012. All results indicators in this component surpassed the target.

3.2.6 Sub-Objective B.3 – Reduce Overcapacity of *Anchoveta* Fleet and Mitigate the Associated Social Impacts of Fleet Reduction

51. **With the support of the ENVDPLs, the GoP adopted regulations to address the overcapacity of the *anchoveta* fishing fleet.** In June 2008, the GoP adopted Legislative Decree No. 1084, which regulates *anchoveta* fishing quotas by vessel, regulating all *anchoveta* fishing for indirect human consumption. Adding to this, the GoP under Supreme Decree No 021-2009-PRODUCE approved the regulation of Legislative Decree No. 1084 relating to the maximum catch limits per vessel (LMCE) for *anchoveta* fishing vessels in December 2008. As a result of the LMCE scheme, the GoP has (a) reduced fishing pressure, with lower daily catch and fewer fishing vessels; (b) extended the length of the fishing seasons, increasing the days worked by workers in the sector; (c) reduced pollution by less congestion in ports; (d) directed investments to higher-value activities; and (e) improved the actions of monitoring, control, and surveillance and reduced the number of offenses.

52. **As part of the ENVDPLs, the GoP has also adopted social protection measures to benefit fishermen and other workers in the fishing industry.** The GoP established the Fishing Compensation Fund (*Fondo de Compensación para el Ordenamiento Pesquero*, FONCOPES),

²⁴ OSINERGMIN. *Instalaciones de gas natural*. Update on May 6, 2016. Available at: <http://www.osinergmin.gob.pe/empresas/hidrocarburos/Paginas/RegistroHidrocarburos/Instalaciones-gn.htm>

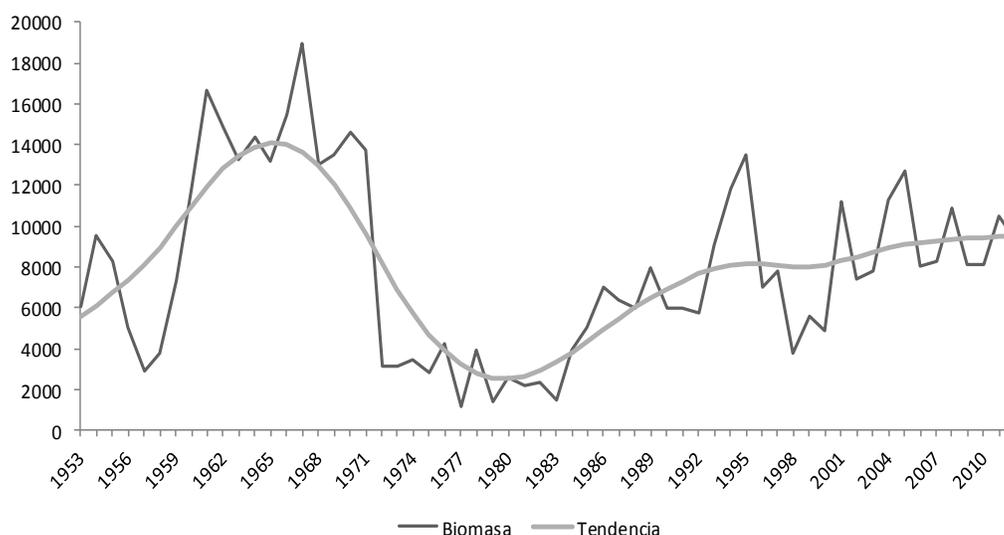
which provided financing to support early retirement for workers, and professional training and economic incentives for shifting to new economic activities, including the opening of small businesses. According to the new regulation, holders of fishing permits must make annual mandatory contributions to cover FONCOPEs operation and management costs. The contribution consists of a fixed amount per vessel with a license to operate in the north-central coast, which is used to cover the fund's fixed costs. In addition, each owner must pay a variable amount to FONCOPEs, based on the number of workers that adhere to the social programs. These funds are used to cover FONCOPEs's variable costs. The law further established a temporary contribution per ton of fish that is loaded into processing plants which is paid by the plant's owner. This contribution will provide the main funds for the fishermen's pension system. The contribution from processing plants to the fishermen's pension fund has also made relevant progress. Between 2009 and 2012, a total of US\$38,713,375 was collected.

53. **Since the LMCE system was implemented in 2008, extraction of anchovy did not surpass the catch limit established by the Peru Sea Institute (see table 3).** Between 2008 and 2015, hundreds of wood and steel ships have been retired, which reduced the *anchoveta* fleet for indirect human consumption from 1,166 to 900 vessels. Furthermore, independent fishermen are also obtaining better prices from the sale of their *anchoveta* catch—an increase from US\$100 to US\$180 per ton. By reducing the amount of fishing and better distribution along the season, the sector increased its storage capacity and processing of anchovy, avoiding waste and falling fish prices. *Anchoveta* biomass has also shown an increasing trend for the period 2008–2013, as shown in figure 4.

Table 2. *Anchoveta* LMCE and by Season

Year	Biomass (MT)	LMCE (MT)	Unloading (MT)
2008 - I	9,840,000	3,000,000	3,147,954
2008 - II	6,300,000	2,000,000	2,136,205
2009 - I	7,600,000	3,500,000	3,419,379
2009 - II	6,700,000	2,000,000	1,961,449
2010 - I	6,500,000	2,500,000	2,466,236
2010 - II	7,200,000	2,070,000	779,366
2011 - I	10,500,000	3,675,000	3,669,091
2011 - II	10,600,000	2,500,000	2,454,460
2012 - I	9,090,000	2,700,000	2,606,773
2012 - II	5,300,000	810,000	742,695
2013 - I	10,800,000	2,050,000	1,982,240
2013 - II	10,300,000	2,304,000	2,249,376
2014 - I	9,770,000	2,530,000	1,677,834
2014 - II	1,450,000	0	0
2015 - I	9,400,000	2,580,000	2,507,635
2015 - II	6,070,000	1,110,000	332,485

Figure 4. Peru's National Biomass Trend



54. **The GoP achieved the target value of PDO Indicator 10, by regulating 100% of the *anchoveta* fleet for indirect human consumption under the quota system (900 vessels in 2015).** The government partially achieved PDO indicator 11 (i.e. 3,000 workers benefit from economic incentives for leaving the sector). In this regard, FONCOPEs has benefited 2,078 out of 2,283 workers who voluntarily left the sector by assisting them in reemployment programs and advisory support to start small businesses. Other workers benefited from FONCOPEs through the early retirement program. As FONCOPEs required the suspension of fishing permits (boarding passes) for a period of five years, a second group of workers opted to leave the fishing sector through the regular compensation system established by the Peruvian labor legislation. This way, these workers could keep their permits and join the crew rotation system. Based on the above, the GoP has managed to reduce fleet overcapacity for *anchoveta* fisheries and mitigate social impacts associated with fleet reduction.

55. In light of the above, the GoP achieved Objective A “Strengthening environmental governance and institutions in Peru”, and its Sub-Objectives B.1, B.2 and B.3. Achievement of Objective B is rated as ***Substantial***.

3.3 Justification of Overall Outcome Rating

Rating: Satisfactory

56. A High rating for Relevance of Objectives, a Modest rating for Relevance of Design, and a Substantial rating for Efficacy, give an overall outcome rating of Satisfactory for the ENVDPLs Program.

57. **The ENVDPL programmatic approach provided the GoP with sustained support to implement the series of reforms in a phased approach, building on the initial achievements to further the reform agenda under a clearly defined policy framework.** ENVDPL I focused on the enactment of laws and issuance of various decrees to define roles, set environmental standards, and approve regulations to improve environmental sustainability in the mining, urban

transport, and fisheries sectors. ENVDPD II built on the previous operation and supported the development and implementation of various programs, strategies, and initiatives to strengthen environmental governance and address environmental concerns in the key sectors. ENVDPD III continued the efforts to boost environmental sustainability and enhance capacity building and public participation.

58. The policies supported under this DPL Program continue to be highly relevant for the GoP. The ENVDPDs have also been highly effective, with the prior actions agreed resulting in significant outcomes when implemented. The policies supported under this program will contribute significantly to the economic efficiency of the GoP's environmental management framework.

59. Out of 11 outcome indicators for the ENVDPDs, eight have been fully achieved and in many cases surpassed. The target review of PDO Indicators 1, 9 and 11 did not prevent the GoP from achieving the program's objectives. The GoP surpassed both the original and revised targets of PDO Indicators 1 and 9. Although the GoP did not achieve the target of PDO Indicator 11, FONCOPE benefited 2,078 out of 2,283 workers (91 percent) who voluntarily left the sector, by assisting them in reemployment programs and advisory services to start small businesses. The main challenge was to achieve PDO Indicators 3 and 4 because of shortcomings in the program design. However, these two indicators have been nearly achieved: (a) air quality contingency plans were developed for Ilo, La Oroya, and Arequipa, and Lima and Chimbote are in the process of developing their contingency plans; and (b) SENAMHI and DIGESA publishes air quality information independently, through their own webpages. Therefore, the GoP achieved the program's outcomes, objectives and sub-objectives.

