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Promoting Environmental Sustainability in Peru: A Review of the World Bank Group's Experience (2003—2009)

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Andres Liebenthal and Diana Salvemini



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Abbreviations

AAA	Analytical and advisory activities
CAO	Compliance Advisor/Ombudsman
CAS	Country Assistance Strategy
CEA	Country Environmental Analysis
CONAM	Consejo Nacional del Ambiente – National Environmental Council
DIGASA	Dirección General de Asuntos Ambientales, Ministerio de Energía y Minas – Directorate General of Environmental Affairs, Ministry of Energy and Mines
DIGESA	Dirección General de Salud Ambiental, Ministerio de Salud - Directorate General of Environmental Health, Ministry of Health
DPL	Development Policy Loan
EMSC	Environmental Monitoring and Supervision Committee
ESE	Environmental and social effects
EU	European Union
GEF	Global Environment Facility
GPAN	Participatory Management of Protected Areas Project - Proyecto Gestión Participativa de Áreas Naturales Protegidas
ICR	Implementation Completion Report
IEG	Independent Evaluation Group (World Bank Group)
IFC	International Finance Corporation
INRENA	Instituto de Recursos Naturales – Institute of Natural Resources
ISR	Implementation Status Report
LMPs	Limites maximos permisibles – Maximum permissible limits
LNG	Liquefied natural gas
MIGA	Multilateral Investment Guarantee Agency
MINAM	Ministerio del Ambiente – Ministry of the Environment
PIMA	Indigenous Management of Protected Areas in the Amazon Project – Proyecto Manejo de las Areas Protegidas en la Amazonia Peruana por las Comunidades Nativas
USAID	United States Agency for International Development
WBG	World Bank Group

Preface

This review of the World Bank Group's experience with promoting environmental sustainability in Peru is based on the findings of an Independent Evaluation Group (IEG) team that visited Peru in August-September 2009 as part of the mission that prepared *Peru—Country Program Evaluation for the World Bank Group 2003–2009*. The environmental team's report is being issued as an IEG Working Paper to enable its sharing with a wider audience, as an interesting illustration of the application of IEG's sectoral evaluation methodology in a dynamic country context.

In a pilot approach, this review was prepared by a single IEG team that looked at development interventions across two institutions of the World Bank Group: the World Bank and the International Finance Corporation (IFC). The review draws on World Bank Group documents, external literature, and on interviews with government officials, representatives of the private sector and civil society, non-governmental organizations, and Bank, and IFC staff in Washington and Peru. The review greatly benefitted from an Environmental Roundtable discussion held on August 27, 2009 in Lima with leaders of major environmental nongovernmental organizations in Peru. The mission also cooperated with the Evaluation Office of the Global Environment Facility that was conducting a parallel evaluation in Peru.

This report was prepared under the supervision of Asita De Silva (Mission Leader) and Ethel Tarazona (Lead Advisor) by a team consisting of Andres Liebenthal and Diana Salvemini (consultants), with additional input provided by Marina Cracco (consultant, Global Environment Facility). Peer reviewers for the report were Muthukumara Mani and Richard Worden. The report was prepared under the direction of Ali Khadr (Senior Manager, IEGCC) and Stoyan Tenev (Head, Macro Evaluation, IEGPE).

Summary

Environmental challenges and government response

Peru's major environmental challenges arise from air and water pollution, unsustainable management of natural resources, and vulnerability to natural disasters. A 2005 Bank study, estimated the cost of environmental degradation in Peru at 3.9 percent of gross development product in 2003, of which 74 percent was due to the health impacts of *air and water pollution*. High levels of air and water pollution caused by poorly regulated large industrial and mining activities, rapid urbanization, inadequate sanitation infrastructure, and use of solid fuels for cooking and heating, among other factors, were adversely affecting the health of the population. Peru also faced major *natural resource management* challenges including overfishing, deforestation, and degradation of soil and water bodies due to advancement of the agricultural frontier, logging, and mining activities; and poorly managed water resources in coastal and *sierra* regions where water is scarce. Peru also has a high incidence of *natural disasters*, including earthquakes; El Niño; flash floods; and accelerated glacier retreat, linked to climate change.

Between 2003 and 2009, while the government took important steps to address environmental challenges, major weaknesses remain. Key measures included the National Environmental Management System Law in 2004; the General Law of the Environment in 2005; the phase-out of leaded gasoline; and the development of a National Environmental Agenda. In May 2008, the government created the Ministry of Environment (MINAM), which was a major step toward addressing the fragmented institutional framework and reflected rising government commitment to environmental issues. A further important step was the establishment of a centralized repository for environmental indicators within MINAM to help guide policy analysis and priority setting.

Notwithstanding reforms to date, Peru's environmental situation has barely changed since 2003. Some progress was seen in solid waste management in Lima, where the share of solid waste being appropriately disposed in sanitary landfills rose from 40 percent in 2002 to 85 percent in 2007. However, other environmental indicators do not show substantial improvements or have deteriorated since 2003. The incidence of acute respiratory disease and diarrhea, two of the most important environmental impacts, both increased (by 21 and 6 percent, respectively). Air pollution in Lima has remained high, at over five times permissible levels and water service coverage has not improved. Environmental issues arising out of the extractive industries sector remain unresolved as indirectly illustrated by a sharp increase in social conflicts arising out of environmental issues, from 14 in 2005 to 132 in 2009.

World Bank Group activities

Supporting the environmental sustainability of growth was a key area of emphasis for the World Bank Group (WBG). The WBG's activities during the period included 65 lending projects that contained either proactive environmental management components or significant environmental safeguard conditions. Five major Analytical and Advisory Activities (AAA) studies, including a 2007 Country Environmental Analysis (CEA),

recommended improvements in several areas including clarification of institutional responsibilities, capacity building in key agencies, the importance of stakeholder engagement, the need for a strong water rights system, and the need for restructuring and strengthening of environmental assessment practices in the mining sector.

Along with broad policy advice, a range of specific WBG activities supported improved environmental management:

1. To help reduce *air and water pollution* Bank projects included investments in mass transit and improved water supply and sanitation in Lima; three carbon offset projects, and measures in the FY09 Environmental Development Policy Lending (DPL) to strengthen the framework for air and water quality standards and permissible emission levels;
2. To promote *sustainable natural resources management*, activities included International Finance Corporation (IFC) social and environmental safeguards in EI projects as well as proactive advisory services; conditions in the Environmental DPL for the adoption of fishing quotas (along with social protection measures for displaced fishing fleet workers); and promotion of improved irrigation technologies (for example, sprinkler and drip irrigation) in IFC agribusiness projects and Bank agriculture and irrigation projects in order to improve water use efficiency;
3. To help *conserve biodiversity*, the WBG supported implementation of 5 biodiversity protection projects, mainly funded through Global Environment Facility (GEF) grants;
4. To help *reduce vulnerability to natural disasters*, the Bank, among other donors, has promoted a more proactive preventive approach, although there has been no direct lending or interventions in this area to date; and
5. Finally, the WBG also supported environmental sustainability through the implementation of its *social and environmental safeguards and performance standards* in all of its investments in infrastructure and the productive sectors.

Outcome of WBG support

The WBG played an important role in supporting specific actions to improve environmental management and raising public awareness. The contribution of the WBG increased through the publication of the unusually detailed and well-researched CEA and policy notes and the preparation of the Environmental DPL. The Bank's analyses and recommendations were used for the preparation of the important legislation that was passed; the creation of MINAM; and ongoing efforts to prepare future regulations, guidelines and institutional reforms.

The WBG's environmental and social safeguards and performance standards also had important demonstration effects, with World Bank Group' safeguards regarded as best practice by other donors. IFC played an important role in assisting some large private sector clients in critical sectors, such as mining and agribusiness, comply with international social and environmental standards. Through its environmental safeguard policies, the WBG also opened up entry points for civil society and community engagement in project-related Environment and Social-related decision making.

Results of specific Bank activities addressing environmental challenges have varied. In *reducing air and water pollution*, the Lima Transport Project is on track to achieve its objective of reducing air pollution in Lima's main transport corridor by 20–25 percent; and the Lima Water Rehabilitation Project has mostly achieved its target of providing water and sanitation services to 130,000 poor households in Lima. On the other hand, the renewable energy component of the rural electrification project is not on track to achieve its objectives. The Rural Water Supply Project is supporting improved hygiene practices that are especially relevant for reducing the health risks from water pollution, but has completed only a quarter of its expected sewerage connections after seven years of implementation.

The WBG did not engage in any specific activities aimed at *natural disaster mitigation*, but has maintained an open dialogue with the government and a project is under preparation. In *natural resource management*, Bank irrigation and rural development projects helped improved irrigation and agricultural practices, as well as soil conservation and reforestation at the micro-catchment level. In the fisheries sector, the recent Environmental DPL supported long overdue policies to regulate and enforce fishing quotas.

With some gaps, the WBG's performance standards have been effective in helping realize sound environmental social project implementation practices. According to the most recent Implementation Status and Results Reports and Implementation Completion Reports, compliance with applicable safeguards has been satisfactory for all Bank projects.

IFC projects in the EI sector have also been compliant with IFC's performance standards. The Independent Evaluation Group's (IEG) evaluations of two highly prominent and visible category A projects found that environmental and social performance was satisfactory, and that IFC had made an important contribution in supporting the development of constructive relationships between its clients and their neighboring communities. These projects were also serving as models to help establish national standards and address social conflicts.

Less success was seen in agribusiness, where ESE ratings indicate that only three out of the nine projects received satisfactory ratings, with most having performance issues related to incomplete monitoring and reporting by clients. Nevertheless, the Performance Standards framework has guided IFC's support for more efficient water resource management in the sector, with clearly positive contributions.

WBG engagement in biodiversity protection helped pilot effective participatory approaches to balancing conservation with development. The WBG's support for biodiversity conservation through GEF projects helped foster an approach involving participation of local stakeholders in the management of protected areas, combined with the development of alternative livelihoods. The Project for Indigenous Management of Protected Areas in the Peruvian Amazon (PIMA), for example, brought together 120,000 indigenous and local people in five protected areas to discuss and develop co-management schemes. Similar models were followed in the ongoing Participatory Management of Protected Areas Project (GPAN) and the three GEF medium sized projects in the Northwest Biosphere Reserve, Vilcabamba and Nanay River protected areas. Results to date have been positive.

