



Report Number : ICRR0020475

## 1. Project Data

**Country**

Peru

**Practice Area(Lead)**

Environment &amp; Natural Resources

**Programmatic DPL**
**Planned Operations:** 3

**Approved Operations:** 3

**Operation ID**

P101471

**Operation Name**

PE DDO First Prog. Environ DPL

**L/C/TF Number(s)**

IBRD-76740

**Closing Date (Original)**

17-Feb-2012

**Total Financing (USD)**

330,000,000.00

**Bank Approval Date**

17-Feb-2009

**Closing Date (Actual)**

08-Sep-2015

**IBRD/IDA (USD)**
**Co-financing (USD)**

Original Commitment

330,000,000.00

0.00

Revised Commitment

330,000,000.00

0.00

Actual

330,000,000.00

0.00

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IEGSD (Unit 4)

**Operation ID**

P116152

**Operation Name**

PE 2nd Prog. Env DPL ( P116152 )



<b>L/C/TF Number(s)</b> IBRD-76740,IBRD-78100	<b>Closing Date (Original)</b> 31-Dec-2012	<b>Total Financing (USD)</b> 50,000,000.00
<b>Bank Approval Date</b> 08-Dec-2009	<b>Closing Date (Actual)</b> 31-Dec-2012	
	<b>IBRD/IDA (USD)</b>	<b>Co-financing (USD)</b>
Original Commitment	50,000,000.00	0.00
Revised Commitment	50,000,000.00	0.00
Actual	50,000,000.00	0.00

**Operation ID**  
P118713

**Operation Name**  
PE 3rd Prog. Environmental DPL ( P118713 )

<b>L/C/TF Number(s)</b> IBRD-78100,IBRD-79500	<b>Closing Date (Original)</b> 31-Dec-2013	<b>Total Financing (USD)</b> 75,000,000.00
<b>Bank Approval Date</b> 05-Aug-2010	<b>Closing Date (Actual)</b> 31-Dec-2013	
	<b>IBRD/IDA (USD)</b>	<b>Co-financing (USD)</b>
Original Commitment	75,000,000.00	0.00
Revised Commitment	75,000,000.00	0.00
Actual	75,000,000.00	0.00

## 2. Program Objectives and Policy Areas

### a. Objectives

The series of three Environmental Development Policy Operations of the Republic of Peru (ENVDPL) was a medium-term program of legal, institutional, and policy reforms promoting environmental governance and environmental sustainability, supported by three single-tranche Bank loans.



The ENVDP1 Program Document (PD, p.33) defined the program development objective (PDO) as: "to support the government's efforts to improve the efficiency and effectiveness of environmental governance and institutions in Peru, and mainstream sustainability principles in the development agenda of key sectors to improve the management of the mining sector, improvements in air quality, and enhance the fisheries sector". The ENVDP2 PD (page 29) simplified the second part of the statement: "... and mainstream environmental sustainability in the development agenda of key sectors (mining, urban transport, and fisheries)". The ENVDP3 PD (page 19) substituted "air quality" for "urban transport": "... and mainstream principles of environmental sustainability in key sectors including mining, fisheries and those supporting air quality".

The ICR (page 2) stated the PDO of the overall series, ENVDP, as: "to support the Government's efforts to strengthen environmental governance and institutions in Peru, and to mainstream environmental sustainability in the development agenda of key sectors --- mining, fisheries, and energy and urban transport". This ICR Review assesses the evidence, results, and ratings of the ICR based on this PDO statement.

## **b. Pillars/Policy Areas**

The ENVDP programmatic series had two policy reform areas (ENVDP1 PD, pages 50-52):

Policy Area A – Strengthening the Legal and Institutional Framework for Environmental Management aimed to support efforts to reform the institutions and the governance systems for environmental management by: (a) strengthening the legal and institutional framework for environmental management, environmental impact assessments (EIAs), environmental certification; (b) strengthening the legal and institutional framework for biodiversity conservation and the management of Natural Protected Areas (NPAs); and, (c) strengthening the framework for setting and monitoring environmental quality standards (ECAs) and maximum permissible levels (LMPs) for air and water emissions. □□

Policy Area B – Mainstreaming the Principles of Sustainable Development in Key Economic Sectors aimed to embed the principles of environmental sustainability in the mining, fisheries, and energy and urban transport sectors by: (a) improving the capacity to remediate and clean up mining environmental legacies (MELs) and strengthening environmental and social governance in the mining sector; (b) reducing the overcapacity of the *anchoveta* fishing fleet and mitigating the associated social impacts of the fleet reduction; and, (c) improving fuel quality and vehicle performance in the energy and urban road transport system.

## **c. Comments on Program Cost, Financing, and Dates**

Program Cost: The cost for the programmatic series was US\$455.0 million: US\$330.0 million for ENVDP1, US\$50.0 million for ENVDP2, and US\$75.0 million for ENVDP3.

Financing: The IBRD financed US\$455.0 million of the program cost: US\$330.0 million for ENVDP1, US\$50.0 million for ENVDP2, and US\$75.0 million for ENVDP3. Peru elected a deferred disbursement option (DDO) for US\$310.0 million of US\$330.0 million loan amount for ENVDP1. The Federal Republic of Germany's Kreditanstalt für Wiederaufbau (KfW) co-financed ENVDP3 with Euro 21.0 million. The total



IBRD loan amount of US\$455.0 million for the programmatic ENVDP was fully disbursed.

Borrower Contribution: There was no counterpart funding from the borrower, the Republic of Peru.

Dates: The effectiveness date for ENVDP1 was September 25, 2009; for ENVDP2, December 22, 2009; and, for ENVDP3, September 23, 2010. The closing date for ENVDP1, for which the Government elected DDO as the disbursement mode, was September 8, 2015 (a restructuring extended the ENVDP1 closing date from February 17, 2012 to September 8, 2015 to keep the program fund as a DDO contingency fund); for ENVDP2, December 31, 2012; and, for ENVDP3, December 31, 2013.