3.4 Overarching Themes, Other Outcomes and Impacts

(a) Poverty Impacts, Gender Aspects, and Social Development

60. Health impacts associated with environmental degradation disproportionately impact the poor—they are as much as 75 percent higher for impacts from urban air pollution in Lima-Callao and as much as three times higher for impacts from inadequate water supply, sanitation, and hygiene. Policy reforms in Peru's environmental quality standards and other relevant environmental management issues, as well as in the mining, and urban transport sectors, lead to improvements in air and water quality, with consequent decreases in morbidity and mortality from diarrheal diseases, acute respiratory illnesses, and other health risks that disproportionately affect the poorest and most vulnerable groups (such as children under five years old), as well as a reduction in the economic burden from health costs. By supporting such reforms, the ENVDPD program had a direct effect on poverty reduction.

61. Activities supported by the Peru ENVDPDs had positive social impacts, particularly in reducing adverse impacts on people's health. Examples include interventions in the mining sector relating to actions to be undertaken to clean up environmental legacies, enhanced community monitoring, clean air initiatives relating to the approval of MPLs, and the improvement in fuel use.

62. **The operations supported actions related to the cleanup of environmental legacies in the mining sector, resulting in positive social impacts from decontaminating water sources, soils, and air and consequent beneficial impacts on public health and job creation.** During implementation of ENVDP I, MEM prepared a management plan for environmental legacies that includes a program for updating the inventory and a strategy for prioritizing MELs and remediating them.

63. **The DPL also supported participation of locally affected communities, including indigenous communities, in the monitoring of the mining industry.** These participatory processes were developed in a tripartite fashion, including the affected communities, industry, and Government. In some regions, the International Finance Corporation provided capacity building for this purpose.

64. **In addition, the Government's reform program in the fisheries sector includes provisions for social protection for workers likely to be affected by the anchoveta fleet reduction, which was supported under the program.** Among the social benefits imbedded in Legislative Decree No. 1084 is the ban on firing crew members and the fact that only voluntary retirements and rotation of workers are allowed. Another benefit is the creation of FONCOPEs to support dismissed workers in accessing reemployment programs and foster small businesses. The fund—financed exclusively by the private sector—has collected US\$38.7 million, which were used to assist workers who voluntarily left the sector.

(b) Institutional Change/Strengthening (Particularly with Reference to Impacts on Longer-term Capacity and Institutional Development)

65. **The ENVDPs had a significant impact on strengthening the GoP's capacity to design and implement policy reforms aimed at enhancing environmental management, as well as to mainstream sustainable development principles in key economic sectors.** Following the completion of the DPL series, the GoP continues to adopt further policies to strengthen the country's environmental management framework and improve environmental sustainability in key economic sectors, thereby demonstrating country ownership and bolstered capacity to design and implement policy improvements. As a result of the GoP's election of a DDO for the first operation, the World Bank has been able to monitor the GoP's progress in these areas for over six years. During this entire period, policies have been consistently implemented and improved.

(c) Other Unintended Outcomes and Impacts (Positive or Negative)

66. **Policies supported by the ENVDPs resulted in significant enhancements of positive effects.** The CEA, which constituted the analytical underpinnings of this programmatic series, was instrumental in complying with the World Bank's OP 8.60 – Development Policy Financing, which indicates that, in the case of policies with significant effects, the World Bank must assess the borrower's systems for reducing adverse effects and enhancing positive effects. Policies supported by the ENVDPs were indeed designed to strengthen country systems and enhance positive environmental effects. However, the achieved results in most cases have been much higher than originally anticipated when the ENVDPs was designed. This could be attributed to

the CEA's successful contribution to identifying environmental priorities and building a broad consensus on the need to tackle them as part of Peru's broader development efforts.

4. Assessment of Risk to Development Outcome

Rating: Negligible to Low

67. **Political and Governance.** During supervision, the World Bank identified a potential political risk that under the new administration that took power in 2016, MINAM—and the environmental agenda in general—might not benefit from the level of support that it had enjoyed under previous administrations. A partial mitigation measure, on the part of the World Bank, was the preparation of policy notes on environmental issues for the new administration, in order to underpin the future dialogue with the new government. The first meetings with the new administration indicated that the program objectives continue to be a priority for the GoP.

68. **Overall risk to the development outcome is considered negligible to low because of the ongoing commitment of the GoP** to further develop its legal and institutional framework, as well as advance reforms to enhance the sustainability of the mining and fisheries sectors.

5. Assessment of Bank and Borrower Performance

5.1 Bank Performance

(a) Bank Performance in Ensuring Quality at Entry

Rating: Satisfactory

69. **The performance of the World Bank in assisting the borrower to identify, prepare, and appraise the operation is deemed satisfactory.** The team did a thorough review of relevant lessons learned in other operations across the region, as well as of the 2009 Development Policy Lending Retrospective. This served to inform the operation's design and ensure its successful implementation. The operation's design benefited from Peruvian as well as international experience. The World Bank team responsible for preparation benefited from an intimate knowledge of the country's environmental, economic, and social development sectors and their priorities. As a result, the team had the required information for analyzing the structural, financial and macroeconomic aspects related to the operations, which confirmed the appropriateness of the country's selection of a DDO. Also, the team assessed potential risks to the achievement of the program objectives (for example, budgetary, institutional, political and sectoral risks) and identified mitigation measures to address those risks.

70. **The team worked closely with MINAM, MEF, MEM, PRODUCE, and other stakeholders to identify a set of key steps needed to further mainstream sustainable development principles in key economic sectors.** The selection of the sectors was based on World Bank analytical work and a comprehensive series of consultations led by the MEF, with active participation of various government agencies and consultations with other donors to avoid duplication of effort and ensure compatibility with other programs. Consultations with the mining sector stakeholders started under the framework of the 'Environmental and Social Dimensions of the Mining Sector in Peru' (2005) report. Seminars were held for specific groups of stakeholders, such as NGOs, the private sector, and indigenous communities, to incorporate

their views into the report. The results were also discussed with stakeholder representatives. Similarly, the CEA was prepared through an open participatory process.²⁵ As a consequence, the policy matrix was designed in accordance with the country's environmental and development priorities, which allowed the inclusion of transformational policy reforms as prior actions of the ENVDPs.

(b) *Quality of Supervision*

Rating: Satisfactory

71. **The World Bank team assessed institutional arrangements and institutional capacity and commitment in the GoP for the attainment of the agreed actions in the Policy Matrix and confirmed fulfillment of program conditions and conformity with legal covenants.** World Bank supervision was sensitive to the country developments, the involved agencies' capacity and commitment, overall stakeholder support, and feasible options for realizing the program development goals.

72. **The World Bank team conducted periodic missions during the implementation of the program, with a strong emphasis on helping the client progress toward meeting the operations outcome indicators and providing timely technical assistance.** Separate missions, as well as video and audio conferences, were conducted by institutional, mining, fisheries, air quality management, energy, and urban development specialists. The relevant findings and conclusions of those missions were reported in aide memoires and Implementation Status and Results Reports (ISRs), including information received from the GoP and other stakeholders. The ISRs and the present ICR have focused not only on the achievement of indicators, but also on the efficiency of the program. The Task Team closely followed up on the program implementation and, when needed, adjusted PDO indicators and other design aspects throughout the programmatic series.

73. **The ENVDPs was supervised by a multidisciplinary team composed of specialists in environmental economics, economics, natural resource management, and World Bank operations management.** World Bank staff assessed institutional arrangements and institutional capacity and commitment in the GoP for the attainment of the agreed actions in the Policy Matrix and confirmed fulfillment of program conditions and conformity with legal covenants. Task team supervision concentrated on the outcomes of the program. World Bank supervision was sensitive to the country developments, the involved agencies' capacity and commitment, overall stakeholder support, and feasible options for realizing the program development goals.

²⁵ An initiation workshop built consensus on the importance, scope, and methodologies of the analysis. The CEA's preliminary findings were presented in the Sixth Ecodialogue. The findings and recommendations were disseminated in a workshop held in Lima in June 2007. A broad range of stakeholders participated in these workshops, including representatives of several government agencies (such as environment, health, finance, agriculture, energy, and mines), regional environmental authorities, business organizations, NGOs, indigenous communities, and development agencies.

(c) *Justification of Rating for Overall Bank Performance*

Rating: Satisfactory

74. **As Quality at Entry and Quality of Supervision are rated Satisfactory, overall World Bank performance is also rated Satisfactory.** Throughout the period of the program's preparation and implementation, the World Bank team was highly involved in an active policy dialogue with government authorities, identifying priorities and future challenges. The policy dialogue, which continued throughout the ENVDPs supervision and Bank-supported analytical work,²⁶ paved the way for identifying new policy reforms that might be supported in the future by new DPL operation, as well as investments and capacity building activities that will be supported by an IPF under preparation. The continuous dialogue will help ensure the continuity and sustainability of reforms supported under the ENVDP.