However, WBG interventions were undermined by lack of a comprehensive approach and uneven government prioritization of the environmental agenda. While the need for improved environmental management had long been recognized in the Country Assistance Strategies and analytical and advisory activities (AAA), the WBG did not support comprehensive policy and institutional reform until the 2009 DPL. None of the Bank's other policy loans over the period contained measures supporting environmental management reform. Instead, the WBG's efforts comprised a range of individual activities that addressed specific elements of the country's environmental problems. It is apparent that more comprehensive WBG support was precluded by lack of government prioritization of environmental management and limited WBG financial leverage.

WBG performance

As a major foreign donor, the WBG made a substantial contribution through its AAA sector work to the understanding of Peru's environmental issues and options, as well as through a well-timed DPL to support necessary policy and institutional reforms. IFC also played an important role in assisting major private investors in critical and social-conflict prone activities, such as mining and agribusiness, to become models of social and environmental responsibility. Through its safeguards policies, the WBG also opened up entry points for civil society and community engagement in project-related decision making, especially as it relates to the management of social and environmental impacts. On the other hand, the WBG also supported many projects that contributed little to the environmental agenda and there are still many gaps in meeting its own rigorous safeguards and performance standards.

Lessons

The WBG's recent experience with promoting environmental sustainability in Peru reinforced a few important lessons:

The Quality and Presentation of Economic Analyses are Important: The comprehensive and well documented estimates of the economic costs of environmental degradation presented in the Country Environmental Analysis made a strong impact.

Dissemination and Timeliness of AAA Increases its Impact: The publication of summaries of the Bank's policy notes and other AAA in the form of a readable book *An Opportunity for a Different Peru* -- greatly enhanced the dissemination and impact of the Bank's knowledge and messages.

Local Ownership and Continuity of Support are Key Factors for the Success of Alternative Livelihood Projects: The identification, development and implementation of alternative economic activities proposed by the community association (rather than external actors), greatly contributed to their ownership and commitment for the results.

Monitoring indicators are useless unless provisions are made to ensure the availability of the underlying statistics: When identifying monitoring indicators for the CAS, PADs and other documents care needs to be taken to ensure that the underlying statistics will be available for future monitoring and evaluation.

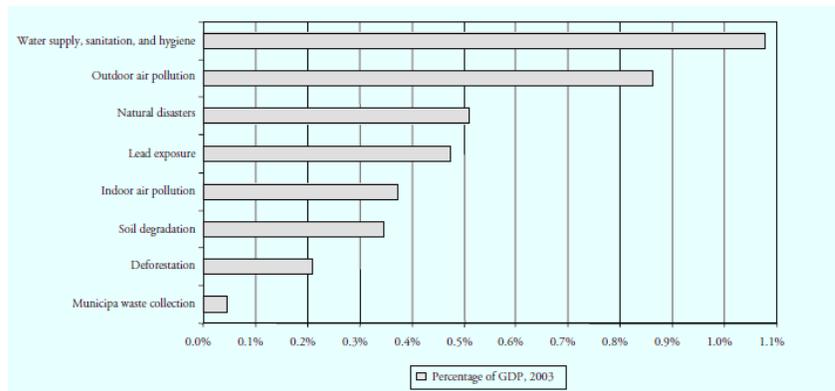
1. Environmental Challenges and Government Response

1.1 How well did the World Bank Group (WBG) assist Peru in addressing its major environmental challenges during the 2003–2009 period? The objective of this paper is to respond to this question. It begins with an overview of Peru’s environmental challenges and the government’s efforts to address them. Chapter 2 describes the WBG’s environmental activities and their outcomes. Chapter 3 assesses the WBG’s performance as a partner and finally, Chapter 4 derives some lessons from the experience.

Peru’s Environmental Challenges

1.2 Peru is faced with three main environmental challenges: air and water pollution, unsustainable management of natural resources, and vulnerability to natural disasters. The importance of these challenges is highlighted by the associated economic costs, which were estimated by the World Bank, and are higher than in other countries with similar income levels and disproportionately affects the poor. As shown in Figure 1, the cost of environmental degradation was estimated at about 3.9 percent of the country’s gross domestic product in 2003. About 74 percent of this cost was due to the health impacts of air and water pollution, 13 percent to natural resource degradation, and another 13 percent to natural disasters (World Bank 2007). These estimates are only the tip of the iceberg. They do not include environmental costs for which data are unavailable, such as the costs incurred by households and farmers who can no longer use polluted water supplies; the reduced environmental services from degraded ecosystems; and the loss of recreational and amenity values due to extensive pollution and degradation in most of Peru’s cities and landscapes.

Figure 1: Annual Cost of Environmental Damage

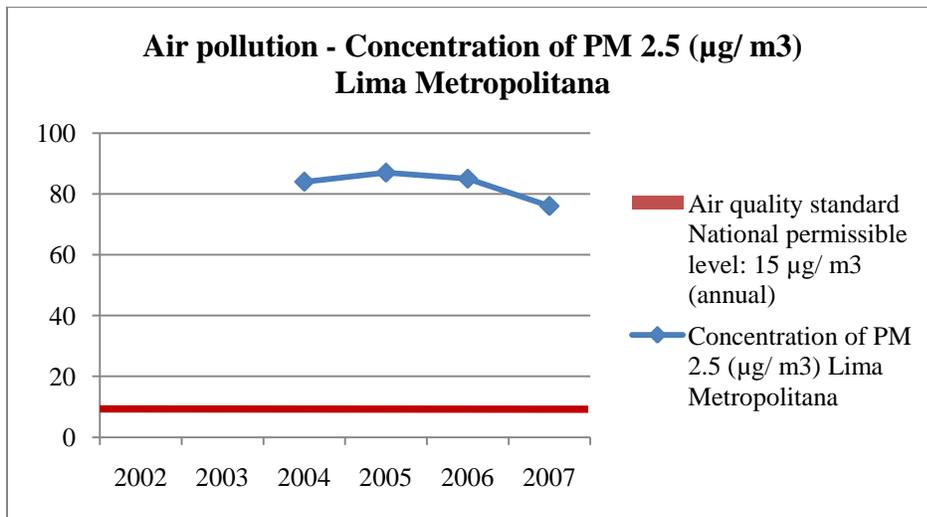


Source: World Bank (2007).

1.3 Environmental Pollution: The most important air pollutants are particulate matter and lead, mainly from transport and industrial activities. As shown in Figure 2, particulate matter concentrations in Lima are much higher than permissible levels, as well as other cities well

known for their pollution, such as Santiago, Mexico City and Sao Paulo (World Bank Group 2009). Over 70 percent of respondents in a 2004 survey in the Lima-Callao region identified air pollution as the most important environmental problem. But air pollution is not limited to urban areas. A recent study in La Oroya, a major mining and smelting center in the Central Andes, found that the majority of children had lead concentration levels in their blood four times higher than those allowed by the World Health Organization's standards. Also, indoor air pollution from the use of solid fuels for cooking and heating has been increasingly recognized as a key issue affecting women and children in poor rural areas.

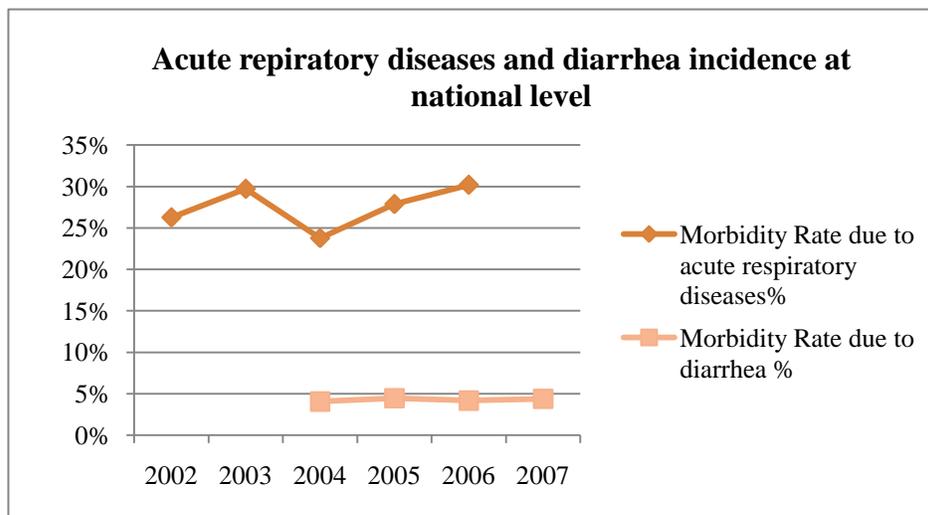
Figure 2: Air Pollution Concentration in Lima Metropolitan Area (2004–2007)



Source: DIGESA. Presentation on the “Avances del Programa de Vigilancia Sanitaria de la Calidad del Aire en el Perú AREA DE PREVENCIÓN Y CONTROL DE LA CONTAMINACIÓN ATMOSFÉRICA 14 de agosto del 2009” http://www.digesa.minsa.gob.pe/noticias/agosto2009/nota48/Presentacion_DIGESA.pdf.

1.4 Water pollution, combined with poor sanitation and hygiene, is the leading cause of various illnesses (hepatitis, cholera, intestinal worms and diarrhea), with poor households bearing the highest costs due to a combination of low income, low education levels, and lack of access to safe drinking water and sanitation. As a result, morbidity and mortality due to water borne diseases, as well as outdoor and indoor air pollution, have been gradually increasing, as shown in Figure 3, and affect the poor at a rate three times higher than the non poor (World Bank 2007).

Figure 3: Acute Respiratory Diseases and Diarrhea Incidence (2002–2007)



Source: SINIA, Report “Iniciativa Latinoamericana y Caribeña - Indicadores de Seguimiento - Perú. 2008”, <http://sinia.minam.gob.pe/public/docs/destacados/ILAC2008/pdf/completo.pdf>.

1.5 *Natural Resources Management:* Peru is richly endowed with natural resources, including minerals, oil and gas, fisheries and timber, and its economy is highly dependent on their extraction and export. The country, however, has a long history of mismanagement of its resources.¹ The fisheries, for example, are the richest in the world, and had been a major economic sector in the 1960s. They collapsed in the early 1970s due to overfishing, recovered in the 80s and 90s, but are now once again threatened by overfishing. Water resource management issues arise from the concentration of economic activities in arid coastal regions. These pressures are exacerbated by inefficient irrigation and the neglect of drainage, which has led to extensive soil salinization. The increasing water scarcity has most recently led the National Water Authority to declare a ban on any new water extraction projects in about half of Peru’s arid coastal areas.²

1.6 *Biodiversity Conservation:* In the Sierra and Amazon regions, the advancement of the agricultural frontier and poorly regulated extractive activities are leading to the rapid degradation of soils, forests and water bodies. Aside from health and other economic impacts, these developments are of major concern from the biodiversity conservation perspective, since Peru is one of the ten “mega-diverse” countries of the world, and several

¹ As witnessed by the boom and collapse cycles of the following commodities: guano (1850s–1870s), saltpeter (1860s–1870s), rubber (1890s–1910), and anchovies (1960s–1970s). See World Bank 2007.