### 3. Relevance of Objectives & Design

#### a. Relevance of Objectives

The PDO of the ENVDP continues to be relevant to the country's current national development agenda at the time of closing. Laying the groundwork for future development following robust economic growth from 2002 to 2010 and the decline in the poverty rate between 2004 and 2010, the Government formulated and started implementing a "growth with social inclusion plan" that aims to boost productivity, close social gaps, and target the poor and the vulnerable. The plan seeks to provide equal access to basic services, employment and social security; reduce extreme poverty with an emphasis on rural poverty; prevent social conflicts by restoring public institution credibility; and, improve the surveillance of potential environmental damages.

In pursuit of these development plan objectives, and cognizant of the fact that environmental degradation disproportionately impacts the poor and the vulnerable in Peru, the Government has sought to address the environmental challenges confronting the country to ensure that economic growth and development are sustainable. Establishing a central ministry for the environment and reforming the national system for EIAs supports the overarching goal of an environmentally sustainable growth for Peru. Advancing sustainable environmental principles in mining, fisheries, and energy and urban transport addresses the problems posed by environmental degradation on the poor and promotes a growth path that is inclusive.

Similarly, the objective of the ENVDP remains firmly aligned with strategic focus of the Bank Group Country Partnership Strategy (CPS) for Peru for 2012-2016. The CPS for 2012-2016 commits the Bank Group to support policies and investments in Peru that are centered around four strategic objectives: increased access and quality of social services for the poor; connection for the poor to services and markets; sustainable growth and productivity; and, inclusive governance and public sector performance.

The ENVDP objective of strengthening the institutions and governance systems for environmental management is aligned with the third and the fourth pillar. Additionally, the ENVDP objective of mainstreaming environmental sustainability principles in the mining, fisheries, and energy and urban transport sectors is aligned with the third pillar and, by its expected positive effects on the poor who are disproportionately disadvantaged by environmental degradation, with the first pillar.



## Rating

High

### b. Relevance of Design

The policy areas and their associated set of prior actions and triggers were consistent with the PDO. The PDO was clear and explicit. The two policy areas matched the two elements of the PDO exactly. The first set of prior actions for ENVDP1 was consistent with the first policy area, and therefore supportive of the PDO. Similarly, the second set of prior actions for ENVDP1 was consistent with the second policy area and supportive of the PDO. The triggers to ENVDP2 and ENVDP3 advanced the reform agenda further, and were in all cases consistent with the policy areas and supportive of the program objective.

The causal chain in the Results Framework was convincing. By reforming the public organizational structure for environmental management, promoting biodiversity protection and the management and sustainable financing of NPAs, and setting ECAs and MPLs for emissions, the ENVDP would strengthen the legal and institutional framework for environmental management in the country. The outcome would be stronger institutions and governance systems for environmental management. By strengthening environmental and social governance in the mining industry and enhancing the national capacity to remediate MELs, by regulating the over-exploitation of the *anchoveta* and reducing the economic impacts of the *anchoveta* fleet reduction with social protection measures, and, by regulating the sulfur content of diesel fuel, incentivizing the conversion of road vehicles to natural gas, and enforcing vehicle inspections and maintenance to reduce urban air pollution, the ENVDP would embed sustainable development principles in mining, fisheries and urban transport. The outcome would be more environmentally sustainable development in three key sectors of the economy. Overall, the realization of these outcomes would reflect the achievement of the PDO.

Notwithstanding the coherent causal chain, the Results Framework specified PDO-level outcome indicators that could have been more precisely defined or could have had more reasonable targets (see Section 9.a).

The choice of the DPL as the financing instrument was appropriate for the reform program. DPLs precisely fund policy reform efforts, often through budgetary support. The three-operation structure allowed the Government to create new public agencies and develop their institutional capacity, to enact laws and issue their implementing regulations and guidelines, to adopt reform policies and deepen them with additional measures, and to build up consensus and support among stakeholders in government, private industry, and the local community. Moreover, the Government also elected a deferred drawdown option on 94 percent of the ENVDP1 loan. The decision gave Peru a contingent debt facility at the time of the global financial crisis of 2008-09. More importantly, it afforded the Government an extended period of time (ENVDP closed in 2015) within which to consolidate and deepen the gains from the programmatic reform effort.

## Rating



Substantial

#### 4. Achievement of Objectives (Efficacy)

##### **Objective 1**

##### **Objective**

To support the Government's efforts to strengthen environmental governance and institutions in Peru.

##### **Rationale**

The degree of achievement of this objective is assessed as Substantial.

The legal and institutional framework for environmental management in the country was substantially strengthened.

- The Government created the Ministry of Environment (MINAM) in 2008, consolidating in MINAM the overlapping mandates for environmental management previously shared among numerous public institutions in the country, led by the former environmental policy coordinating body, the National Environment Council (CONAM).
- The Government reformed the National System of EIAs (SEIA) in 2009, mandating MINAM to randomly review previously-approved EIAs for the purpose of determining the actions needed to improve the SEIA.
- MINAM set the legal criteria and the technical procedures for reviewing EIAs, directing the Ministry's General Directorate for Environmental Management Policies, Norms and Instruments to review EIAs approved since 2001.
- The Government strengthened the National System of Environmental Assessment and Oversight and created the Environmental Assessment and Control Agency (OEFA) in 2009 to supervise compliance with environmental regulations in: medium- and large-scale mining; commercial fisheries and large-scale aquaculture; hydrocarbons and electricity; and, the brewery, paper-making, cement, and tannery industries.
- With the completion of the foregoing actions, the legal and institutional framework for environmental management in the country has been substantially improved. Since the organization of MINAM in 2008, public expenditures for the environment tripled from US\$343 million in 2008 to US\$914 million in 2012.
- To implement the SEIA reform plan, MINAM reviewed the EIAs of infrastructure and investment projects approved since 2001, and concluded that 89 percent of the EIAs did not have the information required by the SEIA. Subsequently, MINAM identified policies to strengthen the SEIA, recommending the creation of the National Service for Environmental Certification for Sustainable Investments (SENACE) to implement a single-window system for the environmental certification of infrastructure and investment projects.
- Between 2012 and 2015, the OEFA approved 65 norms to strengthen environmental enforcement and increased its monitoring and enforcement activities. By 2015, the OEFA, the budget of which increased by more than 750 percent since 2011, had solved 99.6 percent of the 3,070 administrative cases ceded to its jurisdiction by the Ministry of Production (PRODUCE) and by the Oversight Agency of Energy and Mining



Investment (OSINERGIMIN).