5.2 Borrower Performance

(a) *Government Performance*

Rating: Satisfactory

75. **The ownership and commitment demonstrated by the GoP, particularly the leading roles taken by the MEF, MINAM, MEM and PRODUCE, were a critical factor in achieving the goals set for the ENVDPs.** As mentioned earlier, the actions supported under this operation were part of the GoP's own agenda with respect to enhancing the environmental management framework as a means to contribute to the country's competitiveness and economic growth agenda. As a result, the operation had a remarkable level of support from multiple sectors – environment, mining, transport, and fisheries. Additionally, the GoP engaged with stakeholders through a comprehensive consultation process, which aimed to build consensus on policy reforms. Throughout the program cycle, the government's strong macroeconomic and institutional policies offered an enabling environment for implementing the program, guaranteeing financial resources, intersectoral coordination among and capacity strengthening of participating agencies.

(b) *Implementing Agency or Agencies Performance*

Rating: Satisfactory

76. **The implementing agencies were committed achieve the program objectives.** MEF and the sectoral agencies actively participated in the stakeholder consultation process, analytical work and design of the policy reforms. Intersectoral coordination was an important determinant of the program's success. During the program's implementation, the MEF, PRODUCE,

²⁶ Bank-supported analytical work covered the following topics: (i) biodiversity offsets in the Peru's environmental regulations; (ii) analysis of the mining-related environmental reforms; (iii) analysis of air quality in Peru; (iv) identification and prioritization of MELs in Peru; (v) assessment of design and implementation of fisheries reforms in Peru (2006-2012); (vi) environmental management reforms in Peru (1990-2013); (vii) air quality management in Lima and Callao; (viii) environmental impact assessment reform in Peru; (ix) policies to enhance resolution of socioenvironmental conflicts in the mining sector.

MINAM, and MEM not only successfully coordinated with each other, but also encouraged other agencies to participate more actively to ensure the program's success. For instance, PRODUCE followed up on the results of FONCOPEs in order to monitor the fisheries policy. MINAM promoted the dialogue between SENAMHI and DIGESA for advancing a harmonized air quality monitoring system. All agencies had key staff that coordinated the implementation of policy reforms and provided MEF and World Bank team with relevant information on the program implementation in a regular basis. This close follow up allowed the implementing agencies to early identify potential constraints to policy implementation; seek the required technical support, including from the World Bank; and determine solutions to address those obstacles.

77. When facing potential implementation issues, the age

(c) *Justification of Rating for Overall Borrower Performance*

Rating: Satisfactory

78. Overall, the Borrowers' performance is deemed satisfactory for the reasons stated above.

6. Lessons Learned

(a) *Lessons of Wide General Application*

79. **Strengthening environmental governance and institutions and mainstreaming environmental sustainability in the development agenda of key sectors are long-term processes.** The three operations were approved by the World Bank's Board between February 2009 and July 2010, but because the first operation was a DDO, it remained active until the second half of 2015. This enabled the World Bank to monitor the implementation of significant policy reforms during a period of more than six years, which is considerably longer than most other World Bank development-based operations. This unusual situation also enabled the World Bank to support the GoP in different areas, from designing policy reforms, to strengthening the institutional capacity of GoP agencies to comply with the new legal framework and achieve the intended results. Providing a longer time frame to support client countries in implementing DPL-supported policies contributes to strengthen country ownership, reduce excessive conditionality, and strengthen DPLs' results focus.

80. **The importance of building a reform program is based on extensive analytical work, which includes technical, institutional, and political economy analyses.** The detailed 2007 CEA served as an underlying basis for the suggested actions in the ENVDPs. The CEA included assessments that underpinned the identification of environmental priorities linked with poverty reduction and the country's development priorities. The CEA's institutional analysis, comprising both formal and informal rules and their enforcement mechanisms, also pinpointed key institutional needs and shortcomings of the national environmental system in Peru. In addition, the CEA's review of the costs and benefits of alternative interventions to tackle identified environmental priorities facilitated the selection of policies that were later adopted under the DPL series. The CEA was the basis of the programmatic ENVDPs, but also and more importantly, it helped provide a road map for transformational public policies on environmental health and pollution management, fisheries, water resources, and disaster risk management.

Agencies like OEFA, which currently are the backbone for environmental policy implementation, were designed following the CEA recommendations.

81. **Government ownership is essential to ensure the design, adoption, and effective implementation of policy reforms.** The CEA was key in engaging a broad range of stakeholders and building consensus on the need to adopt ambitious reforms. The CEA's recommendations became fully owned by government officials from CONAM, MEF, and other involved agencies, as well as other stakeholders who participated in its development. Moreover, years later, CEA task team members were appointed to high senior positions at MINAM, paving the way for the implementation of several of the CEA's recommendations with the DPLs' support. As demonstrated by the DPL series, government ownership ensures the ability to influence development outcomes and can transcend administrations. The reform program supported by the World Bank, initiated under the 2006-2011 administration, continued under a new administration (2011-2016).

82. **Establishing specific, measurable, and relevant outcome indicators is fundamental for strong performance.** A relevant set of meaningful outcome indicators that can be monitored should be established at the outset of a program, along with clearly defined baseline and target values to monitor progress and evaluate outcomes. Although the operation's design defined the baseline value of a core set of outcome indicators and target values to measure progress, some PDO indicators and target values lacked precision and/or adequate ambition (for example, PDO Indicators 1, 3, 4, 9 and 11). Besides, the inadequacy of some indicators to help gauge the GoP's progress became evident after the three operations had been approved, especially after the closing date extension. It was impossible to substitute those indicators for other, more relevant ones, after the ENVDPD III was approved.

83. **CEAs are tools to strengthen policy dialogue, as well as to ensure compliance with the environmental, social, and poverty provisions of OP 8.60 – Development Policy Financing.** The CEA was developed to strengthen Peru's 'country systems' by establishing a mechanism to identify priorities, evaluate alternative interventions to tackle those priorities, build consensus on the selection of environmental policies, and adopt and implement effective policy reforms. Also, the CEA contributed to consolidate the Bank's policy dialogue with the GoP, building a solid basis of knowledge and credibility on institutional and policy issues. Thus, when an unexpected fiscal shortfall in 2008 expanded opportunities for lending, the World Bank had already prepared and disseminated institutional and policy recommendations that it could support through a DPL. Replicating the CEA's approach could therefore create opportunities for policy dialogue, and contribute to strengthen the implementation of environmental and social requirements, highlighted by the '2015 Development Policy Financing Retrospective'.

(b) *Policy Area Specific Lessons*

(a) **MINAM**

84. **Institutional strengthening needs time.** The ENVDPD-supported policies introduced multiple innovations, including the establishment of MINAM as a new ministry to consolidate the environmental management responsibilities that were previously distributed among several agencies, the use of new technologies for air quality monitoring, and the mobilization of private

sector resources to support NPA management. Each of these innovations requires the development of new procedures and protocols, strengthening of staff competencies and skills, and modifying the formal and informal rules in place. Thus, institutional strengthening needs to be conceived, from the outset, as a long-term endeavor. Setting clear milestones, as was done with the ENVDPLs, helps to assess whether institutional capacity is being strengthened in a manner that is consistent with the end goal that the country wants to achieve.

85. Designing effective and efficient environmental policies and strengthening enforcement is fundamental to achieve policy implementation. The ENVDPLs' design included policy reforms to strengthen enforcement, recognizing that, in their absence, policy reforms are unlikely to deliver the sought improvements in environmental quality. The GoP has overhauled environmental enforcement, through the creation of OEFA, the increase in environmental enforcement budget, and promotion of public participation in the environmental monitoring actions.²⁷ With these initiatives, the GoP is helping to build trust among communities, investors, and government entities on the effects of environmental policies and on decision making regarding specific projects with potentially significant environmental impacts.

(b) Natural Resources Management

86. The definition of biodiversity conservation as a GoP priority enabled significant progress in a relatively short time frame. Biodiversity conservation has long been a GoP priority; however, the ENVDPLs' support enabled significant improvements such as a substantial increase in investments made in the establishment and management of NPAs. Similarly, the GoP successfully built synergies between biodiversity conservation and climate change mitigation and adaptation efforts, including through the development of the Climate Change Forest Action Plan, related projects on forest management (funded by Forest Carbon Partnership Facility and Forest Investment Programme), and Peru's Nationally Determined Contribution. By linking these issues, the GoP was able to both leverage carbon finance to support its conservation efforts and become a leader in international negotiations on climate change. Taking advantage of these achievements, the GoP can now focus on environmental health risks, which are now associated with the most significant economic and social effects of environmental degradation in Peru.

(c) Air Quality Management

87. A reliable monitoring network is crucial to communicate the severity of the problem, as well as to gauge progress in addressing it. The old adage that it is impossible to manage what is not measured is particularly applicable to air quality. Specialized equipment, regular maintenance, supplies of consumables, standardized protocols for reading and interpreting the data, and training of personnel are all essential elements of viable air quality management policies. Overall, a strong institutional structure, combined with solid base funding and continued oversight, is essential for achieving reliable and consistent measurements over time. In spite of significant progress in the implementation of air quality management policies, air quality in cities such as Lima-Callao continues to be among the worst in Latin America. In

²⁷ Board Resolution No. 032-2014-OEFA/CD.

this context, a reliable monitoring network is fundamental to communicate the results of policies adopted to date, while also explaining the need to adopt even more ambitious policies.