² According to the Autoridad Nacional del Agua, about 70 current water use conflicts in coastal areas are hindering the implementation of investments valued at \$2,000 million.

globally significant hot spots (ecosystems with a high level of endemism and threats) have been identified (CONAM 2001).

1.7 *Natural Disasters Vulnerability:* The World Bank has identified Peru as one of 50 countries with the highest incidence of natural disasters (World Bank 2005). This can be explained by its geology and topography, combined with the periodic occurrence of phenomena such as El Niño, earthquakes and heavy winds, and exacerbated by manmade interventions such as soil erosion, deforestation, and poor land use practices. As a result, the country is becoming increasingly vulnerable to frequent and avoidable natural disasters with a significant negative impact on the economy.

1.8 *Environmental Governance:* Finally, the segmentation of institutional responsibilities has long been a major challenge. Prior to the creation of the Ministry of Environment (MINAM) in 2008, responsibility for environmental regulation and management of natural resources had been distributed among different ministries, such as the National Institute of Natural Resources (INRENA) in the Ministry of Agriculture, the General Directorate for Environmental Health (DIGESA) in the Ministry of Health, and the General Directorate for Environment and Social Issues (DIGASA) in the Ministry of Energy and Mines. These agencies were only weakly coordinated by the National Environmental Council (CONAM). Although this institutional arrangement was intended to foster the mainstreaming of environmental considerations in each economic sector, its overall effectiveness was hampered by conflicts of interest, since the ministries responsible for resource conservation and enforcing environmental regulations were also responsible for increasing production from the same natural resources.

1.9 The fragmentation of environmental management was aggravated by the very limited institutional capacity of the relevant agencies, as indicated by the low level of public spending in the sector, of only 0.1 percent of gross domestic product. This was a consequence of low public awareness of the issues, and lack of pressure for addressing them, with the result that environment had been a low priority for the government (World Bank 2007). Possibly as a result, environmental priorities have been mainly driven by donor agendas, with more attention and donor projects focused on global concerns, such as biodiversity conservation and climate change, than on other country needs.

Government Response

1.10 Over the 2003–2009 period the government responded to the environmental challenges with several major steps. The most important were the National Environmental Management System Law in 2004 and the General Law of the Environment, the phase-out of leaded gasoline, and the National Environmental Agenda, all in 2005. In May 2008, these efforts were followed-up with the creation of MINAM. A key driver behind these measures was, first of all, a growing public awareness of the need for stronger environmental management, fostered by extensive media coverage of the increasing frequency and strength of El Niño events and the health damages from mining. The growing public demand was assisted by international pressures through the negotiations for a Free Trade Agreement with the United States and the EU-Latin America Summit held in Lima, Peru also in May 2008.

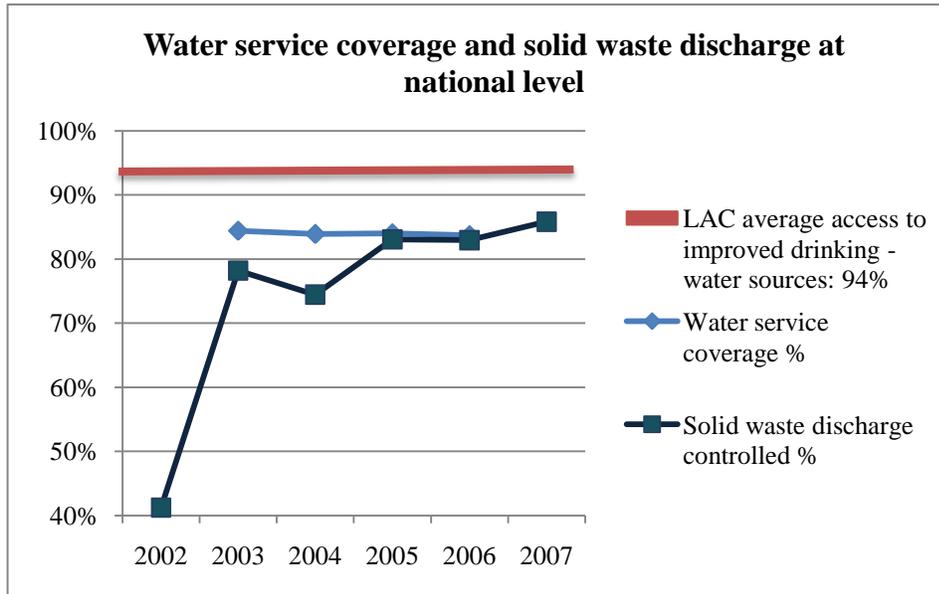
1.11 While these actions were steps in the right direction, much remains to be done. Government understanding of environmental problems and their costs are still weak, as is public awareness. Environmental pollution and natural resource mismanagement have a long history and continue unabated (World Bank Group 2007). The current framework for addressing natural disasters is reactive rather than preventive. In terms of institutional strengthening, key issues remain to be addressed -- foremost, the clarification and reallocation of environmental management responsibilities between MINAM and other environmental agencies, its limited resources, and its weak capacity.

1.12 Given that institutional fragmentation was the most important constraint, MINAM's creation stands out as a major achievement. Ensuring a seat at the Cabinet reflects the government's strong commitment to take environmental considerations into account at the highest level. However, MINAM is only responsible for setting environmental policies, strategies and standards, while responsibility for environmental management remains in the hands of sector ministries, with the attendant conflicts of interest. Moreover, the role for the newly created autonomous Office of Environmental Evaluation and Enforcement versus other ministries' enforcement arms, is yet to be defined.

1.13 One useful step has been the establishment, within MINAM, of a national environmental information system (SINIA) as a centralized repository for all environmental indicators that had been scattered in various agency sources. This has made it easier to review trends at national level as a guide to policy analysis and priority setting.

1.14 Based on available indicators, however, Peru's environmental situation has not improved over the 2003–2009 period. As shown on Figure 3, the incidence of acute respiratory disease and diarrhea, the two most important environmental impacts, have both worsened, by about 21 and 6 percent, respectively. These unsatisfactory trends relate to the fact that air pollution has remained high—at over five times permissible levels—at least in Lima, and water service coverage has not improved, as shown in Figure 4. In an indirect way, the level of dissatisfaction is suggested by the growing rate of conflicts arising out of environmental issues, which has rapidly risen from only 14 in 2005 to 132 in 2009 (Jan–Oct), as shown in Figure 5. The only significant improvement relates to solid waste management in Lima, where the share of solid waste being appropriately disposed in sanitary landfills has grown from 40 percent in 2002 to 85 percent in 2007, as shown in Figure 4. Overall, however, based on the few outcome indicators for which a time series is available, environmental conditions in Peru have not improved, and their health impact has gotten worse.

Figure 4: Water Service Coverage and Solid Waste Discharge (2002–2007)



Sources: SINIA's social indicators and World Health Report 2009.

Residuos sólidos generados en los distritos de la provincia de Lima, 2000-2008.

<http://sinia.minam.gob.pe/index.php?idEstadistica=178>.

Residuos sólidos no controlados en los rellenos sanitarios, según distrito de la provincia de Lima, 1999-2008.

<http://sinia.minam.gob.pe/index.php?idEstadistica=182>.

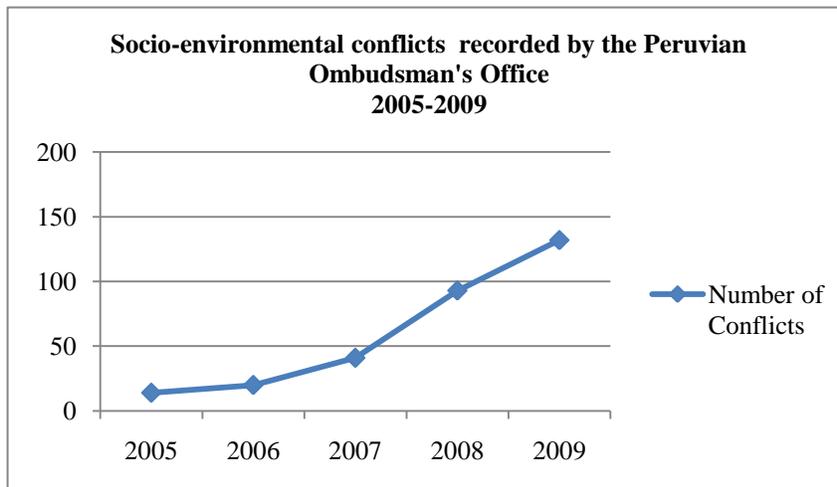
Porcentaje de cobertura de agua potable y alcantarillado (promedio a nivel nacional) 2003-2006.

<http://sinia.minam.gob.pe/public/docs/destacados/ILAC2008/pdf/completo.pdf>.

LAC average for access to improved drinking water sources based on the World Health Report for 2009.

http://www.who.int/whosis/whostat/EN_WHS09_Full.pdf.

Figure 5: Frequency of Socioenvironmental Conflicts (2005–2009)



Source: Defensoria del Pueblo, Reporte de Conflictos Sociales N. 22 (2005), N. 34 (2006), N.46 (2007) and 58 (2008) and 68 (2008) <http://www.defensoria.gob.pe/conflictos-sociales-reportes.php> http://www.defensoria.gob.pe/conflictos-sociales/objetos/paginas/6/44conflictos_-_reporte_68_-_octubre_2009.pdf.

Note: 2005, 2006, 2007, 2008: # of conflicts by December 31st of each year ; 2009: # of conflicts by October 31st 2009.

Study Questions and Methods

1.15 How did the WBG help Peru address its environmental challenges? What have been the results of the WBG's activities? What has the WBG's performance been as a partner in promoting the environmental sustainability of development in Peru? These are the evaluative questions that guided the preparation of this study. In pursuit of answers, the study team blended the Independent Evaluation Group's (IEG) standard evaluation methods for projects and country programs. The mission travelled to Peru in August-September 2009 to interview government officials, representatives of the private sector and civil society, and WBG staff to elicit their views on the outcomes of the WBG's activities and its performance as a partner, and visit selected project sites. The same topics were discussed at an Environmental Roundtable with leaders of major environmental nongovernmental organizations. The mission's findings were supplemented by a desk review of the WBG portfolio of projects with environmental objectives—22 World Bank and 14 IFC—that were ongoing or completed during the 2003-2009 period, drawing on status reports, completion reports and project performance audit reports. The desk review also included a screening of the WBG's Peru portfolio for evaluative evidence on safeguards performance. The team report was an input to IEG's report on *Peru—Country Program Evaluation for the World Bank Group 2003–2009*.