- In sum, the ENVDPD exceeded the target for the PDO indicator for this policy sub-area. MINAM exceeded the target for the number of EIAs of large infrastructure and investment projects with potentially significant environmental impacts that were reviewed per year. In 2011-12, the MINAM reviewed the EIAs of 242 projects approved by the authorities between 2001 and 2011, or 22 projects per year over the eleven-year period, exceeding the target for this outcome indicator of 10 projects per year.

The legal and institutional framework for biodiversity conservation and for National Protected Area (NPA) management was substantially strengthened.

- The Government established a new agency, the National Service for Protected Areas by the State (SERNANP), to manage the National System of Natural Protected Areas by the State (SINANPE).
- MINAM updated the Action Plan for the SINANPE, producing a new general conceptual framework for NPAs, guidance on the management of NPAs, and a compilation of planning issues relating to the management of the SINANPE.
- MINAM approved the Sustainable Financial Strategy for the SINANPE, for 2009-19, to address the financing gap for managing NPAs. The main elements of the strategy included: an increased national public budget for NPAs, a reduced reliance on contributions from international donors, and a greater focus on resources generated directly by the SERNANP.
- Innovatively, the Government advanced new measures to promote the financing and management of the NPAs by the private sector. Specifically, the Government developed guidelines for establishing trust funds for NPAs and for channeling financial resources from development agencies and private foundations to on-the-ground conservation projects. The Government allowed and regulated tourism activities in NPAs, simplifying the procedures for granting five types of tourism rights within NPAs, including, among others, concessions and contracts of tourism services. Moreover, the Government adopted mechanisms to promote private sector management and financing in four private conservation areas.
- To complement these efforts, the newly organized SERNANP: established new NPAs to increase the proportion of the ecosystem under protection; encouraged the participation of regional governments in financing NPAs; and, advanced technical guidelines governing environmental matters in extractive industrial activities in NPAs, in response to the expansion of mining concessions in the Amazon basin.
- The Government completed numerous other actions to strengthen the management of NPAs. Importantly, the Government established the Mechanisms for Ecosystem Services Compensation in 2014, including compensation mechanisms based on voluntary agreements for the conservation, recuperation, and sustainable use of ecosystems. The Government also replaced park rangers with NPA managers.
- With the completion of the foregoing prior actions, the legal and institutional framework for biodiversity conservation and NPA management has been substantially strengthened. The SINANPE has grown robustly. From 2009 to 2016, the Government created 17 new nationally administered NPAs, 14 regional conservation areas, and 84 private conservation areas. A full 17 percent of the country's territory has since been covered by 190 NPAs. Moreover, more than 94 percent of the ecosystems located in NPAs are deemed in optimal status. By granting permits for local communities to carry out small-scale activities in NPAs, the SERNANP has generated economic benefits for 35,414 mostly low-income households.





- The financial sustainability of NPAs has also been enhanced. SINANPE's budget now includes resources from the SERNANP and from the Fund for the Promotion of National Protected Areas of Peru (PROFONANPE). SERNANP's budget itself increased from US\$6.1 million in 2009 to US\$22.3 million in 2015. The revenues come from allocations from the national budget; payments from visitors to the NPAs; and, transfers and donations from the PROFONANPE. Meanwhile, expenditures for private conservation areas are funded by private entities and individuals.
- In sum, the ENVDPL exceeded the target for the PDO indicator for this policy sub-area. SERNANP exceeded the target for increased funding for NPA management from sources including the private sector. Whereas the target was to increase the funding by US\$2.0 million per year, SERNANP increased the funding by US\$2.8 million per year (from US\$19.0 million in 2012 to US\$28.5 million in 2015).

The framework for setting Environmental Quality Standards (ECAs), Maximum Permissible Levels (LMPs) for emissions, and environmental monitoring was partially strengthened

- The Government set the ECAs for the fine particulate matter PM2.5 and the LMPs for emissions from industrial activities, including paper factories, cement factories, and gas boilers, and from mobile sources, including natural gas vehicles.
- The General Directorate for Environmental Health (DIGESA) and Peru National Service for Meteorology and Hydrology (SENAMHI) worked to harmonize and integrate their monitoring systems. DIGESA, which gathers data on fine particulate matters (PM2.5, PM10, and Persistent Toxic Substances), sulfur dioxide (SO<sub>2</sub>) gas, and nitrogen dioxide (NO<sub>2</sub>) gas from monitoring stations in the Lima and Callao regions and in twelve cities, disseminates air quality data through its website. SENAMHI, which operates nine automatic monitoring stations in Lima and Callao, disseminates air quality data in real time from its monitoring stations.
- MINAM supported local governments to develop air quality plans to address growing urban air quality issues, developing Clean Air Action Plans for the cities of Arequipa, Chimbote, Ilo, and La Oroya, and Pollution Contingency Plans for Ilo and La Oroya. The action plans established warning levels in the event pollution levels exceeded air quality standards; they also contained information on the responsible parties, the deadlines to design contingency actions, and the budgets for piloting contingency measures
- Additionally, MINAM revised the LMPs on emissions from road vehicles; established Fuel Harmfulness Indexes; and worked on the Clean Air Act legislation to preserve air quality and reduce atmospheric pollution through actions including control, surveillance, enforcement, and penalties.
- With the completion of the foregoing actions, the framework for setting ECAs, LMPs, and environmental monitoring was partially strengthened. Overall, ENVDPL only partially met the targets for the two PDO indicators for this policy sub-area. Air quality data for the Lima-Callao Metropolitan Region was disseminated in real time by SENAMHI, but only through annual reports by DIGESA. The target was for air quality data to be published by the harmonized monitoring networks in real time. The Government developed and implemented air quality contingency plans for only three of the most polluted cities in the country --- Ilo, La Oroya and Arequipa. The target was to develop and implement air quality contingency plans for the five most polluted cities in the country.