88. Framing air pollution as a priority problem for poverty reduction and income distribution is fundamental to catalyze action. The CEA helped raise the visibility of air pollution and mobilize a broader stakeholder base to address it because it demonstrated that their impacts were significantly higher on the poor and other vulnerable groups (women, elderly, and small children). It also helped to better understand how poor air quality resulted in decreased productivity and educational performance, thereby constraining vulnerable groups' opportunities for economic advancement. This type of evidence helped to persuade policy makers that air pollution was the concern not only of environmental groups, but also of those aiming to tackle Peru's development challenges.

89. Interinstitutional coordination is paramount to tackle environmental problems. The causes of environmental degradation transcend the environmental sector. In the case of deteriorating air quality, the problem largely stems from the energy and urban transport sectors. Interagency coordination was crucial to develop a package of policies that succeeded in reducing ambient air pollution in Peru's key cities. Today's main challenge consists of generating information of homogeneous quality and making it available. Thus, further interagency coordination is needed, including by the different agencies that are currently in charge of operating the existing air quality monitoring networks. Although both DIGESA and SENAMHI are members of the Management Committee of the Clean Air Initiative for Lima and Callao, they still use different methods to disseminate air quality information. Their current coordination efforts aim at harmonizing and integrating these monitoring systems.

(d) Mining

90. Reforms need to be continuously evaluated to ensure that they are contributing to the achievement of the program's development goal. The ENVDPDPL reforms in the mining sector aimed to address MELs and lack of participatory monitoring projects, which had been identified as the main sources of conflict in the sector. Although the DPL series achieved all of its intended results within the sector and investment in this sector has not decreased in the last 10 years, mining-related social conflict has not decreased either. In response to a request from the GoP, in 2016, the World Bank completed another evaluation of the social and environmental sustainability of the mining sector. The analytical work, compiled in the report 'Peru: Policy Options to Enhance Environmental Sustainability of the Mining Sector', aimed at supporting the GoP in improving the policy and institutional framework for environmental protection and conflict prevention and management in the mining sector. The report indicates that mining has been responsible for at least 25 percent of the conflicts in Peru between 2008 and 2014. Although most conflicts had multiple problems attributed to them, the data clearly showed the predominance of environmental concerns. The study also found five issues that recur consistently across the cases: (a) fear of pollution based on the common perception that mining is a major polluter; (b) competition over access to land and water resources; (c) cultural and social issues not adequately addressed, causing communities to oppose mining; (d) asymmetry of power relations; and (e) lack of communities' trust of the GoP to protect them or the environment. The report includes recommendations for policy, investment, and technical

assistance activities to improve the Government's capacity to address the causes of environmental conflicts in the mining sector.

(e) **Fisheries**

91. **Progress achieved to date could be significantly enhanced by increasing the scope of fishing quotas and ensuring their sustainability.** The evaluation of the individual quota system for the Peruvian *anchoveta* fishery suggests that the policy has been associated with the species' recovery, in addition to other environmental, economic, and social gains. However, it also reveals the need to expand the system of regulation for the entire fishery sector, including artisanal and small scale fisheries, which are currently exempted from this type of regulation. The reason is that having two systems in parallel, one with quotas and one without, creates perverse incentives to evade controls and increase catches. In this sense, it is necessary to have an overall catch quota by species and, within it, a differentiation fee for industrial and artisanal fisheries. Similarly, building on the success of the quotas for *anchoveta* fisheries, the GoP could consider establishing quotas for other species.

92. **Understanding the political economy is capital to achieve policy reforms.** Legislative Decree No. 1084 was introduced in a context of a highly concentrated industry, resulting from mergers and acquisitions of fishmeal firms. Also, before the introduction of the decree, oversupply of *anchoveta* in fact eliminated the bargaining power of independent owners, mostly wooden boat owners, when they tried to sell *anchoveta* to industrial plants. With the implementation of the quotas, independent owners have been able to negotiate better deals as they can supply plants that are unable to meet their full capacity with their own quotas. On the other hand, plant owners have benefited from improved *anchoveta* quality, which has enabled them to diversify their products and target more lucrative markets. Understanding the fleet composition, designing different schemes for steel and wooden vessels, and identifying the potential winners and losers of policy reforms are crucial to build the coalitions needed to enact policy reforms.

93. **Win-win outcomes underpin the sustainability of policy reforms.** The introduction of Legislative Decree No. 1084 has resulted in economic, social, and environmental benefits for a large number of stakeholders. Economically, fishermen and plant owners have benefited from the associated increase in *anchoveta* prices. Available information suggests that the decree might have contributed to the species' sustainability, which is important from an environmental standpoint, but also results in improved *anchoveta* quality. Coupled with increased investments, better resource quality has enabled the redirection of private investment in the sector. In particular, after the decree's adoption, investments increased to convert plants to special flours plants. Other investment has been directed to the construction and improvement of canning and freezing plants for direct human consumption.

94. **Integrating mechanisms to mitigate social impacts is indispensable to protect vulnerable groups from the potentially negative effects of policy reforms.** This was precisely why the ENVDP incorporated the creation of FONCOPES as one of the supported policies in the fisheries sector. FONCOPES demonstrates how such mechanisms can be designed to be sustainable over time and can contribute to achieve development objectives, while simultaneously protecting vulnerable groups.

7. Comments on Issues Raised by Borrower/Implementing Agencies/Partners

(a) Borrower/Implementing Agencies

To be supplied by the borrower.

(b) Co-financiers

95. Not applicable.

(c) Other Partners and Stakeholders

96. Not applicable.

ANNEXES

Annex 1. Bank Lending and Implementation Support/Supervision Processes

(a) Task Team members

Name	Title	Unit	Responsibility/Specialty
Lending (from Task Team in Program Document)			
Abel Mejia	Sector Manager	ETWAA	Management
Alberto Ninio	Chief Counsel (Currently, Deputy General Counsel, Operations)	LEGEN (Currently LEGVP)	Legal
Alonso Zarzar Casis	Senior Social Scientist	LCSSO (Currently GSU04)	Social Development
Ana Nunez Sanchez	Extended Term Consultant	LCSEN	Environment
Andrea Semaan	Consultant	LCSEN	Operations
Angelica Afanador-Ardila	Consultant	LCSEN	Environment and Energy
Angela Armstrong	Senior Operations Officer (Currently, Senior Natural Resources Management Specialist)	LCSEN (Currently GEN04)	Operations / Natural Resources Management
Anjali Acharya	Senior Environmental Specialist	LCSEN (Currently GEN2B)	Task Team Leader
Carlos Felipe Jaramillo	Country Director (Currently Senior Director)	LCC6C (Currently GMFDR)	Management
Claudia Sobrevila	Senior Biodiversity Specialist (Currently Senior Environmental Specialist)	ENV (Currently GEN01)	Peer Reviewer
Diane Stamm	Consultant	LCSEN	Editor
Dinesh Aryal	Operations Officer (Currently, Senior Natural Resources Management Specialist)	LCSEN (Currently GEN04)	Operations / Natural Resources Management
Edgardo Maravi	Consultant	LCSEN	Forestry
Eduardo Zolezzi	Consultant	LCSEG	Energy
Eleodoro O Mayorga Alba	Coordinator	COCP0	Peer Reviewer
Elias Pinto Martinez	Consultant	LCSEN	Sustainable Development
Elizabeth Huaman	Program Assistant	LCC6C	Administrative and Client Support
Erwin De Nys	Water Resources Specialist (Currently Program Leader)	LCSSD (Currently LCC1C)	Water
Evelyn Villatoro	Senior Procurement Specialist	LCRPR	Procurement
Fabiola Altimari Montiel	Senior Counsel	LEGLE	Legal
Franz Drees-Gross	Sector Leader (Currently Director, Strategy and Operations)	LCSSD (Currently MDI)	Management
Glenn S. Morgan	Regional Environmental and Safeguards Coordinator	LCSEN (Lately OPSPF)	Safeguards