2. WBG Activities

2.1 How did the WBG help Peru address its environmental challenges? Over the 2003–2009 period, the promotion of environmental sustainability was an important objective for the WBG, as evidenced by several major analytical and advisory activities (AAA) and a portfolio of 65 lending operations that contained environmental components. These activities were and remain highly relevant for addressing the country's main environmental issues.

The World Bank's Analytical and Advisory Activities

2.2 The Bank's AAA were highly relevant for providing the conceptual framework for its environmental strategy and program in Peru. The most important was an unusually detailed and well-researched Country Environmental Analysis (CEA) that identified the two most urgent issues as: (i) health damages from water and air pollution, and (ii) vulnerability to natural disasters. The CEA also concluded that, underlying the general weakness of Peru's performance was an environmental management framework with "an embedded conflict of interest when the line ministry in charge of promoting a specific economic activity [also] has ... to regulate it on environmental grounds" (World Bank 2007). Its main recommendations were

- *Water pollution*: The promotion of hand washing programs, improved water supply and sanitation in rural areas, and disinfection of drinking water at the point of use;
- *Air pollution*: The introduction of low-sulphur diesel fuel, the establishment of technology-specific emission standards, and pollution-based fuel taxes;

- *Natural disasters vulnerability:* The implementation of a strategy that integrates vulnerability analysis, risk assessment and prevention, under an autonomous agency to be established; and
- *Institutional strengthening and coordination:* The creation of a central environmental enforcement agency that would give priority to environmental management processes and instruments.

2.3 Natural resource management issues were reviewed in several policy notes. They all highlighted the importance of strengthening institutional capacity and the environmental framework. Other key messages included the following:

- The need for policy reforms to be aimed at reducing capacity to sustainable levels and improving transparency in the fishery sector;
- The need for participation of key stakeholders in the management of forest resources and biodiversity conservation; and
- The need for a strong water rights system and modern irrigation practices.

2.4 Finally, the AAA program included studies on the social and environmental implications of mining. Among other reforms, the restructuring and strengthening of environmental assessment practices was proposed as necessary to address environmental problems and ensure transparency in the mining sector as well as other key sector ministries.

The WBG's Lending Program

2.5 Beyond AAA, during the 2003–2009 period, the WBG's lending program with elements designed to promote environmental sustainability included 16 World Bank projects (including two Global Environment Facility [GEF] blend operations), 3 GEF medium size projects, 2 GEF full size projects, 26 IFC investments, and 6 IFC Advisory Services projects (4 supported by the GEF). The total environmentally relevant portfolio is summarized in Table 1.

2.6 *Environmental Pollution:* The objective of mitigating air and water pollution was mainly pursued through projects in the transport and water supply and sanitation sectors, plus a few carbon offset projects. Thus, the Bank supported the reduction of air pollution from the transport sector through the expansion of Lima's bus rapid transit and bicycle networks. The Bank also invested in the expansion of sewage and wastewater treatment in urban and rural areas. A \$300 million Environmental DPL approved in 2008 supported government measures to strengthen the framework for environmental quality standards for air and water and set maximum permissible emission levels (LMPs—*limites maximos permisibles*). In addition, the Bank brokered three carbon offset activities since 2004.

2.7 *Natural Resources Management:* Improving natural resource management was promoted through WBG projects that had components to minimize degradation from extractive industries, agriculture and fisheries, and maximize resource use efficiency in

productive activities. Thus, IFC’s operations in the mining sector aimed to enhance the integration of social and environmental considerations in extractive industry activities. An Environmental DPL had provisions for the adoption of fishing quotas as well as social protection measures for displaced fishing fleet workers. Finally, in terms of land degradation and water resource problems, agricultural development and irrigation projects as well as an active IFC portfolio in agribusiness promoted improved irrigation technologies.

2.8 *Biodiversity Protection:* From 2003 to 2009 there was substantial WBG investment in biodiversity protection, mainly funded by GEF grants. A major objective was to promote biodiversity conservation through the participation of local stakeholders in the management of protected areas. The approach was to find a balance between conservation and development, both by involving communities in all aspects of the projects (management of protected areas, decision making, and monitoring of biodiversity), and by promoting alternative income generating activities.

2.9 *Natural Disasters Vulnerability:* As noted in IEG’s evaluation *World Bank Assistance to Natural Disasters* (IEG 2006), in highly vulnerable countries such as Peru, “far more attention to prevention, mitigation and risk management is needed, but client demand for such services is easily displaced by other development concerns” (IEG 2006). The Bank, along with other donors (InterAmerican Development Bank, European Union, USAID) has promoted a more proactive approach to the government. But during the 2003–2009 period, the Bank’s activities in this area are limited to a small regional project and a component of the Vilcanota Valley Rehabilitation Project.

2.10 *Environmental Governance:* While a public sector-wide need for improved governance had long been recognized, the Bank had not undertaken a detailed institutional analysis of the environment sector until the 2007 CEA, whose findings and recommendations were sharpened and disseminated in *An Opportunity for a Different Peru* (Giugale, Fretes-Cibils, and Newman 2006). The timing was fortunate, for in mid-2008, an unexpected decline in fiscal revenues combined with a peak of media attention and international pressures on environmental issues to create an opportunity for the Bank to prepare a major Development Policy Loan (DPL) focused on institutional strengthening and policy reform for environmental governance.

2.11 *Safeguards and Performance Standards:* In addition to projects with specific environmental objectives, the WBG also promoted the environmental sustainability of Peru’s development through the implementation of its safeguards policies and performance standards. Most projects in the WBG’s portfolio required the application of one or more of the safeguards policies and performance standards, and as a consequence, were designed to demonstrate specific globally accepted social and environmental practices.

Table 1: The WBG's 2003–2009 Portfolio—By Environmental Objectives

<i>Strategic Objective</i>	<i>Specific Objective</i>	<i>WBG Portfolio (Peru, FY03–09)</i>
Mitigating air and water pollution	Reduce health risks from air pollution	Air Pollution related operations Six World Bank Loans: <ul style="list-style-type: none"> • Lima Transport Project- GEF blended (approved FY03, active)

Strategic Objective	Specific Objective	WBG Portfolio (Peru, FY03–09)
		<ul style="list-style-type: none"> • Second Rural Roads Project (approved FY01, closed) • Regional Transport Decentralization Project (approved FY05, active) • Decentralized Rural Transport Project, (approved FY06, active) • Rural Electrification Project- GEF blended (approved FY06, active) • Environmental DPL (approved FY09, active) • Three carbon offset projects (FY04-05-06, active)
	Reduce health risks from water pollution	Water Pollution related operations Four World Bank Loans: <ul style="list-style-type: none"> • Lima Water Rehabilitation and Management Project (approved FY 1994, active) • National Rural Water Supply and Sanitation Project (approved FY02, active) • Peru Water Resources Management Modernization Project (approved FY09, active) • Environmental DPL (approved FY09, active)
Improving natural resources management	Address social and environmental issues in extractive industries sector	Mining and other extractive industries operations World Bank: <ul style="list-style-type: none"> • ENV DPL (approved FY09, active) Five IFC-I in extractive industries
	Improve fisheries sector governance and equitable benefit distribution;	Fisheries World Bank: <ul style="list-style-type: none"> • ENV DPL (approved FY09, active)
	Improve Water resource management and address soil degradation	Land degradation and water related issues Five World Bank Loans: <ul style="list-style-type: none"> • Peru Irrigation Subsector Project II (approve FY96, closed); • Sierra Natural Resource Project (approved FY97, closed); • Sierra Rural Development Project (approved FY07, active); • Vilcanota Valley Rehabilitation Project (<i>approved FY04, active</i>); • Water Resources Management Modernization Project (approved FY09, active) Nine IFC-I in agriculture/agribusiness
Protecting Biodiversity	Promote participation of local stakeholders; Strengthen institutional capacity and inter-agency coordination;	Biodiversity and deforestation Six World Bank projects: <ul style="list-style-type: none"> • Three GEF MSP (closed) • Two GEF full size stand alone projects (only one completed) • ENV DPL (approved FY 09, active)
Reducing vulnerability to natural disasters	Establish the reduction of disaster risk and vulnerability as a national priority	World Bank: <ul style="list-style-type: none"> • Adaptation to the Impact of Rapid Glacier Retreat in the Tropical Andes Project for Andean Countries GEF Regional Project: (approved FY 08, Active) • Vilcanota Valley Rehabilitation Project (<i>approved FY04, active</i>)
Strengthening Environmental Governance	Institutional strengthening for environmental governance, including regulation and enforcement	World Bank: <ul style="list-style-type: none"> • Environmental Development Policy Loan (DPL) (Phase I approved FY09, Phase II planned for FY10)

3. Contributions to Environmental Outcomes

3.1 What have been the results of the WBG's activities? This chapter discusses the manner and extent to which the WBG's lending operations contributed to Peru's efforts to understand and address its environmental priorities.

Results from the World Bank's Analytical Activities

3.2 IEG's conversations with past and present officials and other key informants found that the Bank's CEA and policy papers, that had been synthesized and widely disseminated through the publication of *An Opportunity for a Different Peru* (Giugale, Fretes-Cibils, and Newman 2006), had a major impact on public awareness of the economic importance of the management of environmental issues. They provided the government with timely analyses and recommendations that were used for the preparation of the important legislation that was passed, and the creation of MINAM. They also provided many of the intellectual underpinnings for still ongoing efforts to prepare future regulations, guidelines and institutional reforms needed to strengthen air and water pollution controls, improve sustainable natural resource management, ensure adequate biodiversity conservation, and mitigate vulnerability to natural disasters.

Outcomes from the World Bank's Projects

3.3 The environmental contribution of the Bank's projects and project components is difficult to evaluate with accuracy, as their nature and objectives varied greatly. This section is based on information in the most recent Implementation Status Reports, Implementation Completion Reports, and IEG Implementation Completion Report Reviews, with a few field checks. There are many cases where no opinion was possible, since the availability of environmental indicators and baseline data related to environmental outcomes at the project level is very limited. The portfolio of environmentally relevant Bank projects and outcomes is summarized in Appendix 2.