Overall, the degree of achievement of the first objective is assessed as Substantial, with the legal and institutional framework for environmental management substantially strengthened, with the legal and institutional framework for biodiversity conservation and NPA management substantially strengthened, and with the framework for setting ECAs and MPLs for emissions partially strengthened.

### **Rating**

Substantial

## **Objective 2**

### **Objective**

To mainstream environmental sustainability in the development agenda of key sectors --- mining, fisheries, and energy and urban transport.

### **Rationale**

The degree of achievement of this objective is assessed as Substantial.

Environmental and social governance in the mining sector was substantially strengthened and the capacity to remediate mining environmental legacies (MELs) was substantially improved.

- The Government transferred the onus of remediating MELs from the state to the mining title and concession holders. New laws enacted in 2009: (a) required title and concession holders to remediate MELs even after the title or concession had expired; (b) required the responsible parties to present MEL Closing Plans for their sites; (c) permitted the Government to remediate only those MELs whose responsible parties could not be identified; (d) allowed MELs with economic value to be re-used; and, (e) prohibited the granting of new concessions to companies that had not remediated their MELs.
- The Government mandated the application of the Peru-Canada Cooperation Program's (PERCAN's) methodology for the identification and prioritization of MELs for remediation, issuing technical guidelines for remediation, and approving a three-year program to identify, rank, and manage the MELs.
- The Government regulated the process of participatory environmental monitoring and surveillance in mining activities, defining public and community participation in environmental monitoring and surveillance during the mining concession, exploration, exploitation, execution, and closing processes.
- With the completion of the foregoing actions, the capacity to remediate MELs was substantially strengthened and the environmental and social governance in the mining sector was substantially improved. The Ministry of Energy and Mines (MEM) made significant progress in establishing an inventory of mining liabilities in the country. The MEM updated the first inventory, published in 2006 and which identified 850 legacies, with a new inventory listing 8,616 legacies. The new inventory identified the associated risk level and remediation priority of the MEL sites. Based on the new inventory, the MEM identified 2,546 "very-high-risk" MELs and 1,735 "high-risk" MELs.
- Six mining companies remediated MELs in their mining properties.



- In a parallel effort, the OEFA adopted rules for public participation in the environmental monitoring of mining projects in 2014.
- In sum, the ENVDPL exceeded the targets for the two PDO indicators for this policy sub-area. First, the Government exceeded the target for identifying priority MELs and conveying resources for their remediation. The MEM identified 801 MELs for priority remediation, ranking the list by risk level. The target was to identify at least 10 priority MELs. Moreover, the Government allocated resources to remediate 119 priority MELs in mining units in Cajamarca and 407 priority MELs in mining units owned by the state mining firm Activos Mineros. Second, ENVDPL exceeded the target for the number of mining sites conducting environmental participatory monitoring activities. A total 101 mining sites conducted environmental participatory monitoring, exceeding the target of at least 60 mining sites.

In the fisheries sector, the overcapacity in the anchoveta fishing fleet was substantially reduced and the associated social impacts of the fleet reduction were partially mitigated.

- The Government imposed quotas on *anchoveta* fishing in 2008 to address the over-exploitation of the *anchoveta* and the over-capacity in the fishing fleet.
- The Government imposed maximum catch limits per vessel, created a social compensation fund for fishermen voluntarily exiting the industry, and created a pension fund for fisheries workers.
- The Government set the quota allocations for the fishing season 2010 for Peru's north-central region and enacted measures to enforce and monitor the quota system.
- With the completion of the foregoing actions, the overcapacity in the *anchoveta* fishing fleet was significantly reduced. The impacts of the fleet reduction were also substantially mitigated. The Government: (a) reduced fishing pressure on the *anchoveta*, with fewer fishing vessels and a lower daily catch; (b) extended the length of the fishing season, increasing the number of days worked; (c) reduced pollution as a result of less congestion in the ports; (d) directed investments in the fisheries to higher value activities; and, (e) generally improved monitoring, control, and surveillance in *anchoveta* fishing.
- Since the fishing quotas were implemented: (a) extraction of the *anchoveta* did not surpass the annual limit established by the Peru Sea Institute; (b) hundreds of ships were retired, reducing the *anchoveta* fleet from 1,166 to 900 vessels; (c) independent fishermen obtained better prices for their catch, from US\$100 to US\$180 per ton; (d) the industry added to its storage capacity, increased the processing of anchovy, and avoided waste; and, (e) the *anchoveta* biomass trended higher in 2008-13.
- The Government established the Fishing Compensation Fund (FONCOPES) to support the early retirement of workers, providing economic incentives and professional training for workers to shift to new economic activities. To fund FONCOPES, holders of fishing permits were to make annual contributions of a fixed amount per vessel, pay a variable amount based on the number of workers that join the social programs, and pay a contribution per ton of fish loaded in processing plants. FONCOPES collected US\$38.7 million from all funding sources from 2009 to 2012.
- Overall, the ENVDPL exceeded the target for the first PDO indicator for this policy sub-area, but fell shy of the second. All 900 remaining vessels were placed under the quota system, meeting the target that 100 percent of the *anchoveta* fleet be placed under the quota system. Some 2,283 workers benefitted from economic incentives provided by FONCOPES to voluntary leave the fishing industry. The target was to



have at least 3,000 workers benefit from economic incentives to leave the sector.