Name	Title	Unit	Responsibility/Specialty
Isabella Micali Drossos	Senior Counsel (Currently Senior Counsel)	LEGLA (Currently LEGAM)	Legal
John D. Nash	Lead Economist	LCSSD	Peer Reviewer
Juan C. Belausteguigoitia	Lead Environmental Economist (Currently Consultant)	LCSEN (Currently GEN04)	Task Team Leader
Juan Carlos Sueiro Cabredo	Consultant	LCSEN	Fisheries
Karin Kemper	Sector Manager (Currently Senior Regional Adviser)	LCSEN (Currently LCRVP)	Management
Kieran Kelleher	Senior Fisheries Specialist	ARD	Fisheries
Kirk Hamilton	Lead Environmental Economist	ENV	Peer Reviewer
Laura Tlaiye	Sector Manager	LCSEN	Management
Laura Tuck	Sector Director (Currently Vice President)	LCSSD (Currently GGSVP)	Management
Lidvard Gronnevet	Senior Fisheries Advisor	ARD	Fisheries
Lourdes Consuelo Linares Loza	Senior Financial Management Specialist	LCSFM (Currently GGO22)	Financial Management
Luis Barrantes	N/A	LCC6C	Research
Manju Ghumman	Program Assistant	LEGLE	Legal
Maria Chappuis	Consultant	LCSEN	Mining
Michel Kerf	Sector Leader (Currently: Practice Manager)	LCSSD (GTI02)	Sector Leader
Oscar Calvo-Gonzalez	Economist (Currently Practice Manager)	LCSPE (Currently GPV04)	Economics
Patricia de la Fuente Hoyes	Senior Finance Officer (Currently Senior Financial Management Specialist)	LOAFC (Currently GGO22)	Finance
Peter Davis	Consultant	LCSEN	Transport
Raul Tolmos	Environmental Specialist	GEN04	Environment/Safeguards
Renan Alberto Poveda	Senior Environmental Specialist	LCSEN	Task Team Leader
Richard Damania	Lead Environmental Economist (Currently Lead Economist)	SASDI (Currently GWADR)	Peer Reviewer
Rossana Polastri	Senior Country Economist	LCSPE	Economics
Santiago Sandoval Valencia	Language Program Assistant	GEN04	Administrative and Client Support
Teresa Genta-Fons	Lead Counsel	LEGLA	Legal
Xiomara A Morel	Senior Financial Management Specialist (Currently Lead Financial Management Specialist)	LCSFM (GGO22)	Financial Management
Supervision (from Task Team Members in all archived ISRs)			
Alexandre Takahashi	Consultant	GEN04	Environment
Alonso Zarzar Casis	Senior Social Scientist	LCSSO (Currently GSU04)	Social Development
Ana Luisa Gomes Lima	Environmental Specialist	GEN04	ICR Author

Name	Title	Unit	Responsibility/Specialty
Andrea Semaan	Consultant	OPSPF	Operations
Anjali Acharya	Senior Environmental Specialist	LCSEN (Currently GEN2B)	Task Team Leader
Carter J. Brandon	Lead Economist	GENGE	Economics
Ernesto Sanchez-Triana	Lead Environmental Specialist	GENGE	Task Team Leader
Erwin De Nys	Water Resources Specialist (Currently Program Leader)	LCSSD (Currently LCC1C)	Water
Fabiola Altimari Montiel	Senior Counsel	LEGLE	Legal
Ismael Fernando Loayza Careaga	Senior Environmental Economist	GEN04	Environment
Jeffrey D. Lewis	Consultant	GEN04	Environment
John Magne Skjelvik	Consultant	GEN04	Environment
Juan C. Belausteguigoitia	Lead Environmental Economist	LCSEN	Task Team Leader
Juan Jose Miranda Montero	Environmental Economist	GENGE	Economist
Lourdes Consuelo Linares Loza	Senior Financial Management Specialist	LCSFM (Currently GGO22)	Financial Management
Maria Chappuis	Consultant		Mining
Michel Kerf	Sector Leader (Currently: Practice Manager)	LCSSD (GTI02)	Sector Leader
Patricia de la Fuente Hoyes	Senior Finance Officer (Currently Senior Financial Management Specialist)	LOAFC (Currently GGO22)	Loan
Peter Davis	Consultant	LCSEN	Transport
Momoe Kanada	Junior Professional Officer (Currently Consultant)	LCSEN (Currently GENGE)	Environment
Oscar Calvo-Gonzalez	Economist (Currently Practice Manager)	LCSPE (Currently GPV04)	Economics
Raul Tolmos	Environmental Specialist	GEN04	Environment/Safeguards
Renan Alberto Poveda	Senior Environmental Specialist	GEN04	Environment
Sameer Akbar	Senior Environmental Specialist	GCCPT	Climate Change
Santiago Sandoval Valencia	Language Program Assistant	GEN04	Administrative and Client Support
Selene del Rocio La Vera	Procurement Specialist	GGO04	Procurement
Syed Sada Hussain Shah Naqvi	Temporary	GTI01	Administrative and Client Support
Teresa Genta-Fons	Lead Counsel	LEGLA	Legal
Xiomara A Morel	Senior Financial Management Specialist (Currently Lead Financial Management Specialist)	LCSFM (GGO22)	Financial Management

(b) Staff Time and Cost (from SAP) (the system pulls data available for all fields)

Stage	Staff Time and Cost (Bank Budget Only)	
	No. of Staff Weeks	US\$ Thousands (including travel and consultant costs)
Lending		
FY08	26.13	101,132
FY09	38.57	168,227
FY10	46.20	173,439
FY11	20.55	87,552
TOTAL:	131.45	530,349
Supervision/ICR		
FY09	11.78	20,824
FY10	11.85	37,586
FY11	1.68	6,305
FY12	3.19	18,536
FY13	4.48	28,785
FY14	10.36	35,385
FY15	3.6	13,726
FY16	7.11	33,386
FY17	2.92	11,727
TOTAL:	56.97	206,259
TOTAL:	188.42	736,608

Annex 2. Borrower's Comments on Draft ICR

Summary prepared by the ICR Task Team:

1. On September 27, 2016, the Government of Peru (GoP) presented a report with the Borrower's comments on the draft ICR for the "Peru Programmatic Environmental Development Policy Loans" (ENVDPLs) (full copy below). The report focuses on the implementation of the programmatic series, lessons learned and performance of the Government and the World Bank.
2. The GoP confirmed the adoption of all prior actions envisaged in the programmatic series. The program focused on key priorities associated with the legal and institutional framework required to address environmental degradation in the context of sustainable economic growth. In this regards, the GoP confirmed the program sustainability, presenting additional data on the PDO indicators, as well as information on policies and investments carried out to complement, refine or continue the policy reforms supported by the ENVDPLs.
3. In regards to its performance, the GoP stated that the participation of all collaborating agencies was key to implement the policy reforms and achieve the program objectives. The GoP emphasized lessons learned associated with ownership; interinstitutional consensus on the program relevance; implementation time required for different policies; and interinstitutional coordination.
4. In addition, the GoP stated that the Bank performance was satisfactory the programmatic series – from design to implementation – with a continuous follow-up and technical expertise on the issues covered by the program. The GoP indicated that the Bank team supervised the operations closely and constructively, contributing to identify potential constraints to the program implementation and suggesting adequate solutions to achieve the program objectives.
5. The GoP stated that the policy reforms continue to demonstrate their value and relevance over the years. Despite changes in public sector management, the issues covered by the ENVDPLs continue to be part of the agenda of the participating agencies.

INFORME FINAL DE EJECUCIÓN

Serie de Préstamos Programáticos para Políticas de Desarrollo Ambiental BANCO MUNDIAL (BM)

I. Generalidades

Durante el año 2007, el Gobierno Peruano y el BM iniciaron el diseño de un programa de reformas cuyo objetivo principal es apoyar los esfuerzos para fortalecer la gobernabilidad ambiental y su institucionalidad en el Perú, e incorporar la sostenibilidad ambiental en la agenda de desarrollo de sectores clave tales como minería, pesca, transporte urbano y energía. El programa consistiría en tres préstamos de libre disponibilidad bajo la denominación “Préstamo Programático de Política Ambiental”.

La concertación de dichos préstamos se realizó de forma anual, entre el periodo 2009 – 2011, bajo la modalidad de “préstamos programáticos”. La primera operación por un monto de US\$ 330 millones fue aprobada mediante Decreto Supremo N° 196-2009-EF publicado el 03 de septiembre de 2009, de los cuales US\$ 20 millones corresponden a endeudamiento externo y US\$ 310 millones a un financiamiento contingente de desembolso diferido DDO (Deferred Drawdown Option). Asimismo, la segunda operación por US\$ 50 millones fue aprobada mediante Decreto Supremo N° 297-2009-EF del 17 de diciembre de 2009. Finalmente, la última operación por US\$ 75 millones se aprobó mediante Decreto Supremo N° 180-2010-EF del 25 de agosto de 2010. Todas las operaciones de endeudamiento fueron desembolsadas uno o dos meses luego de su aprobación, mientras que el monto del financiamiento contingente de la primera operación fue desembolsado en octubre 2015.

Cabe mencionar, que la tercera operación contó con el cofinanciamiento de la cooperación Alemana (KfW) por € 21 millones, básicamente apoyando el componente referido al SERNANP.

La ejecución de la serie programática estuvo a cargo del Ministerio de Economía y Finanzas, con la participación técnica de las siguientes entidades:

- Dirección General de Salud Ambiental del Ministerio de Salud (DIGESA)
- Ministerio del Ambiente (MINAM)
- Ministerio de Energía y Minas (MEM)
- Ministerio de la Producción (PRODUCE)
- Ministerio de Transportes y Comunicaciones (MTC)
- Servicio Nacional de Áreas Naturales Protegidas (SERNANP)
- Servicio Nacional de Meteorología e Hidrología (SENAMHI)
- Organismo de Evaluación y Fiscalización Ambiental (OEFA)

II. Descripción de la Serie Programática

Las reformas asociadas a la Serie Programática, cuyo objetivo es apoyar los esfuerzos para fortalecer la gobernabilidad ambiental y sus instituciones en el Perú,

e incorporar la sostenibilidad ambiental en la agenda de desarrollo de sectores clave tales como minería, pesca, transporte urbano y energía²⁸, cuyas acciones previas fueron consideradas durante las cuatro operaciones de la serie programática, se detallan a continuación:

1. Gobernabilidad Ambiental

Con el fin de fortalecer el marco legal e institucional de la gestión ambiental se consideraron las siguientes acciones previas:

1° Operación.