3.4 Air Pollution: Projects to reduce air pollution include the recently approved Environmental DPL, three carbon offset projects (Huaycoloro, Poechos and Santa Rosa), a GEF blend Lima Transport Project, and a GEF blend rural electrification project. The first phase of the Environmental DPL supported the following government measures to reduce urban air pollution from transport: (i) a protocol to harmonize different air quality monitoring networks in Lima; and (ii) a contingency plan for the supply of low sulfur (50 ppm) diesel. The three carbon offset projects are delivering greenhouse gas emission reductions at close to the expected rate. The Lima Transport Project, which is expected to reduce air pollution in Lima's main transport corridor by 20–25 percent is progressing satisfactorily. The GEF-funded renewable energy component of the rural electrification project, on the other hand, was experiencing serious delays. Overall, however, the contribution of Bank projects to addressing air pollution has been satisfactory.

3.5 Water Pollution: The portfolio includes two projects. The Lima Water Rehabilitation Project (including a supplementary project approved in FY04) has a target of providing water and sanitation services to 130,000 poor households (that is, increasing water service coverage

from 79 percent in 1993 to more than 90 percent in 2008 in the Lima metropolitan area, which has mostly been achieved.³ The National Rural Water Supply Project aims to increase access to water supply and sanitation in small towns and rural areas, with a target of 685,000 new water connections, and 616,000 new sewerage connections. It also supports training in operation and maintenance and the improvement of hygiene practices, which is especially relevant for reducing the health risks from water pollution. As of the time of the mission, however, progress had been extremely slow, with only about a quarter of the connections completed after seven years of implementation, so the ambitious and highly relevant targets may not be achieved. IEG's assessment is that the Bank has not met its objectives in this area to date.

3.6 *Natural Resource Management:* The improvement of natural resource management has been pursued through rural development projects focused on water resources, with a few related components for soil conservation and reforestation. Thus, the Irrigation Subsector Project increased farmer incomes by 30 percent by promoting the development and strengthening of water user organizations, rehabilitating irrigation systems and improving dam safety. The Sierra Natural Resources Management Project helped strengthen community organizations, improved irrigation and agricultural practices, as well as soil conservation and reforestation at the micro-catchment level. The Sierra Rural Development project is financing small community subprojects that promote sustainable natural resources management, watershed protection and soil conservation. Finally, the Water Resources Management and Modernization Project is promoting integrated basin-scale water resources management at the central level and in selected river basins.

3.7 The Bank's efforts in other areas have lagged behind. For the fisheries sector, in spite of long standing needs identified in Bank reports, specific policy reforms had only been implemented in 2009 with the support of the Environmental DPL, whose first phase included provisions for regulating fishing quotas and addressing the social impacts of capacity reduction.

3.8 *Biodiversity Conservation:* The Bank's approach to biodiversity conservation, mainly funded by the GEF, focused on fostering participatory approaches to the management of protected areas, combined with the development of alternative livelihoods. The Project for Indigenous Management of Protected Areas in the Peruvian Amazon (PIMA), for example, brought together 120,000 indigenous and local people in five protected areas to discuss and, in some cases develop, co-management schemes. A similar model was followed in the ongoing Participatory Management of Protected Areas Project (GPAN), which supports the contracting out of protected area management to civil society organizations, with local community associations represented in the management committees and through participation in subprojects to develop alternative economic livelihoods. Such an approach was also supported through three GEF medium sized projects in the Northwest Biosphere Reserve, Vilcabamba and Nanay River protected areas. The mission's field visits found that

³ The Project Appraisal Document presents both water supply and sewerage connections as key monitoring indicators, but the ISR only reports on water supply connections. For the objective of reducing water pollution, however, the progress of sewerage connections is more important.

these projects have been largely successful, and identified some of the factors contributing to their success, as well as constraints. See Box 1.

Box 1: The Challenge of Developing Alternative Livelihoods in a Protected Area Buffer Zone

The mission visited the Manglares de Tumbes protected area in northern Peru, which protects Peru's only mangrove ecosystems as well as an ecotone between mangroves and the adjacent dry forest.⁴ This GPAN site combined the participatory management of protected areas with the development of economic activities in the buffer zone to improve the livelihood of local communities.

The Campo Amor Extractors Association in Zarumilla, a human settlement in the protected area buffer zone is an example of a successful community association. Founded eight years ago in response to increased pressure on local ecosystems and resources from solid waste pollution, logging, and excess extraction of mangrove resources, the association had been involved with the reforestation of mangrove plants, educational programs, development of a tree nursery, etc. With the arrival of GPAN, it proposed and implemented a solid waste collection and recycling program that employs over 250 families. The mission visited a few households and found that their incomes and livelihoods had improved due to the increased and diverse employment opportunities created by widespread recognition of their Association's work, which is in turn attracting further donor resources. Key success factors have been: (i) a past history of continued assistance from national and international NGOs that helped build the association's capacity, and (ii) the fact that activity proposals had been developed and implemented by the association itself (rather than external actors), which contributed to its ownership and commitment to success.

On the other hand, land tenure issues have presented a major constraint for the implementation and expansion of alternative livelihood projects. Thus, in the protected area's buffer zone, some of GPAN's programmed activities had to be cancelled when it was belatedly discovered that the land belonged to the Navy, which had not been known to the protected area's management at the start of the project. In other instances, activities that are perceived as permanently and extensively affecting present and future land titling schemes have created conflict among stakeholders. Shrimp farming, for example, which requires the construction of ponds, are perceived to have a long-term effect on informal land tenure, while a tree nursery may not be seen as a threat.

Source: Internal documents.

3.9 In addition to the GEF funded projects, Phase 1 of the Environmental DPL supported the approval of key regulatory functions for the newly established National Service of Natural Protected Areas (SERNANP).

3.10 *Natural Disasters Vulnerability:* While there is no project specifically addressing natural disaster vulnerability in the portfolio, the mission found that Bank has maintained a dialogue with the government on the prevention and mitigation of natural disasters, and a new project is under preparation. The recently approved GEF regional project – The Adaptation to the Impact of Rapid Glacier Retreat in the Tropical Andes – includes a disaster

⁴ An **ecotone** is a transition area between two adjacent but different plant communities, such as forest and grassland (Smith 1974).

prevention program to protect local communities from catastrophic events related to climate change. In addition, the Vilcanota Valley Rehabilitation and Management Project, whose implementation had been stalled, was recently restructured to refocus almost entirely on disaster risk management.

3.11 *Environmental Governance:* To address a long history of public sector inefficiency and capacity constraints, several Bank projects included components to strengthen the environmental management capacity of sector agencies, in line with Peru's traditional sector based approach to environmental governance. Thus, early-2000s transport projects helped establish the Directorate General of Environmental and Social Affairs in the Ministry of Transport. The ongoing Regional Transport Decentralization, Decentralized Rural Transport, and Lima Transport projects all include components to build the sector's environmental management capacity at the regional level, but have experienced very slow progress in face of the general weakness of regional governments. The Rural Water Supply and Sanitation Project has also been experiencing serious delays with its regional and local level environmental capacity building components. An unexpected fiscal gap that appeared in 2008-9 offered the Bank an opportunity to assist the government to upgrade and consolidate the environmental management framework at the national level and begin a shift away from the sector based approach. Thus, the Environmental DPL has specific triggers designed to clarify MINAM's coordinating role and regulatory mandate, strengthen the framework for environmental quality monitoring and emissions control, address the environmental legacies of the mining sector, plus other provisions for the management of protected areas and fisheries. At this point, however, while the initial triggers appropriately rewarded prior actions by the government, the substantive institutional and policy reforms are only beginning to move through the initial stages of preparation, negotiation and consultation. It is thus important to note that some future triggers involve the preparation of documents (for example, strategies, plans and protocols) whose linkage to substantive actions may be rather indirect. While expectations are high, it is still too early to evaluate the outcomes in terms of actual enforcement capacity and environmental quality improvements.

Outcomes from IFC's Projects

3.12 IFC's main environmental value added came through its clients' implementation of its Performance Standards on Social and Environmental Sustainability, which were adopted in 2006 to replace the earlier Safeguard Policies. A major difference between the new Performance Standards and the old safeguard policies which they replaced is a shift of focus from compliance with environmental requirements towards the adoption of international best practices in such matters as resource management, community engagement, and social and environmental management systems. For example, whereas the pre-2006 safeguards simply require the avoidance or minimization of adverse environmental impacts, the new Performance Standards require its clients, in addition, to manage renewable natural resources in a sustainable manner.⁵

⁵ Specifically, Performance Standard #6 in World Bank (2006) defines sustainable resource management as "the management of ... resources in a way...which enables peoples and communities ... to provide for their current well-being while also sustaining the potential of these resources to meet the ... needs of future generations..."

3.13 *Performance Standards and Extractive Industries:* The implementation of performance standards tends to be most challenging with oil, gas and mining projects, due to the complexity of the projects and the sensitivity of their social and environmental impacts on neighboring communities. Extractive industries projects comprise 27 percent of IFC's portfolio. IEG's evaluations of two highly prominent and visible category A projects, concluded that their environmental and social performance had been satisfactory, and that IFC had made an important contribution in supporting the development of constructive relationship between its clients and their neighboring communities, mainly due to the clients' exemplary community development programs. These projects are already serving as models to help establish national standards and address the social conflicts that often affect such projects.

3.14 *Performance Standards and Agribusiness:* Agribusiness clients account for the greatest share, 35 percent, of IFC's portfolio and a review of their environmental and social progress indicators showed that they are still struggling to meet the expectations of the performance standards. Thus, only three out of the nine projects were progressing as expected at approval. Most performance issues relate to incomplete monitoring and reporting by clients, non compliance with IFC guidelines, and poor supervision by IFC. While these are unsatisfactory outcomes in terms of compliance, the Performance Standards framework has also guided IFC's support for more efficient water resource management in the sector, with clearly positive contributions.

3.15 *Water Resource Management:* IFC finances agribusiness projects that produce and process water intensive crops, such as sugar, asparagus, artichokes, and pepper for export and domestic markets. Such extensive support for expansion of irrigated crops may seem counterintuitive, since these projects are located in the arid coastal plains where water is scarce and water use conflicts are growing. IFC's response is that by promoting the use of improved irrigation techniques, its projects are actually reducing the pressure on the resource, rather than increasing it. The mission was able to visit two such projects and verify that they had implemented state of the art irrigation efficiency practices and have an active outreach program to their neighboring suppliers, as summarized in Box 2.