In the energy and urban transport sectors, fuel quality and vehicle performance were substantially improved.

- The Government mandated the reduction of sulfur in diesel fuel by 2010, prohibiting the supply of diesel with more than 50 parts per million (ppm) of sulfur content in the cities of Lima and Callao. The Government adopted an investment plan for the modernization of PETROPERU's refinery in Talara to reduce the sulfur content of diesel fuel produced by the refinery.
- The Government promoted vehicle fuel conversion from gasoline to natural gas, regulated the establishment of stations supplying natural gas, and allocated US\$68 million in its 2010 budget to provide incentives to support vehicle conversions to natural gas (owners were to be given the equivalent of the market price of their older diesel vehicle to be applied toward the purchase of a natural gas vehicle).
- The Government implemented a vehicle inspection and maintenance system in the Lima Metropolitan Region and in three additional cities.
- With the completion of the foregoing actions, fuel quality was substantially improved with the Government adopting other measures to achieve the objective: (a) the sale of diesel with more than 50 ppm sulfur content was banned in the Lima, Arequipa, Cusco, Madre de Dios, and Puno regions in 2013; (b) all gas stations in the Junin, Moquegua, and Tacna regions were required to supply clean diesel; (c) equipment for gas stations that supply natural gas and conversion kits for vehicles were allowed to be imported freely; (d) vehicles under 1,500 cubic meters were exempted from import taxes; and, (e) the import of vehicles converted to natural gas were exempted from the selective consumption tax.
- Vehicle fuel performance was also substantially improved. The OSINERGMIN raised awareness about natural gas vehicles. The Ministry of Transport and Communication (MTC) authorized the opening of 151 vehicle fuel conversion shops in Lima and Callao. The Development Finance Corporation channeled US\$100.0 million to lines of credit financing the conversion of vehicles to natural gas.
- In sum, the ENVDPDPL exceeded the targets for all three PDO indicators for this policy sub-area. First, some 236 service stations offered natural gas in Lima and approximately 210,000 vehicles were converted to natural gas. The target was to have 90 services stations offer natural gas in Lima and have 80,000 vehicles convert to natural gas. Second, all 2,096 gas stations in Lima, Callao, Arequipa, Cusco, Made de Dios and Puno supplied diesel with less than 50 ppm sulfur content. The target was to have 750 gas stations in the main cities supply diesel with less than 50 ppm sulfur content. Third, 20 vehicle inspection and maintenance systems were operating in Lima and Callao, seven in Arequipa, and four in La Libertad. More than 1,000,000 vehicles were inspected in Lima and Callao, 47,688 in Arequipa, and 29,263 in La Libertad. The target was to have one vehicle inspection and maintenance system operating in Lima and in the three largest cities and have 600,000 vehicles inspected in Lima and 80,000 in the three largest cities.

Overall, the degree of achievement of the second objective is assessed as Substantial, with the environmental and social governance in the mining sector substantially strengthened and the capacity to remediate MELs substantially improved, with the over-capacity in the *anchoveta* fishing fleet substantially reduced and the social impacts of the fleet reduction partially mitigated, and with fuel quality and vehicle performance in the energy and urban transport sector substantially improved.



Rating  
Substantial

## 5. Outcome

The outcome for ENVDPDPL is rated as Satisfactory.

The relevance of program objectives is rated as High. The PDO is relevant to the Government's current "growth with social inclusion plan" and is aligned with the Bank Group CPS for Peru for 2012-16.

The relevance of program design is rated as Substantial. The policy areas were consistent with the PDO. The causal chain in the Results Framework was convincing, although some PDO-level outcome indicators were imprecise or had over-ambitious targets. The choice of the DPL as the financing instrument was justified.

The efficacy of the first objective of the program is rated as Substantial. The legal and institutional framework for environmental management was substantially strengthened. The legal and institutional framework for biodiversity conservation and for NPA management was substantially strengthened. The framework for setting ECAs and MPLs for emissions was partially strengthened. The efficacy of the second objective of the program is rated as Substantial. The environmental and social governance in the mining sector was substantially strengthened and the capacity to remediate MELs was substantially improved. The over-capacity in the *anchoveta* fishing fleet was substantially reduced and the social impacts of the fleet reduction was partially mitigated. Fuel quality and vehicle performance in the energy and urban transport sector were substantially improved.

### a. Outcome Rating Satisfactory

## 6. Rationale for Risk to Development Outcome Rating

The risks to the sustainability of the development outcome of the ENVDPDPL are assessed as Negligible

Political Risk: The installation of a new government in 2016 highlighted the political risk that the country's environmental agenda and the newly organized MINAM might not be accorded the same level of political support that they had been given under the past administration. Consultations with the new government, however, indicate that political support for the environmental institutional and policy reforms remains solid.



According to the ICR (page 29), the new government is committed to further enhancing the legal and institutional framework for environmental management in the country, as well as advancing new reforms to further promote the environmental sustainability of the mining and fishing industries.

Macroeconomic Risk: Peru is exposed to downside risks in the global economy, in particular to risks arising from the persistent weakness in metal prices, which, while recovering slightly from January 2016 to February 2017, remain 40 percent off their peak in January 2011. Weak international metal prices may hurt the country's exports, investment, and fiscal revenues, and may well derail efforts advanced by the ENVDPL to clean up the environmental legacies from the country's past mining and smelting operations. However, according to the IMF (Article IV, 2016), Peru has navigated the global commodity cycle well and is positioned to grow faster in 2017 as mining production reaches full capacity and large infrastructure projects advance. Moreover, the fundamentals are sound --- "the foundation for the economy is solid, good institutional frameworks are in place, and structural reforms are in train" --- and policy is supportive of growth --- "expansionary policy in 2015 eased commodity price shocks" and "monetary and exchange rate policies are attentive to changing conditions".