Creación del Ministerio del Ambiente (MINAM) y establecimiento de las funciones de SERNANP.

2° Operación.

Definición de los roles y responsabilidades del MINAM en las evaluaciones del impacto ambiental de grandes proyectos y de sectores clave.

Las siguientes acciones se incorporaron con el objetivo de fortalecer el marco legal e institucional para la conservación de la biodiversidad y el manejo de las Áreas Naturales Protegidas (ANP).

1° Operación.

Establecimiento de las funciones del Servicio Nacional de Áreas Naturales Protegidas por el Estado (SERNANP).

2° Operación.

Aprobación del Plan Financiero del Sistema de Áreas Naturales Protegidas por el Estado y el del Plan de Acción del Sistema Nacional de Áreas Naturales Protegidas (*Plan Director*), así como la aprobación de medidas regulatorias sobre la participación del sector privado, tales como la Guía para la formación de patronatos en Áreas Naturales Protegidas y el reglamento de uso turístico en ANP.

3° Operación.

Adopción de un plan director con tres planes de acción que conduzcan a la sostenibilidad financiera del Sistema Nacional de Áreas Naturales Protegidas por el Estado (SINANPE), la adopción de mecanismos para promover el financiamiento y manejo por parte del sector privado de cuatro nuevas áreas de conservación.

Las siguientes acciones se consideraron con el objetivo de fortalecer el marco para los estándares de calidad ambiental (ECA), los límites de emisión y el monitoreo ambiental.

1° Operación.

Establecimiento de los estándares de calidad ambiental (ECA) y los límites máximos permisibles (LMP) para las emisiones atmosféricas.

2° Operación.

²⁸ Se anexa al presente la Matriz de Políticas de la Serie Programática.

Publicación y diseminación, en los sitios web del SENAMHI y DIGESA, de los datos del monitoreo diario de la calidad del aire en las ciudades de Lima y La Oroya.

2. Incorporación de los principios del desarrollo sostenible en sectores clave.

Sector Minero

Se incorporaron las siguientes acciones en el programa con el objetivo de mejorar la información y la capacidad de remediar pasivos ambientales mineros (PAM), y fortalecer la gobernabilidad ambiental y social en el sector minero.

1° Operación

Modificación de la Ley de Pasivos Mineros, transferencia de la responsabilidad de remediación en el propietario privado (aún después de la expiración de la concesión), y prohibición del otorgamiento de nuevas concesiones mineras a aquellas empresas que no han remediado sus pasivos mineros en otros sitios.

Aprobación del Reglamento de participación ciudadana en el subsector minero, durante las etapas de concesión, exploración, explotación, ejecución y cierre del proceso minero.

2° Operación

Aplicación de la metodología desarrollada mediante el Programa de Cooperación Peruano Canadiense (PERCAN) para la identificación y priorización de todos los pasivos ambientales mineros, y aprobación del programa de trabajo por tres años, e incorporación de presupuesto para el 2010 para identificar, clasificar y gestionar pasivos ambientales mineros.

Aprobación de normas que regulan el proceso participativo de monitoreo ambiental, vigilancia de actividades de explotación minera, e inicio de operaciones de al menos 40 iniciativas de monitoreo ambiental participativo.

3° Operación

Desarrollo de un enfoque estandarizado para la elaboración de los Planes de Cierre de Pasivos Ambientales de la actividad minera mediante la aprobación de la Guía del Plan de Cierre de Pasivos Ambientales Mineros.

Sector Transporte Urbano

Con el fin de mejorar la calidad de combustibles y el desempeño de vehículos se reconocieron las siguientes acciones previas en el Programa.

1° Operación

Reducción del nivel de azufre en diesel a 50 ppm a partir del 2010 mediante la promulgación de la Ley No.28694.

Aprobación de un esquema temporal a nivel nacional de promoción de renovación del parque automotor mediante el chatarreo de vehículos a diesel por vehículos nuevos que consuman gasolina o gas natural vehicular (GNV).

Establecimiento de los requerimientos para vehículos a diesel para acceder a incentivos económicos y estándares para el proceso de chatarreo.

2° Operación

Continuación de la promoción e implementación de la conversión de vehículos a GNV.

Implementación del Sistema de Inspección y Mantenimiento de Vehículos en Lima Metropolitana de acuerdo a un cronograma basado en los números de las placas.

3° Operación:

Continuación de la implementación del Sistema de Inspección y Mantenimiento de Vehículos en Lima y 3 ciudades adicionales (Arequipa, Chiclayo y Trujillo) mediante la introducción de un sistema informático y de comunicaciones que requiere el uso de equipo fotográfico digital capaz de capturar la secuencia de imágenes del vehículo en cada punto de la inspección.

Sector Pesca

Con el objetivo de reducir la sobrecapacidad de la flota de anchoveta y mitigar los impactos sociales asociados con la reducción de flota.

1° Operación:

Aprobación del Decreto Legislativo No. 1084 el cual regula las cuotas de pesca de anchoveta por embarcación, y las medidas de protección social para trabajadores desplazados por esta medida.

2° Operación:

Aprobación del reglamento de la Ley sobre límites máximos de captura por embarcación (DL N° 1084), con el cual se establecen los procedimientos para la aplicación del régimen de cuotas de pesca de anchoveta por embarcación, la implementación del Fondo de Compensación para el Ordenamiento Pesquero (FONCOPES) y el fondo de pensiones de retiro.

3° Operación:

Establecimiento de cuotas para la pesca de anchoveta para la región norte y central, y aplican medidas para el monitoreo y fiscalización del sistema de cuotas establecido.

III. Relevancia de objetivos de la reforma y sostenibilidad

Con la Serie Programática se propuso impulsar reformas sustanciales, tanto en el marco legal e institucional de la gestión ambiental, como respecto a la incorporación de los principios de desarrollo sostenible en los sectores económicos clave. El programa se enmarcó dentro de las prioridades del gobierno relacionadas con crear la institucionalidad adecuada para enfrentar el desafío de evitar la degradación ambiental ante el crecimiento económico sostenido.

Las principales reformas del programa se mantienen desde la aprobación de la última operación de la serie, es decir, después de seis años. Destaca el progreso observado en el área institucional. Desde la creación del MINAM mediante Decreto

Legislativo N° 1013 en el año 2008, se ha logrado la integración de las políticas públicas ambientales con la aprobación de diversos instrumentos como los Ejes Estratégicos de Gestión Ambiental, la Estrategia Nacional de Cambio Climático, la Estrategia Nacional de Biodiversidad, la Estrategia Nacional de Humedales, la Política Nacional de Educación Ambiental y los Lineamientos de política sobre inversión pública en materia de residuos sólidos, diversidad biológica y servicios ecosistémicos, entre otros.

A nivel institucional los avances en los últimos años son notables, destacando la creación del Servicio Nacional de Certificación Ambiental para Inversiones Sostenibles (SENACE), el fortalecimiento del Sistema Nacional de Fiscalización Ambiental (SINEFA), el mejoramiento del rol de OEFA con facultades de control e incentivos, la creación del Instituto Nacional de Investigaciones en Glaciares y Ecosistemas de Montaña (INAIGEM), y el mejoramiento de la justicia ambiental mediante la creación de la Procuraduría Especializada en Delitos Ambientales.

Asimismo, el MINAM ha fortalecido la gestión ambiental regional y local principalmente mediante la asistencia técnica permanente, la implementación de la Estrategia de descentralización en relación a las políticas y estrategias regionales, y la implementación de las Oficinas desconcentradas del MINAM.

Como ente rector del Sistema Nacional de Evaluación de Impacto Ambiental (SEIA), el MINAM ha contribuido al fortalecimiento de dicho sistema mediante la actualización y adecuación de la normativa sectorial del SEIA para cinco sectores: Agricultura, Vivienda, Minería, Hidrocarburos e Industria Manufacturera y Comercio Interno. Asimismo, se fortaleció el SEIA mediante la creación del SENACE, la cual tiene a cargo la aprobación de los Estudios de Impacto Ambiental detallados (EIA-d), centralizando en esta entidad las funciones de evaluación de impactos ambientales que le transfieren los diversos Sectores. Adicionalmente, se creó el proceso de Certificación Ambiental Global a cargo del SENACE para proyectos de inversión, el cual se enmarca en los principios de eficiencia, eficacia y sostenibilidad ambiental. Dicho proceso está orientado a incorporar progresivamente en un solo procedimiento administrativo los distintos títulos habilitantes que corresponden con la naturaleza del proyecto y exigibilidad, y se establece el plazo de revisión de EIA-d por parte del SENACE.