Box 2: IFC's Contribution to Improved Water Resource Management

Why is IFC supporting the expansion of water intensive crops in Peru's arid coastal zone, where the scarcity of water is already leading to increased social conflicts? IFC's response is that by promoting the use of improved irrigation techniques, such as drip irrigation and mist irrigation, its projects are actually reducing the pressure on the resource, rather than increasing it. To verify this proposition, the mission visited two IFC agribusiness projects in northern Peru.

With IFC's financial support, a major asparagus grower established 700 hectares of new fields using the latest drip irrigation technology, which currently consume about 286–357 tons of water per ton of produce, with a target of reducing it to 250 tons. This compares favorably with a range of 615–769 tons for other local producers that supply the project's canning plant, and a global average of 1,473 tons (Chapagain 2004).

In a neighboring project, IFC supported the renewal and replanting of 2,900 ha of irrigated sugar fields. As a result of the conversion from flood irrigation to modern computer-managed gravity and drip irrigation, water consumption per ton of sugar was reduced by more than three quarters, from over 4,000 tons to about 1,000 tons of water per ton of sugar, with a target of reducing it to 875 tons. This also compares favorably with a global average of 1500 tons of water per ton of sugar, and the water productivity of local smallholders that supply about half the sugar mill's cane needs, many of whom still use flood irrigation (Water Footprint Network, 2009).

With IFC encouragement, both clients have an active outreach program to disseminate their efficient water management practices to their suppliers, so the pressure on the resource can be expected to reduce over time. A strong incentive is provided by the fact that the giant multi-basin irrigation project that serves both clients already has to ration water supplies during low river flows (June-Sep), and the rationing can be expected to tighten as its service area expands. Another incentive for improved water use efficiency is provided by the fact that the irrigation project charges a full cost recovery tariff of \$0.02 per ton of water, which accounts for 5–15 percent of its total production costs.

4. The WBG's Performance as a Partner

4.1 How do we assess the WBG's performance as a partner in promoting the environmental sustainability in Peru? The chapter considers the external and internal factors that most contributed to the achievement of the outcomes, as well as the quality of the work, its compliance with safeguard policies, and monitoring and evaluation arrangements.

4.2 *External Factors:* The Bank's promotion of Peru's environmental agenda was greatly assisted by a growing public awareness of the need for stronger environmental management. Public awareness, and the attendant political pressure, had been fostered by the extensive media coverage of the increasing frequency and impact of El Niño events and the extent of health damages from past and ongoing mining activities. Another factor were international pressures coming through Free Trade Agreement negotiations with the United States and the EU-Latin America Summit, which coincided with the establishment of MINAM in May 2008. These drivers helped elevate the priority of the environment, and combined with an unexpected decline in fiscal revenues in mid-2008 to create an opportunity for the Bank to make a major contribution through the Environmental DPL and other projects.

4.3 *Internal Factors:* The WBG's many years of involvement with addressing environmental issues in mining, transport, agriculture and water supply projects had built 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 WBG had already prepared and disseminated institutional and policy recommendations that it could support through a DPL, and was also well-positioned to begin discussions and preparations for highly relevant projects in water resources management and natural disaster mitigation.

4.4 The mission's discussions with government officials, project counterparts, community leaders and environmental NGOs found that the WBG has a very good reputation in Peru for its contribution to the policy dialogue and its commitment to ensuring the environmental soundness of its projects. The quality, comprehensiveness and dissemination of the environmental AAA (Guigale, Fretes-Cibils, and Newman 2006, World Bank 2007) certainly helped to enhance this reputation, but it is mainly the rigor and consistency with which the WBG's safeguards policies have been and are being implemented that have earned it the respect and credibility of key decision makers and others concerned with environmental matters in Peru.

4.5 *Monitoring of Results:* In spite of the extensive availability of Implementation Completion Reports, Implementation Status Reports, and official statistics posted in the SINIA, IEG found it difficult to match most of the key environmental outcome indicators identified in the CASs and Project Appraisal Documents (PAD) (shown in Appendix 1) with up to date statistical information from either government or project sources. For example:

- *Air pollution:* The SINIA reports the mortality of children under 5 from respiratory disease to have increased from 299 in 2002 to 640 in 2004, which points to the growing seriousness of this issue. Unfortunately, however, it is not possible to compare this data with the "current average of 3,900 individuals nationwide" referred

to in the 2006 Country Assistance Strategy (CAS) (World Bank 2006b), which was based on a background paper for the CAS.

- *Solid waste:* The SINIA reports the tonnage of solid waste disposed in sanitary landfills, as well as the tonnage not disposed in sanitary landfills. The ratio, shown in Figure 4, provides a useful indicator of the quality of solid waste management in Lima, but is not comparable, with the “ratio of solid waste recycled to total waste” proposed in the 2004 CAS Progress Report, for which neither a baseline nor updated information is available (World Bank 2004).
- *Deforestation:* The SINIA contains a 2000 estimate of the rate of deforestation of 261,000 hectares/year. The 2006 CAS, however, has a target of “reducing the annual rate of deforestation below 150,000 ha (current estimate is 150,000 ha annually)” (World Bank 2006b).

These findings suggest that the identification of key monitoring indicators in WBG documents did not, in many cases, adequately consider the availability these indicators in the future. As a consequence, the mission’s assessment of the WBG’s progress towards environmental objectives had to be largely based on qualitative judgments, rather than on more precise quantitative indicators.

4.6 *WBG Performance:* As a major foreign donor, the WBG made a major contribution through its AAA sector work to the understanding of Peru’s environmental issues and options, as well as through a well-timed DPL to support necessary policy and institutional reforms. IFC also played an important role in assisting major private investors in critical and social-conflict prone activities, such as mining and agribusiness, to become models of social and environmental responsibility. Through its safeguards policies, the WBG also opened up entry points for civil society and community engagement in project-related decision making, especially as it relates to the management of social and environmental impacts. On the other hand, the WBG also supported many projects that contributed little to the environmental agenda and there are still many gaps in meeting its own rigorous safeguards and performance standards.

5. Lessons

5.1 The WBG's recent experience with promoting environmental sustainability in Peru reinforced a few important lessons:

5.2 **The Quality and Presentation of Economic Analyses Are Important:** The comprehensive and well documented estimates of the economic costs of environmental degradation presented in the Country Environmental Analysis made a strong impact. As the mission's discussions revealed, these precise estimates, expressed as shares of GDP, complemented media revelations about environmental damages and international pressures to help convince key decision makers to give higher priority and greater resources to strengthen environmental management. The lesson here is that well researched and carefully presented estimates of environmental costs and, concurrently, of the benefits of improved environmental management, can play an important role in broadening support for addressing environment issues with key constituencies, and moving the agenda forward.

5.3 **Dissemination and Timeliness of AAA Increases Its Impact:** The publication of summaries of the Bank's policy notes and other AAA in the form of a readable book—*An Opportunity for a Different Peru*—greatly enhanced the dissemination and impact of the Bank's knowledge and messages. Through a variety of interviews with key informants, as well as a workshop with environmental NGOs, the mission found that a wide range of key players had read and understood the Bank's policy advice, which they had appreciated and were ready to discuss. A large part of this impact can be credited to the Bank's concerted effort to prepare and publish a reader-friendly version of its analytical work, and to discuss it with political leaders at a time when the country was preparing for national elections. This helped set the stage for a series of ongoing reforms and points once again to the benefits of the timely and proactive dissemination of the Bank's analytical work.

5.4 **Local Ownership and Continuity of Support are Key Factors for the Success of Alternative Livelihood Projects.** In its visits to three communities participating in the GPAN and PIMA projects, the mission found that identification, development and implementation of alternative economic activities proposed by the community association (rather than external actors), greatly contributed to their ownership and commitment for the results. Community association members commented that such an approach appropriately recognizes that local communities know best about the local area and its resources, and are therefore capable of deciding on the activities to be implemented, which in turn increased their self-esteem and commitment to success. Another factor was that these communities' implementation capacity had been built up gradually through a past history of assistance from national and international NGOs.

5.5 **Monitoring Indicators Are Useless Unless Provisions Are Made to Ensure the Availability of the Underlying Statistics.** The mission found that many of the outcome indicators used for the CAS, PADs and other documents to reflect the WBG's institutional targets and commitments were not useable for this review because of the absence of baselines and of available underlying statistics. This points to the need for greater care to ensure that the underlying data will be available for future monitoring and evaluation. This would require (i) documentation in the CAS and PADs of the source of the baseline and future time

series of the underlying statistics; (ii) a clear statement in the CAS and PADs of monitoring arrangements for key indicators, for example, through linkage to official government or project websites; and (iii) regular updates on the key indicators and monitoring arrangements in the CAS Progress Reports and Implementation Status Reports.

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Appendix 1: WBG Environmental Results Indications for Peru

<i>Strategic Objective</i>	<i>Key monitoring indicators (from 2002 and 2006 CASs)</i>
Mitigating air and water pollution	<ul style="list-style-type: none"> • Decrease in respiratory diseases at targeted areas and annual number of individuals that die prematurely each year from air pollution (current average is 3,900 individuals nationwide) • Improve access to water for 650,000 people in rural areas; People in 2,500 communities to be trained in hygiene education • Ratio of solid waste recycled to total waste /Monitor polluted discharge
Improving natural resources management	<ul style="list-style-type: none"> • Improve natural resources management of 30,000 hectares of land • Reduce the annual rate of deforestation below 150,000 ha (current estimate is 150,000 ha annually) • Decrease the maximum fish catch from 200,000 metric tons (MT) to below 150,000 MT
Protecting biodiversity	<ul style="list-style-type: none"> • In the Sierra and Coastal regions increase the coverage of water rights of all water use and increase the measurement of withdrawals of all water use. • Enact the Water Law; Establish the National Water Authority and 2 Basin Water Authorities; Prepare a National Water Resources Management Plan and 2 Basin Level water Resources Management Plans • Reduced number of critically endangered species from 23 to 18
Reducing vulnerability to natural disasters	<ul style="list-style-type: none"> • No indicators provided in CAS

Sources: World Bank (2002, 2006b).