Institutional Risk: Given that MINAM is a new agency, the risk arises that the organization might not have the capacity to undertake the numerous tasks mandated by new laws and regulations enacted by the Government. If the record of the ENVDPL is any guide, however, it would show that MINAM performed creditably in: formulating the rules and the guidelines for the review of EIAs; conducting the review of 242 EIAs approved between 2001 and 2011; recommending the creation of SENACE as a one-stop shop for environmental certification; updating the Action Plan for SINANPE; formulating the Sustainable Financial Strategy for SINANPE for 2009-19; and, recommending mechanisms for the management and financing of NPAs by the private sector. It also helped that senior officials of the MINAM were the principal authors of the Peru CEA of 2007 which underpins the country's and the ENVDPL's environmental policy reform program.

Budgetary Risk: Budgetary allocations to support reform measures are subject to change by MEF in the long-run. This risk appears to have been partly mitigated by improvements in the system of financing the MINAM and the Government's environmental protection programs, including by mobilizing private resources: public expenditures for the environment tripled from 2008 to 2012; private financing has been mobilized for the conservation of NPAs; the PROFONANPE was organized to help fund the national system of NPAs; the burden for remediating mining MELs has been shifted to private industry; the FONCOPES was established to support the retirement of fisheries workers, with levies and contributions from private industry; and the Development Finance Corporation funded credit lines to finance the conversion of vehicles to natural gas. □□□□

Political Economy Risks: Political economy risks arise from the nature of the reform efforts pursued in the three target sectors --- in mining, with the remediation of MELs; in fisheries, with the imposition of vessel quotas to address overcapacity in *anchoveta* fishing; and, in urban transport, with the drive to reduce sulfur in diesel fuel. These risks were mitigated, however, with the thoughtful and graduated manner in which the reforms have been implemented. In mining, the Government took a gradual approach to mining liabilities and, more crucially, allocated resources to MEL remediation. In fisheries, PRODUCE examined ways to improve the effectiveness of the benefits program for the re-employment elsewhere of displaced *anchoveta* fishermen. In urban transport, the Government is undertaking a new CEA assessment to help review of air pollution drivers and solutions.



## **a. Risk to Development Outcome Rating**

Negligible

## **7. Assessment of Bank Performance**

### **a. Quality-at-Entry**

The institutional and policy reforms advocated by the ENVDPDPL were well informed by: extensive Bank knowledge of Peru's economic, social and environmental challenges and priorities; lessons learned from similar Bank operations in the Latin America region; and, the recommendations of the 2009 Development Policy Lending Retrospective. The Bank's preparatory work produced a set of meaningful prior actions that advanced the environmental institutional and policy reform agenda in Peru.

The Bank worked closely with public agencies --- MINAM, MEM, PRODUCE, and MEF --- to design the measures needed to mainstream sustainable development principles in the three economic sectors covered by the programmatic DPL. The consultations, led by the Bank and, on the Government side, by the MEF, engaged many government agencies and other international donors to ensure the consistency of the ENVDPDPL reforms with the national development agenda and their compatibility with other donor-funded initiatives in the country.

The Bank also worked closely with private sector stakeholders to draw their inputs into the reform program. Consultations with stakeholders in the mining industry --- private industry, non-governmental organizations, indigenous communities, national agencies, regional authorities, and development institutions --- produced the 2005 report "Environmental and Social Dimensions of the Mining Sector in Peru". A similar open participatory process produced the "Country Environmental Analysis", the final recommendations of which were disseminated in a workshop in Lima in 2007. The reports led to the construction of a policy matrix, with the policy reform agenda constituting the "prior actions" of the ENVDPDPL series.

The Bank actively supported analytical work to support the implementation of the reform measures. Studies were conducted on nine topics: (a) the biodiversity effects of Peru's environmental regulations; (b) environmental reforms in mining; (c) air quality in Peru; (d) the identification of MELs and their prioritization for remediation; (e) the design and implementation of reforms in fisheries, for the 2006-12 period; (f) environmental management reforms, in the period 1990-2013; (g) the reform of the EIA system; and (h) policies to enhance the resolution of socio-environmental conflicts in mining.

### **Quality-at-Entry Rating**

Satisfactory

### **b. Quality of supervision**

The Bank carefully assessed the conformity of the Government with the legal covenants of the loan agreement, the quality of the institutional arrangements made to implement the program actions, and the degree of commitment to the reform plan to judge the fulfillment of the ENVDPDPL program conditions.

Periodic missions staged by the Bank during program implementation (15 over six years, or 2.5 per year)





placed a strong emphasis on providing quality technical assistance to the Government and helping the Government progressively meet the ENVDPDPL outcome indicator targets. Qualified institutional development, mining industry, fishing industry, air quality environmental management, energy sector, and urban development specialists conducted numerous meetings with their Government and industry counterparts.

The Bank reported its supervision mission findings and conclusions in 15 Implementation Status and Results Reports (ISRs) and numerous Aide Memoires. The supervision reports focused not simply on the degree of achievement of the program outcome indicators but also on the efficiency of the program operations. The Bank closely monitored the implementation of the reform program, and adjusted the outcome indicators and other design aspects of the reform program throughout program implementation.

According to the ICR (page 30), the Bank remained sensitive to developments in the country during program implementation, paying particular attention to the evolution of stakeholder support to the reform agenda and maintaining an active dialogue with the Government on challenges to the reform program.

Moreover, the Bank used the findings of its implementation support and supervision missions to help inform the preparation of additional reforms for a future investment project or a future DPL. The continuous dialogue with the Government, maintained by the Bank during program supervision, was to enhance the sustainability of the ENVDPDPL reforms in the immediate to medium term.