Por su parte, el Servicio Nacional de Áreas Naturales Protegidas por el Estado (SERNANP), ha ejercido sus competencias a nivel nacional, contando con oficinas para gestionar la Áreas Naturales Protegidas (ANP) de administración nacional, las cuales incluyen áreas marinas y costeras. Gracias al aumento de representatividad de los ecosistemas del país y su estado de conservación, se ha logrado un incremento en la superficie física y en la cobertura de la diversidad biológica representado en un crecimiento a alrededor de dos millones de hectáreas del territorio nacional protegidas en áreas de administración con categoría definitiva, con niveles de administración regional y privado.

Mediante el Plan de Acción Nacional de Diversidad Biológicas 2014-2018 se promovió que los gobiernos regionales cuenten con un espacio permanente de coordinación interregional, que se reúne anualmente para evaluar el avance en la implementación de los sistemas regionales de conservación de la diversidad biológica. Asimismo, tanto los gobiernos regionales como otras entidades

competentes reportan al MINAM de manera anual el estado de conservación de las ANP y otras modalidades de conservación. Asimismo, se cuenta con una evaluación general sobre los factores que afectan la conectividad de los ecosistemas, así como una lista de ecosistemas frágiles priorizados y lineamientos y criterios para su gestión, entre otros. Adicionalmente, en relación a los Planes Maestros de las Áreas Naturales Protegidas, en el 2012 se propuso una modificación de los lineamientos de desarrollo de los Planes Maestros que incluye una nueva metodología y procedimiento.

Adicionalmente, con el esquema de Presupuesto por Resultados, se ha podido diseñar el Programa Presupuestal 0057 “Mejora en la conservación de la Diversidad Biológica y Aprovechamiento Sostenible de los Recursos Naturales de las ANP”, lo cual ha permitido elevar la asignación del presupuesto público. Además, se han diversificado las fuentes de financiamiento, por ejemplo a través de la implementación de iniciativas REDD+ en ANP e impulsando la iniciativa Asegurando el Futuro de las Áreas Naturales Protegidas del Perú. Parques Nacionales: Patrimonio del Perú.

En relación a la calidad del aire, SENAMHI dentro de su Plan Estratégico Institucional mantiene como objetivo estratégico el fortalecer la vigilancia atmosférica para la toma de decisiones. Asimismo, mediante su política institucional de Calidad Ambiental Atmosférica se espera fortalecer la vigilancia atmosférica en el país. La estrategia adoptada está referida a la incorporación en el Programa Presupuestal 096 “Gestión de la Calidad del Aire” a partir del 2013, y el incremento en la cobertura de la vigilancia de la calidad del aire de 03 a 10 ciudades del país y vigilancia de la radiación ultravioleta en 10 ciudades capitales.

Complementariamente, la Dirección General de Salud Ambiental (DIGESA) del Ministerio de Salud, realiza el monitoreo de la calidad del aire de manera permanente en Lima y Callao a través de cinco estaciones fijas de monitoreo. Asimismo, DIGESA ha desarrollado Estudios de Línea Base en ciudades como Chimbote, Tacna, Iquitos, Cusco, La Oroya, con el fin de identificar zonas de riesgo e implementar planes de Vigilancia de la Calidad del Aire. Además, realiza estudios puntuales en otras ciudades del país, así como una serie de evaluaciones específicas en respuesta a denuncias de la población.

En relación a la incorporación de los principios de desarrollo sostenible en sectores claves, específicamente sobre los pasivos ambientales mineros, se tiene que desde el 2011 se vienen desarrollando actividades relacionadas a 61 cuencas hidrográficas, lo cual ha permitido tener un registro del inventario de alrededor de 8 850 pasivos ambientales mineros (PAM), lo cual ha permitido contar con herramientas que permitan tomar decisiones en torno a la gestión de proyectos de remediación de pasivos de esta naturaleza. En ese sentido, el MINEM ha gestionado la remediación de 685 PAM agrupados en 15 proyectos de remediación ubicados en 7 regiones del país.

Respecto a mejorar la calidad de los combustibles, en el año 2014 se iniciaron las obras de construcción del Proyecto de Modernización de la Refinería Talara, el cual comprende la ampliación de la capacidad productiva de 65 a 95 MBPD de petróleo, optimización de los procesos de conversión y la construcción de nuevas unidades de proceso para refinar crudo ligero y pesado, gasolinas, GLP y Diesel (contenido

máximo de 50 ppm de azufre), lo que favorecerá el abastecimiento del mercado peruano con combustibles más limpios. Se espera finalizar dicha construcción en el año 2019.

Asimismo, las conversiones de autos a gas natural casi se han duplicado pasando de 127 265 vehículos activados en el 2011 a un total de 245 640 a abril 2016. De igual manera, el número de estaciones de servicio que proveen gas natural se ha incrementado en 57% durante el período mencionado, alcanzando un total de 277 estaciones.

Con respecto a la mejora del desempeño vehicular, el MTC ha continuado perfeccionando la aplicación del Reglamento Nacional de Inspecciones Técnicas Vehiculares. Asimismo, a diciembre 2015 se encontraban operando 54 empresas y 80 establecimientos autorizados como centros de inspección técnica vehicular.

Finalmente, en relación al sector pesquero, persiste el interés en que las actividades pesqueras y acuícolas guarden armonía con el ambiente, la biodiversidad y la socio-economía. Asimismo, existe la preocupación por promover acciones de adaptación y mitigación frente al cambio climático, vinculadas a la sostenibilidad pesquera. En ese sentido, se realiza un seguimiento continuo de las condiciones oceanográficas sobre la biomasa para determinar las cuotas aplicables a la explotación de la anchoveta, principalmente.

IV. Evaluación del desempeño de la participación del Sector Público

Se considera que la participación de las diversas entidades participantes de la Serie Programática fue clave para el logro de los objetivos planteados. Tanto durante el diseño de la Serie como en su ejecución, dichas entidades mostraron gran interés en la consecución de las reformas planteadas.

Lecciones aprendidas

Apropiación de las Reformas. La definición de las reformas principales de la operación con base en las prioridades del Gobierno del Perú y en diagnósticos realizados por los participantes contribuyó a la apropiación de las mismas, así como de los resultados logrados en los últimos años.

Consenso: Desde la aprobación de la última operación de la serie programática se ha observado un consenso a nivel interinstitucional sobre la importancia de las reformas y su vigencia actual, lo cual favorece la sostenibilidad en el tiempo de las mismas.

Tiempo de implementación: Se observa que la implementación total de algunas medidas toman mayor tiempo de lo esperado inicialmente, como en el caso de la remediación de pasivos ambientales, por lo cual es importante considerar los diversos sistemas administrativos del sector público en el diseño de futuros programas. Asimismo, los cambios novedosos que implican las reformas requieren de una validación por parte de las entidades participantes y, asimismo, el tiempo suficiente para afinar los instrumentos legales y su aplicación en el tiempo para que los mismos tengan mayor efecto y actualidad.

Coordinación interinstitucional: Si bien el MEF facilitó en gran medida la coordinación durante la ejecución de la Serie Programática, se observan pocos incentivos necesarios para que dicha coordinación continúe entre otras entidades del Sector Público en forma fluida sin el acompañamiento propio del Programa.

V. Evaluación del desempeño del Banco Mundial

Se considera que el desempeño del Banco ha sido satisfactorio a lo largo de la ejecución de la Serie Programática, tanto en la etapa de diseño como en la ejecución de la Serie. Destaca el seguimiento continuo y la claridad técnica de los diversos temas abordados en la Serie.

Lecciones aprendidas

Coordinación y asistencia técnica. En general, el Banco abordó los temas de la matriz permitiendo que la relación con los equipos del Gobierno fuera fluida, facilitando la detección oportuna de obstáculos o restricciones que pudieran afectar los compromisos, y dando soluciones adecuadas para el logro de las reformas.

Sostenibilidad. El equipo del Banco tuvo un rol clave en el seguimiento de los objetivos del programa durante toda la ejecución de la serie programática, a pesar de los cambios de los funcionarios a cargo que se registraron en el período, lo cual favoreció la continuidad y consecución de las reformas.

Expertise. El acompañamiento que brindó el Banco fue cercano y constructivo, brindando su experiencia y recomendando estrategias implementadas de manera exitosa en otros países para que sean implementadas mediante la Serie Programática.

VI. Conclusiones

De acuerdo al análisis realizado, se considera que la Serie Programática ha mantenido su efecto positivo a lo largo de su ejecución, como en períodos posteriores. Las reformas siguen mostrando validez y relevancia a pesar del tiempo transcurrido.

Asimismo, a pesar de los cambios de gestión observados en el Sector Público, en general los temas trabajados siguen formando parte de las agendas de las entidades involucradas en las reformas de políticas.