Appendix 2: Environmental Objectives and Project Outcomes

Project Name	Project Objective	ENV Relevant Component	Monitoring indicators for the ENV Component (Source: ISR/ICR/ICR Review)	Commit Amt (\$m)
Mitigating air and water pollution: Reduce health risks from air pollution				
First Environmental DPL	To support the government's efforts to: (i) strengthen environmental governance; and (ii) mainstream sustainability principles in the mining, fisheries, and urban transport and energy sectors.	Conditionality Re: 1. Improvements in environmental governance, 2. Strengthening Efforts to Improve Air Quality	Policy Triggers re: 1.1. Air quality monitoring and dissemination for the Lima-Callao Metropolitan Region 1.2. Air quality contingency plans are developed and implemented in the 5 most polluted cities: Lima, Arequipa, Chimbote, Ilo, and La Oroya. 2.1. At least 30 percent of gas stations in main cities supplying clean diesel by 2010. 2.2. At least 80,000 vehicles are converted to natural gas and 90 service stations are installed and operating supplying natural gas in Lima. 2.3. Vehicle inspection & maintenance system operating in Lima.	330
Lima Transport Project (GEF blend)	To establish an efficient, reliable, clean and safe mass rapid transit system in Lima.	GEF funds will promote non-motorized transport and high-capacity public transport vehicles operated on segregated bus ways.	1. Air pollution from transport sector in El Metropolitano Corridor will be reduced by 25–20%. 2. At least 250 aged and polluting public transport vehicles retired. 3. 32.5 km of bikeways rehabilitated.	52.9
Rural Electrification (GEF blend)	To increase access to efficient and sustainable electricity services in rural areas of Peru.	GEF funds will support: 1. development of the institutional framework and regulations for renewable energy-based provision of electricity service; 2. capacity building for bottom up identification and development of renewable energy sub-projects; and 3. renewable energy promotion activities, 4. Renewable energy revolving financing facility to provide bridge-financing during the early construction and initial operation phases, primarily for small hydro.	1. Number of new connections using renewable energy. 2. MW of renewable energy generation installed. 3. MWh of electricity used for productive uses. 4. Avoided tones of CO ₂ emissions (target 151,000).	60
Huaycoloro Landfill Gas Recovery	To help mitigate global climate change by facilitating the use of market-based mechanisms sanctioned under the Kioto Protocol that contributes to global	This project finances certified emissions reductions	Emission reductions delivered to the Bank (target: 50,000)	3.7

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	greenhouse gas Certified Emission Reductions.			
Poechos Hydropower Project - Carbon Offset	To help mitigate global climate change by facilitating the use of market-based mechanisms sanctioned under the Kioto Protocol that contributes to global greenhouse gas Certified Emission Reductions. (Through development of a privately developed small hydropower project)	The project will increase hydropower generation. This project finances certified emissions reductions for the Poechos I hydropower plant in Peru.	Cumulative energy production (MWh). Emission reductions delivered to the Bank.	1.2
Santa Rosa Hydro Carbon Finance	To help mitigate global climate change by facilitating the use of market-based mechanisms sanctioned under the Kioto Protocol that contributes to global greenhouse gas Certified Emission Reductions.	The project is comprised of two components: Santa Rosa I, II, and III hydropower plants will increase the national grid's power generation and provide a percentage of its energy production for sale in the spot market. The second component is carbon purchases.	Cumulative energy production (MWh). Emission reductions delivered to the Bank.	1.5
Mitigating air and water pollution: Reduce health risks from water pollution				
First Environmental DPL	To support the government's efforts to: (i) strengthen environmental governance; and (ii) mainstream sustainability principles in the mining, fisheries, and urban transport and energy sectors.	None. Water pollution was not a major focus of this DPL.	There was no proposed monitoring indicator related to water pollution in the program document. However, the DPL is focused on strengthening the framework for environmental quality standards (ECAs) and maximum permissible emission levels (LMPs), not only for air pollution but also for water pollution.	330
Lima Water Rehabilitation and Management Project	To improve the efficiency of water and sanitation delivery in the Lima-Callao metropolitan area.	The water conservation component includes preparing a customer cadastre, reconstructing water meter boxes, and installing 406,000 water meters. This component will also initiate conjunctive use of surface and groundwater in three districts where groundwater is depleted and the risk of saline contamination is serious.	1. Water service coverage (Baseline: 79% in 2003. Progress: 90% in 2008) 2. Number of people in the peri-urban neighborhoods of Lima with first-time sanitation services connections, financed with proceedings of the loan. (Progress: 123480 (03/30/2009) Target Value:130000)	170
National Rural Water Supply and Sanitation Project	To increase the sustainable use of new and rehabilitated water supply and sanitation facilities in rural areas and small towns while emphasizing improvement in hygienic practices and training in operation and maintenance.	The project will: 1. Implement demand-responsive and sustainable basic water and/or sanitation services for rural communities. 2. Strengthen local communities' capacity to manage services; strengthen municipal-district and provincial-level capacity to plan and oversee water and sanitation services; strengthen central	1. Number of people with access to water services in Rural Areas (Progress: 165,845; Target: 685,000) 2. Number of people with access to sanitation services (Progress: 158,622; Target: 616,500) 3. Number of communities with increasing number of households demonstrating adequate hand washing practices (progress: 202; target: 695 localities with 60% of households showing adequate habits)	50

		government capacity to develop sector policies, legislation, and information databases for planning and oversight.	According to the ISR, while there is progress in the implementation indicators, these may not be sufficient for the achievement of the PDO by Project closure.	
Improving natural resources management: Improve water resource management and address soil degradation				
Irrigation Subsector Project	To increase the productivity of irrigated agriculture in Peru's coastal and sierra territory in order to improve the well being of farmers and contribute to poverty alleviation.	<ol style="list-style-type: none"> 1. Irrigation Rehabilitation 2. Institutional Development and Strengthening of Users' Organizations 3. Incentive Program for Irrigation Technology Improvement 4. Dam Safety Emergency Program 	<ol style="list-style-type: none"> 1. Number of eligible WUOs; 2. Number of WUOs with considerably improved management; 3. Extent of private participation in irrigation investments; 4. O&M cost recovery; and 5. Improvement of dam safety level. <p>Significant Outcomes/Impacts: (Source: IEG ICR Review) Government drafted a National Irrigation Policy and Strategy for Peru (2003).</p> <ul style="list-style-type: none"> • Overall agricultural value-added increased by 31% between 1997 and 2003 and improved irrigation was responsible for much of that increase (the exact contribution of the project is not defined). • On average, surveyed farmers increased their household incomes by 30% and farm profitability rose 45%. • The project benefitted 135,000 farm families (target was 50,000) over a total area of 435,000 ha (including the additional area as the result of El Niño), created 6,400 new jobs and generally increased agricultural productivity - typically yields have increased between 20 and 50 percent over a large range of crops. • Within the project's original scope, 42 irrigation and drainage systems were rehabilitated and improved covering 139,000 ha of surface water and 2,655 ha of groundwater-based irrigation. • 55,744 farmers participated in the extension program of whom 15% fully apply their knowledge. • 4,076 farmers were trained in business management and 102 demand-led production marketing chains were established. • 4 dams were upgraded as a result of the Dam Safety Emergency Program and a national dam safety panel was established. 	95.3
Sierra Natural Resources Management Project	To alleviate the poverty of those living in the rural Sierra region. Specific objectives were <ol style="list-style-type: none"> 1. to improve management of natural resources through soil conservation and reforestation at the micro-catchment level; 2. to increase rural production and 	<ol style="list-style-type: none"> 1. Participatory Identification and Formulation of Rural Investments 2. Rural Investments: including construction of terraces, canals, reservoirs, pressure irrigation systems, and nurseries. 3. Strengthening of Community Organizations 	<ol style="list-style-type: none"> 1. Construction of terraces and infiltration canals. Projected at appraisal: 12,350 has. of terraces; 14,800 km. of infiltration canals. Actual (ICR) 26,843 has. of terraces completed 18,071 km. of infiltration canals completed 2. Irrigation works completed. Projected at appraisal: 800 technical dossiers completed; 465 km. of canals constructed ;280 water reservoirs 	51

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	productivity through introduction of irrigation and improved agricultural practices; and 3. to strengthen their rural organizations so that they can become autonomous and sustainable	.	constructed; 100 pressure irrigation installed. Actual (ICR): 1,247 technical dossiers completed; 818 km. of canals constructed; 315 water reservoirs constructed; 100 pressure; irrigation installed 3. Reforestation plantations. Projected at appraisal: 540 nurseries; 19.8 million plants; 26,000 has. under reforestation mgmt; 1,296 nurseries; 57.4 million plants; 42,110 has. under reforestation mgmt.	
Sierra Rural Development Project	The project objective is to improve the assets and economic conditions of approximately 53,600 rural families in the selected areas of Apurimac, Ayacucho, Huancavelica, Junin, Huanuco, and Pasco, and strengthen government capacity to implement an integrated Sierra development strategy.	The project will award demand-based financing for small subprojects proposed by communities and groups of families that promote sustainable natural resources management, watershed protection, and soil conservation.	1. At least 18,600 beneficiary families implementing rural business subprojects have increased profits by at least 25% 2. At least 875 community development subprojects implemented, benefiting at least 35,000 families. Progress: Two tenders, September 2008 and March 2009, that produced 332 community development subproject proposals of which 165 were approved for financing starting in May 2009. (forestry and environmental protection # 33%, grain crops # 22%, small scale irrigation # 20%, raising of small Andean specialty animals # 15%, improving livestock and cultivated grasses/grains # 10%).	20
Water Resources Management Modernization Project	To improve the management of water resources through the strengthening of the Borrower's capacity for participatory, integrated, basin-scale Water Resources Management (WRM) at the central level and in selected river basins.	The project will improve WRM capacity at the national level by supporting: (a) capacity building of the newly created ANA (National Water Authority - Autoridad Nacional del Agua) and formulation of a WRM financing study; (b) establishment of a national water information system; (c) formulation of a national water quality management strategy; and (d) design and launch of a program aimed at introducing a new 'water culture'. The project will also improve WRM in selected river basins.	1. National Water Resources Management System strengthened; 2. River Basin Organizations created and participative IWRM plans formulated and adopted the three pilot river basins; and 3. Multisectoral river basin committees created in four river basins.	10
Improving natural resources management: Address social and environmental issues in extractive industries sector				
First Environmental DPL	To support the government's efforts to achieve the following: (i) improve the efficiency and effectiveness of environmental governance and institutions in Peru; and (ii) mainstream sustainability principles in the development agenda of key sectors to	Sustainable Management of the Mining Sector	1. At least ten priority mining environmental legacies (MELs) are identified following the priority setting update of the MELs inventory and resources for remediating them is confirmed; and 2. Environmental participatory monitoring is undertaken in at least 60 mining sites. Policy Triggers re:	330