**Quality of Supervision Rating**  
Satisfactory

**Overall Bank Performance Rating**  
Satisfactory

## **8. Assessment of Borrower Performance**

### **a. Government Performance**

The strong ownership of, and solid commitment to, the programmatic operation consistently demonstrated by the Government during both program preparation and implementation was critical to achieving the goals of the ENVDPDPL. The actions supported by the ENVDPDPL were part of the Government's own agenda: enhancing the country's environmental management capacity was considered vital to strengthening the country's competitiveness and achieving its economic growth objectives.

The Government actively engaged stakeholders in the mining, fisheries, energy and urban transport industries and advocates of sustainable development to build consensus on environmental institutional and policy reforms. The consultation process was comprehensive and inclusive.

The country's strong macroeconomic position offered an enabling environment for the reform program. Additionally, the Government promoted inter-sectoral coordination among public agencies, strengthened the organizational capacity of participating agencies, and guaranteed financial resources to the reform program to enhance its efficacy.





## Government Performance Rating

Satisfactory

### b. Implementing Agency Performance

MEF acted as the implementing agency of the three operations. Generally, MEF performed its functions effectively and competently.

MEF and the participating agencies to the program --- PRODUCE, MEM, and the newly organized MINAM --- actively participated in the analytical work of the program, the design of policy reforms, and the conduct of stakeholder consultations.

MEF and the participating agencies closely collaborated with each other to advance the ENVDPDPL reform agenda. Specifically, PRODUCE closely monitored the results of FONCOPES' operations. MINAM encouraged cooperation between DIGESA and SENAMHI to achieve a harmonized air quality monitoring system. MEF regularly supplied the Bank with pertinent information to track the progress of the reform program, to help identify potential constraints to program implementation, and, to help determine solutions to pressing obstacles.

## Implementing Agency Performance Rating

Satisfactory

## Overall Borrower Performance Rating

Satisfactory

## 9. M&E Design, Implementation, & Utilization

### a. M&E Design

ENVDPDPL1 defined eleven outcome indicators, some of which were adjusted in ENVDPDPL2 and ENVDPDPL3. The outcome indicator "MINAM reviews the EIAs of *at least* ten large infrastructure and investment projects with potentially significant impacts per year" was restated to "MINAM *has the capacity to review* the EIAs *selecting at least* ten large infrastructure and investment projects year *based on technical and legal criteria*". The target for the outcome indicator "the vehicle inspection and maintenance system have *at least 20 lanes* with at least 600,000 vehicles inspected in Lima and *at least three lanes* with at least 80,000 vehicles inspected in each of the three largest cities" was revised to remove the references to number of inspection lanes. The indicator became "the vehicle inspection system has at least 600,000 vehicles inspected in Lima and at least 80,000 vehicles each in the three largest cities". The target for the outcome indicator "at least 5,000 workers benefit from economic incentives from leaving the fishing sector" was reduced to "at least 3,000 workers ...".

The ICR considers the eleven outcome indicators to have been adequate to measure achievement of the PDO,



but argues (page 10) that at least three indicators could have been more reasonably defined. For the outcome indicator "the SERNANP applies a financial strategy to increase funding for managing NPAs from various sources including the private sector", the target to "increase NPA funding by at least US\$2.0 million per year" would have only been appropriate for the early years of the program when funding increases grew rapidly. The better target would have been "the funding level in the final year". The indicator "air quality data for the Lima-Callao Metropolitan Region is widely published and disseminated in real time through a harmonized and integrated monitoring network" was less relevant once the approval of the harmonization protocol was dropped from the policy matrix in ENVDPL3. For the outcome indicator "the number of workers that benefit from economic benefits for leaving the sector", the target revised target of 3,000 workers appeared to have remained ambitious considering that *anchoveta* fleet workers who received compensation kept their fishing permits and joined a fleet rotation system, instead of leaving fishing altogether.

The M&E design for the reform program was satisfactory in other aspects. The M&E plan provided for effective ways of data collection using existing information systems: air quality monitoring by DIGESA and SENAMHI; regular supervision of participatory environmental monitoring activities by OEFA; and follow-up monitoring of workers leaving the *anchoveta* fleet by FONCOPES. Each participating agency was responsible for M&E. At the top level, MEF, in close coordination with MINAM, was responsible overall for tracking the progress of the participating agencies.

## b. M&E Implementation

The MEF and all participating agencies effectively monitored the execution of actions set in the policy matrix, collecting data from various units within their organization.

The Government monitored the program activities, focusing on whether the participating agencies carried out the policy reforms and conformed to the terms of the loan agreements.

The Bank supervised the M&E activities of the MEF and the participating agencies and maintained an active policy dialogue with the Government. The Bank supported the monitoring of ENVDPL reforms and measures with a technical assistance grant to the Government under the Strengthening Environmental and Natural Resource Institutions Project, co-financed by the Spanish Trust Fund for Latin America and the Caribbean.

## c. M&E Utilization

As implementation progressed from ENVDPL1 to ENVDPL3, data gathered from the M&E informed and motivated the Government to adjust the reform program. Based on the findings of the EIA reviews conducted by the MINAM, the Government further reformed the institutional framework for the EIA System, creating the SENACE to serve as the one-stop shop for environmental certification. The creation of the SENACE had not been part of the original ENVDPL policy matrix. The Government used data gathered from the M&E of the mining sector reforms to allocate resources for remediating MEL sites. The Government used data gathered from the M&E of the air quality management to regulate the sulfur content of diesel fuel sold by gas stations. The M&E data also helped the Government plan additional measures to improve air quality monitoring by DIGESA and SENAMHI.