Lima, 27 setiembre 2016

Annex 3. Status of PDO Indicators throughout the Programmatic Series

Target Value	Actual Value at Closing of ENVDPL II (12/31/2012)	Actual Value at Closing of ENVDPL III (12/31/2013)	Actual Value after Closing of ENVDPL I (12/31/2015)
PDO Indicator 1: Number of Environmental Impact Assessments (<i>Evaluaciones de Impacto Ambiental</i> , EIAs) of large infrastructure/investment projects with potentially significant impacts reviewed by Ministry of Environment (<i>Ministerio del Ambiente</i> , MINAM).			
MINAM has the capacity to review EIAs of large infrastructure / investment projects with potentially significant impacts (select at least 10 projects per year based on technical and legal criteria)	In 2011 and 2012, MINAM randomly reviewed 242 EIAs approved by sectoral agencies between 2001 and 2011 for projects with potentially significant impacts, based on technical and legal criteria.	In 2011 and 2012, MINAM randomly reviewed 242 EIAs approved by sectoral agencies between 2001 and 2011 for projects with potentially significant impacts, based on technical and legal criteria.	MINAM has the capacity to review EIAs of large infrastructure / investment projects with potentially significant impacts. In 2011 and 2012, MINAM randomly reviewed 242 EIAs approved by sectoral agencies between 2001 and 2011 for projects with potentially significant impacts, based on technical and legal criteria.
PDO Indicator 2: The National Service of Natural Protected Areas by the State (<i>Servicio Nacional de Áreas Naturales Protegidas por el Estado</i> , SERNANP) applies financial strategy to increase funding for managing natural protected areas (NPA) from various sources (including private sector).			
Increase NPA funding by at least US\$2 million per year	NPA funding was US\$19 million.	NPA funding was US\$21 million.	NPA funding increased from US\$19 million in 2012 to US\$28.5 million in 2015.
PDO Indicator 3: Air quality data for the Lima-Callao Metropolitan Region (LCMR) widely published and disseminated (in real time) through a harmonized and integrated monitoring network			
Harmonized monitoring network publishes air quality data in real time for LCMR.	Air quality data for LCMR is published by the harmonized monitoring networks of SENAMHI and DIGESA in real time.	Air quality data for LCMR is published by the harmonized monitoring networks of SENAMHI and DIGESA in real time.	Air quality data for LCMR is published by the harmonized monitoring networks of SENAMHI in real time and by DIGESA.
PDO Indicator 4: Air quality contingency plans developed and implemented when pollution levels largely exceed quality standards in cities			
Air quality contingency plans are developed and implemented in the five most polluted cities	Three out of the five most polluted cities (Ilo, La Oroya and Arequipa) developed and implement air quality contingency plans.	Three out of the five most polluted cities (Ilo, La Oroya and Arequipa) developed and implement air quality contingency plans.	Three out of the five most polluted cities (Ilo, La Oroya and Arequipa) developed and implement air quality contingency plans.
PDO Indicator 5: Priority Mining Environmental Legacies (MELs) identified following the priority setting update of MELs' inventory and resources for remediating priority public/private MELs			
At least 10 priority MELs are identified following the priority setting update of MELs inventory and resources for remediating	MEM identified 7,576 MELs, and prioritized those legacies by risk levels. The GoP has allocated resources to remediate 119 priority MELs in 8	MEM identified 8,206 MELs, and prioritized those legacies by risk levels. The GoP has allocated resources for remediating 119 priority MELs in 8	MEM identified 8,616 MELs, and prioritized those legacies by risk levels. 2,546 MELs are of very high risk, and

priority public/private MELs confirmed.	mining units in Cajamarca.	mining units in Cajamarca, and 407 legacies in 21 former mining units by the state-owned company Activos Mineros.	1,735 are of high risk. The GoP has confirmed resources to remediate 801 priority MELs (of high and very high risk) in 44 mining units.
PDO Indicator 6: Number of mining sites with environmental participatory monitoring projects			
Environmental participatory monitoring undertaken in at least 60 mining sites	Environmental participatory monitoring undertaken in more than 60 sites.	101 mining sites with environmental participatory monitoring (committees or programs)	101 mining sites with environmental participatory monitoring (committees or programs)
PDO Indicator 7: Percentage of gas stations in main cities supplying clean diesel (less than 50 ppm of sulfur content)			
At least 30% of gas stations in main cities (approximately 750) supplying clean diesel (less than 50 ppm of sulfur content) by 2010	All gas stations in Lima and Callao supply diesel with less than 50 ppm of sulfur content.	All gas stations in the departments of Lima, Arequipa, Cusco, Puno, Madre de Dios, and the constitutional province of Callao supply diesel with less than 50 ppm of sulfur content.	All 2,096 gas stations in the departments of Lima, Arequipa, Cusco, Puno, Madre de Dios, and the constitutional province of Callao supply diesel with less than 50 ppm of sulfur content.
PDO Indicator 8: Number of vehicles converted to natural gas and number of service stations supplying natural gas in Lima			
At least 80,000 vehicles converted to natural gas and 90 service stations are installed and operating in Lima.	Approximately 140,000 vehicles converted to natural gas and 90 service stations offering natural gas are installed and operating in Lima.	Approximately 162,000 vehicles converted to natural gas and 90 service stations offering natural gas are installed and operating in Lima.	Approximately 210,000 vehicles converted to natural gas and 236 service stations offering natural gas are installed and operating in Lima.
PDO Indicator 9: Number of vehicle inspection and maintenance systems operating in Lima and other three largest cities			
Vehicle inspection and maintenance system operating in Lima (with at least 600,000 vehicles inspected), and each of the three largest cities (with at least 80,000 vehicles inspected)	Vehicle inspection and maintenance systems operating in Lima, Callao, Arequipa and La Libertad. More than 550,000 vehicles inspected in Lima-Callao, 47,688 vehicles in Arequipa and 29,263 vehicles in La Libertad.	Vehicle inspection and maintenance systems operating in Lima, Callao, Arequipa and La Libertad. More than 1,000,000 vehicles inspected in Lima-Callao. Another 47,688 vehicles in Arequipa and 29,263 vehicles in La Libertad in 2012.	Twenty vehicle inspection and maintenance systems were operating in Lima and Callao, 7 in Arequipa and 4 in La Libertad. More than 1,000,000 vehicles inspected in Lima and Callao in 2015. Another 47,688 vehicles were inspected in Arequipa and 29,263 in La Libertad in 2012.

PDO Indicator 10: Percentage of <i>anchoveta</i> fleet under the quota system			
100% of the <i>anchoveta</i> fleet under the quota system	100% of the <i>anchoveta</i> fleet (1,004 vessels) regulated by the quota system	100% of the <i>anchoveta</i> fleet (1,001 vessels) regulated by the quota system	100% of the <i>anchoveta</i> fleet (900 vessels) regulated by the quota system
PDO Indicator 11: Number of workers that benefit from economic incentives for leaving the sector			
At least 3,000 workers benefit from economic incentives for leaving the sector.	2,126 workers benefited from economic incentives for leaving the sector	2,283 workers benefited from the economic incentives for voluntarily leaving the fisheries sector provided by FONCOPES	2,283 workers benefited from the economic incentives for voluntarily leaving the fisheries sector provided by FONCOPES

Annex 4. Milestones in Environmental Policy and Institutions (2008-2014)

2008	<ul style="list-style-type: none"> • Creation of MINAM. <i>Legislative Decree</i> No. 1013 • Creation of OEFA • Creation of the SERNANP. Before the creation of MINAM, these fell under the jurisdiction of the Ministry of Agriculture through INRENA. • Adoption of the ECAs for water
2009	<ul style="list-style-type: none"> • Approval of the agenda for scientific research on climate change • Approval of the National Environmental Policy • The Master Plan for NPAs (<i>Plan Director de Áreas Naturales Protegidas</i>) is adopted • Law No. 29325 National System of Environmental Assessment and Oversight
2010	<ul style="list-style-type: none"> • Action Plan for Climate Change Adaptation and Mitigation (<i>Plan de Acción de Adaptación y Mitigación frente al cambio climático</i>) • Second national communication on climate change
2011	<ul style="list-style-type: none"> • National Environmental Action Plan, 2011–21 (PLANAA) • Law No. 29763 on Forestry and Wildlife • Creation of the National System for Disaster Risk Management (<i>Sistema Nacional de Gestión del Riesgo de Desastres</i>). Law No. 29664.
2012	<ul style="list-style-type: none"> • Adoption of the Strategic Pillars of Environmental Management approved by the Council of Ministers, on the basis of the Report of the Multisectoral Commission created by Supreme Resolution No. 189-2012-PCM and responsible for preparing regulatory and policy proposals to improve the environmental and social conditions in which economic activities, especially those of the extractive industries, are performed. • Creation of SENACE • Adoption of the National Policy on Environmental Education
2013	<ul style="list-style-type: none"> • Adoption of the 2013–16 Multiyear Sectoral Strategic Plan (<i>Plan Estratégico Sectorial Multianual</i>, PESEM) for the environmental sector • Adoption of formalization rules and prohibition of illegal mining • Adoption of regulations governing the 10-year ban on the import and production of genetically modified organisms • Adoption of regulations for management and handling of waste electrical and electronic devices • National Environmental Action Agenda 2013–14 • Adoption of the first ECAs for soils • Law No. 30215 on the mechanisms of payment for ecosystem services

Annex 5. MAP