	improve the management of the mining sector, improvements in air quality, and enhance the fisheries sector.		<p>1. Development and implementation of an updated and systematized MELs inventory, and of a national strategy for remediation of priority MELs (using technical, environmental economic and public health criteria); Progress from ISR: MEM is short on staff and financial resources and will not be able to finish an inventory of MELs by June 2009. MEM is preparing a proposal for an alternative prior action. This alternative protected area could include:</p> <p>a. the creation of a group within the MEM responsible for conducting the inventory;</p> <p>b. adoption of appropriate methodologies and software;</p> <p>c. a program to identify and classify MELs according to the risks they pose; and (iv) finished inventory in a certain number of key watersheds.</p> <p>2. At least 40 initiatives of environmental participatory monitoring in execution.</p>	
Improving natural resources management: Improve fisheries sector governance and equitable benefit distribution				
First Environmental DPL	To support the government's efforts to achieve the following: (i) improve the efficiency and effectiveness of environmental governance and institutions in Peru; and (ii) 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 ENVDPL will seek to support an overall reduction of the overcapacity of anchoveta fleet and the adoption of measures to mitigate the associated social impacts of fleet reduction.	<p>100 percent of anchoveta fleet under the quota system.</p> <p>At least 5,000 workers benefit from economic incentives for leaving the sector.</p> <p>Policy Triggers re: Implementation of fishing quotas by vessel, implementation of the social compensation fund (FONCOPES) and the retirement pension fund (financed by ton of landed anchoveta) through the approval of regulation of Legislative Decree 1084.</p>	330
Promote biodiversity: Promote participation of local stakeholders; strengthen institutional capacity and interagency coordination				
GEF Community Management Northwest Biosphere Reserve RNBO (GEF-MSP)	To reverse environmental degradation (especially desertification) and to conserve biological diversity in the Northwest Biosphere Reserve (NWBR).	The project seeks to build capacity among stakeholders to become actively involved in the decision making process vis-à-vis natural resources management.	<p>1. Number of sectors with an interest in the Reserve participating in co-management mechanisms orientated towards the conservation and sustainable development of the Northwest Biosphere Reserve (NWBR).</p> <p>2. Economic or capital resources invested in the co-management of the NWBR by the various stakeholder groups involved.</p> <p>3. Factors which have a negative effect on the conservation and sustainable use of natural resources display regressive tendencies.</p>	0.7

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<p>GEF Participatory Conservation Planning in Vilcabamba (GEF-MSP)</p>	<p>To protect biodiversity and promote sustainable development in the Vilcabamba Range.</p>	<p>The project seeks to test a model for biodiversity and indigenous culture conservation that effectively integrates two indigenous reserves and a national park created in the Vilcabamba range of the Peruvian Amazon</p>	<ol style="list-style-type: none"> 1. Deforestation reduced by 20% over the project period. 2. Three new permanent protected areas are set aside for conservation by 2002. 3. Vilcabamba has secured long-term financial sustainability. 4. Income increased in local communities using sustainable practices. 	<p>0.7</p>
<p>GEF Biodiversity Conservation Nanay River Basin (GEF-MSP)</p>	<p>To contribute to the conservation and sustainable use of the biological diversity of the River Nanay Basin, with the participation of local stakeholders.</p>	<p>The project seeks to involve local stakeholders in the consolidation and establishment of protected areas, and to provide stakeholders with more sustainable sources of income.</p>	<ol style="list-style-type: none"> 1. Prospects for long term survival of endangered/threatened species improved or maintained, as determined by ecological monitoring of population trends of selected indicator species (flora, fauna, and ecosystems). 2. A decrease in the relevant threats as determined by socio-economic consumption data, managed areas established, protected areas consolidated, protection strategy plans prepared and adhered to, participatory mechanisms in place and sustainable economic practices adopted. 3. Maintenance or increase in natural habitats deemed critical as a result of the elaboration of the management plan. 	<p>0.8</p>
<p>GEF Indigenous Management Of Protected Areas In The Peruvian Amazon Project</p>	<p>To increase indigenous people's participation in benefits from biodiversity conservation in the Peruvian Amazon through communal management of protected areas by indigenous groups.</p>	<p>The project seeks to conserve and sustainably use important forest ecosystems in the Peruvian Amazon through the establishment of protected areas to be co-managed by indigenous people.</p>	<ol style="list-style-type: none"> 1. Indigenous people co-manage protected areas 2. Enhanced conservation of biodiversity (measured by the expansion of the categorized and legally protected natural protected areas and the establishment of conservation systems for the protection of zones with endangered and/or endemic species.) 3. Positive environmental impacts from sustainable use of natural resources and related activities 	<p>10</p>
<p>GEF Participatory Management of Protected Areas</p>	<p>To ensure biodiversity conservation by increasing the involvement of civil society institutions and the private sector in planning and sustainable management of Protected Areas.</p>	<p>The project has three main components: <ol style="list-style-type: none"> 1. participatory protected area management, 2. institutional development, and 3. Protected area financing, project administration, monitoring and evaluation and information dissemination </p>	<ol style="list-style-type: none"> 1. Increased management effectiveness in project protected areas. 2. Improved the degree of biodiversity conservation in project protected areas. 3. Increased participation of women in planning, managing, monitoring and evaluating project protected areas. 4. Increased stakeholder participation in the management of project protected areas. 5. Increased capacity to finance SINANPE recurrent costs with local resources. 6. Participation of indigenous people in protected area conservation programs 	<p>14.8</p>

Reducing vulnerability to natural disasters				
Vilcanota Valley Rehabilitation & Management Project	The project development objective is to support the Government of Peru's efforts to enhance the environmental and socio-economic sustainability of historical, cultural and ecological assets in the Vilcanota Valley including the Historic Sanctuary of Machui Picchu (HSMP) and the Sacred Valley of the Incas.	The project was restructured and it was agreed to devote Subcomponent 2.4 of the Vilcanota Project to the expansion and consolidation of the Early Warning System and to financing priority further studies, in order to support a program of disaster risk management investments to be undertaken by the Cuzco Regional Government under Vilcanota 2. It was also agreed that, Copesco will take on a leadership role in implementing the Early Warning System and ensuring that appropriate arrangements for its operation and maintenance are put in place	No related indicators	5
Adaptation to the Impact of Rapid Glacier Retreat in the Tropical Andes	To contribute to strengthening the resilience of local ecosystems and economies to the impacts of glacier retreat in the Tropical Andes	Implementation of pilot adaptation measures in selected communities and sectors highly vulnerable to the effects of glacier retreat. i.e. Implementation of a Water Management Plan aimed at: 1. improving water use practices in the agricultural and livestock sectors, and 2. improving water storage infrastructure at selected basins' headwaters to address negative effects caused by temporary increase in runoff. Activities include a disaster prevention program to protect local communities from catastrophic events such as glacier outburst flood.	Pilot projects generate useful lessons and information on costs and benefits of adaptation options that are incorporated into broader public and private investments in the water, agriculture and power sectors	7.49
Strengthening Environmental Governance: Institutional Strengthening for environmental governance, including regulation and enforcement				
First Environmental DPL	To support the government's efforts to: (i) strengthen environmental governance; and (ii) mainstream sustainability principles in the mining, fisheries, urban transport and energy sectors.	Conditionality Re: 1. Improvements in environmental governance	Improvements to Environmental Governance would be evidenced by the following: 1. MINAM reviews Environmental Impact Assessments (ELAs) for at least 10 large infrastructure investment projects. with potentially significant impacts per year; 2. SERNANP applies financial strategy to increase funding for managing protected areas from various sources (including private sector) by at least US\$ 2	330

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			million per year; and 3. Air quality data for the Lima-Callao Metropolitan Region is widely published and disseminated (in real time) through an integrated monitoring network.	
Regional Transport Decentralization	To improve the effectiveness of transport investments at the regional level and their contribution to regional development and poverty reduction in Peru.	Studies related to the social and environmental safeguards of rehabilitation or periodic maintenance works (eg. environmental impact evaluations).	1. Amount of resources dedicated by municipalities to efficient rural transport activities 2. Number of Provincial Road Institutes fully operational 3. Number of Participatory Provincial Road Plans approved 4. Number of qualified microenterprises delivering quality maintenance	50
Decentralized Rural Transport Project	To improve access of rural households and entrepreneurs to goods, social services and income generating opportunities through better rural transport infrastructure.	The project will finance feasibility and technical studies, technical assistance (eg. pilot for the stabilization of slopes), safeguards-related studies.	1. total number of decentralized institutions created (provincial infrastructure institutes and provincial road institutes) 2. number of participatory provincial road plans approved	50
Lima Transport Project (GEF blend)	To establish an efficient, reliable, clean and safe mass rapid transit system (El Metropolitano) in Lima.	GEF funds will promote non-motorized transport and high-capacity public transport vehicles operated on segregated bus ways.	1. Consolidated Lima Urban Transport Sector by improving planning, supervision and control, and management capacity of the participating institutions. 2. 5 provincial and 38 district municipalities as well as FONAM have benefited from institutional strengthening programs.	52.9
National Rural Water Supply and Sanitation Project	To increase the sustainable use of new and rehabilitated water supply and sanitation facilities in rural areas and small towns while emphasizing improvement in hygienic practices and training in operation and maintenance.	The project will strengthen local communities' capacity to manage services; strengthen municipal-district and provincial-level capacity to plan and oversee water and sanitation services; strengthen central government capacity to develop sector policies, legislation, and information databases for planning and oversight.	Number of district municipalities participating in planning, monitoring performance and provide technical assistance to the communities	50
Serra Natural Resources Management Project	To alleviate the poverty of those living in the rural Sierra region. Specific objectives were 1. to improve management of natural resources through soil conservation and reforestation at the micro-catchment level; 2. to increase rural production and productivity through introduction of irrigation and improved agricultural practices; and 3. to strengthen their rural organizations so that they can become autonomous and sustainable.	Strengthening of Community Organizations	1. Full use of community participatory planning methods in project area 2. Autonomy and sustainability of the community organizations Results: Strengthen rural organizations (Partly Achieved). In-depth participatory planning was carried out in only 9 of the 200 micro-catchments. The 1,801 conservation committees participated actively in project tasks but failed to develop any real planning capacity. The project did not successfully promote participatory planning for natural resource management at the community or micro-catchment levels. Community institutions	51

			created by the project were effective for carrying out project investments but will probably cease to function now that the loan has closed. (Source: ICR Review)	
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