## M&E Quality Rating

Substantial

### 10. Other Issues

#### a. Environmental and Social Effects

Poverty: Environmental degradation disproportionately affects the poor in Peru. In the Lima-Callao Metropolitan Region, the negative health effects of urban air pollution are 75 percent higher for the poor than for the non-poor, and that of inadequate water supply, sanitation, and hygiene are 300 percent higher for the poor than for the non-poor. By supporting improvements to ECAs, the ENVDPL could be expected to reduce morbidity and mortality from diarrheal diseases, acute respiratory illnesses, and other health risks that disproportionately affect the poor and reduce the economic burden of health costs.

Social Development: Reforms measures advanced by the ENVDPL are expected to have yielded positive social development benefits. Participatory environmental monitoring schemes drew indigenous communities into environmental management. Social protection was provided to workers affected by the *anchoveta* fleet reduction with the creation of the FONCOPES and its funding from collections from private industry.

#### b. Fiduciary Compliance

Procurement: The DPL proceeds were provided as general budget support to the Government and not earmarked for any agency or purpose. Hence, no special procurement requirements were issued (other than that the Peruvian Sol equivalent of the proceeds transferred to Government's budget management system not be applied to finance expenditures in a negative list). No procurement issues arose either.

Financial Management: The ICR does not mention any financial management issue with the withdrawal of the loan proceeds, the deposit of the loan amounts in the Government's budget management system, or the use of the loan proceeds. The ICR does not mention any financial audit being conducted either.

#### c. Unintended impacts (Positive or Negative)

The ENVDPL helped create the SENACE as a one-stop shop for environmental certification.

#### d. Other

No other issues were raised by the ICR.



## 11. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Satisfactory	Satisfactory	---
Risk to Development Outcome	Negligible	Negligible	---
Bank Performance	Satisfactory	Satisfactory	---
Borrower Performance	Satisfactory	Satisfactory	---
Quality of ICR		High	---

### Note

When insufficient information is provided by the Bank for IEG to arrive at a clear rating, IEG will downgrade the relevant ratings as warranted beginning July 1, 2006.

The "Reason for Disagreement/Comments" column could cross-reference other sections of the ICR Review, as appropriate.

## 12. Lessons

Five lessons are drawn from the ICR (pages 32-36), with some adaptation.

One, strengthening environmental governance by public institutions and mainstreaming environmental sustainability in private industry are long-term processes and need considerable time to implement. The ENVDPD benefitted from the decision to structure the ENVDPD1 as a deferred drawdown operation (DDO), which kept ENVDPD1 active for five years, well beyond the original one-year life of the operation. The longer time period accorded the Bank the opportunity to systematically help strengthen the institutional capacity of the Government, enabling public agencies to meet the "prior actions" of the reform program.

Two, building a reform program requires extensive analytical work, including not just of the technical and the institutional but also the political economy dimensions of the reform effort. Peru's Country Environmental Analysis (CEA) of 2007 served as the organizing analytical document underpinning the environmental management reform plan advanced by the ENVDPD. The CEA thoughtfully examined the shortcomings of the national environmental management system in the country, and identified priorities that were consistent with the country's development agenda and could be linked to poverty reduction.

Three, government ownership is essential to the effective implementation of policy reforms. Political commitment was secured across the spectrum of agencies responsible for environmental management in the country, and at key levels of the organization in these public agencies. The top-line agencies responsible for implementing the reforms measures --- MEF, the newly created MINAM, PRODUCE, MEM, and MTC --- were individually and collectively committed to the reform agenda.

Four, framing poor air quality as detrimental to poverty reduction helps catalyze action to address the air



pollution problem. The negative effects of air pollution were demonstrated to be significantly higher on the poor and on the vulnerable in Peru --- women, the elderly, and children. Poor air quality stunted productivity and educational performance, constraining the opportunities of the poor and the vulnerable for economic advancement. By highlighting these findings, the Government succeeded in raising an awareness of the air pollution problem and in mobilizing a broad base of stakeholders for the ENVDPL to address the problem.

Five, measures to address MELs need to be constantly evaluated. The Government completed all the measures designed to completely identify MELs and to commit resources to remediate the high-risk sites. Yet, mining-related social conflict has not decreased in Peru, where at least a fourth of the social conflicts in 2008-14 were mining-related. The 2016 study "Peru: Policy Options to Enhance Environmental Sustainability in the Mining Sector" identified five issues: the fear of pollution; competition over land and water resources; cultural and social issues that are not adequately addressed, leading many communities to oppose mining activities; the asymmetry of power relations between industry and the communities; and, the lack of confidence among communities that the Government can adequately protect the environment.

### 13. Assessment Recommended?

No

### 14. Comments on Quality of ICR

One, the ICR is well written following OPCS guidelines, comprehensive in its presentation of the policy matrices, and concise in its accounting of the program results. The historical context and the economic justification for the choice of the policy areas is well documented (pages 3-6). Progress with the prior actions to ENVDPL1 and the triggers for ENVDPL2 and ENVDPL3 are neatly summarized in a simple table (pages 7-9). The results of the PDO indicators are succinctly summarized in a four-column table (pages 51-53). More importantly, the degree of achievement of the PDO is thoroughly discussed and extensively analyzed for each of the ENVDPL policy areas and sub-areas (pages 14-27).

Two, the assessment of the program objective is evidence-based, results-oriented, and candid. The evaluation focuses on the expected end-program outcomes, as evidenced by data on the outcome indicators. Beyond the indicators, the ICR engages in a full discussion of the results realized from fulfilling the prior actions, the progress made overall with the policy areas, and the outcomes achieved relative to PDO. The discussion is robust and, more importantly, candid: the ICR considers the quality of the outcomes, and assesses the extent to which the stated objectives are achieved. The analysis highlights the actions taken by the Government to deepen the reforms that were beyond those originally stipulated in the policy matrix. These actions are offered as evidence of the degree of commitment of the Government and of other stakeholders to the reform effort.

#### a. Quality of ICR Rating



High