

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

**ARGENTINA**

**ENVIRONMENTAL MANAGEMENT PROGRAM FOR SUSTAINABLE  
PRODUCTION IN THE PRODUCTIVE SECTOR**

**(AR-L1026)**

**LOAN PROPOSAL**

This document was prepared by the project team consisting of: María Claudia Perazza (RE1/EN1), Project Team Leader; Raul Tuazón (RE1/RE1); Héctor Malarín (RE1/EN1); Gerónimo Frigerio (LEG/OPR); Normando Birolo (COF/CAR); and Amy Raisbeck (RE1/EN1), who helped to produce this document.

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Electronic Links and References	
Basic socioeconomic data	<a href="http://www.iadb.org/RES/index.cfm?fuseaction=externallinks.countrydata">http://www.iadb.org/RES/index.cfm?fuseaction=externallinks.countrydata</a>
Status of loans in execution and loans approved	<a href="http://ops.iadb.org/approvals/pdfs/ARsp.pdf">http://ops.iadb.org/approvals/pdfs/ARsp.pdf</a>
Information available in the RE1/EN1 technical files	<a href="#">IDBDOCS-#919052-AR-L1026. Información Disponible en el Archivo de RE1/EN1</a>
Annex II-A Procurement plan for subprogram I – Promotion of clean production	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=968727">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=968727</a>
Annex II-B Procurement plan for subprogram II – Environmental management of mining activities	<a href="http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=968728">http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=968728</a>

## ABBREVIATIONS

BCR	Benefit-cost ratio
CESI	Committee on Environment and Social Impact
DPLyCS	Dirección de Producción Limpia y Consumo Sustentable [Clean Production and Sustainable Consumption Office]
FONPLyCE	Fondo de Producción Limpia y Competitividad Empresarial [Fund for Clean Production and Business Competitiveness]
ICAS	Institutional Capacity Assessment System
IRR	Internal rate of return
NPV	Net present value
PPLyCE	Programas de Producción Limpia y Competitividad Empresarial [Programs for Clean Production and Business Competitiveness]
SAYDS	Secretaría de Ambiente y Desarrollo Sustentable [Department of the Environment and Sustainable Development]
SEGEMAR	Servicio Geológico Minero Argentino [Argentine Mining Geological Service]
SMEs	Small and medium-sized enterprises
UCOFI	Unidad de Coordinación para la Gestión Técnica y Financiera Internacional [Coordination Unit for International Technical and Financial Management]
UGAP	Unidad de Gestión Ambiental Minera Provincial [Provincial Environmental Management Unit for Mining]

## PROJECT SUMMARY

### ARGENTINA

### Environmental Management Program for Sustainable Production in the Productive Sector (AR-L1026)

Financial Terms and Conditions <sup>1</sup>				
<b>Borrower:</b> Government of Argentina			Amortization period:	25 years
<b>Executing agency:</b> Secretaría de Ambiente y Desarrollo Sustentable [Department of the Environment and Sustainable Development] (SAyDS) and Secretaría de Minería de la Nación [Department of Mining]			Grace period:	6 years
			Disbursement period:	6 years
<b>Source</b>	<b>Amount</b>	<b>%</b>	Interest rate:	Variable
IDB (Ordinary Capital)	US\$40,000,000	80	Inspection and supervision fee:	0%
Local	US\$10,000,000	20	Credit fee:	0.25%
Total	US\$50,000,000	100	Currency:	U.S. dollars from the Single Currency Facility
Project at a glance				
<b>Project objective and description:</b> The objective of the program is to help make production-related activities environmentally sustainable. The program is structured in two subprograms, which have the following specific purposes: (1) to promote the adoption of clean production practices by SMEs as a business environmental management strategy; and (2) to promote the incorporation of environmental considerations into mining activities. <b>Scope:</b> Based on the analysis of the program, the amount of financing was increased from US\$32 million to US\$40 million.				
<b>Special contractual conditions:</b> <i>Special conditions precedent to the first disbursement of loan proceeds for Subprogram II:</i> - The executing unit in the Department of Mining must be legally established (paragraph 3.7). <i>Other conditions for program execution:</i> - Prior to the first procurement of goods or consulting services under Subprogram I for a province, a framework agreement between the SAYDS and the appropriate provincial environmental authority must be signed and placed into effect (paragraph 3.9). - Prior to the first procurement of goods or consulting services under Subprogram II for a province, a program participation agreement between the Department of Mining and the appropriate provincial government must be signed and placed into effect (paragraph 3.9). - Prior to the first disbursement for the “Implementing clean production practices in SMEs” component under Subprogram I, the operating regulations for the FONPLYCE must be in effect. (paragraph 3.11).				
<b>Exceptions to Bank policies:</b> None				
<b>Project consistent with country strategy:</b> Yes [ X ]      No [   ]				
<b>Project qualifies as:</b> SEQ [   ]      PTI [   ]      Sector [   ]      Geographic [   ]      Headcount [   ]				
<b>Procurement:</b> See paragraphs 3.22 and 3.23				
<b>Verified by CESI on:</b> 9 March 2007				

<sup>1</sup> The interest rate, credit fee, and inspection and supervision fee mentioned in this document are established pursuant to document FN-568-3 Rev. and may be changed by the Board of Executive Directors, taking into account the available background information, as well as the respective Finance Department recommendations. In no case will the credit fee exceed 0.75%, or the inspection and supervision fee exceed 1% of the loan amount.\*

\* With regard to the inspection and supervision fee, in no case will the charge exceed, in a given six-month period, the amount that would result from applying 1% to the loan amount divided by the number of six-month periods included in the original disbursement period.

## **I. FRAME OF REFERENCE**

### **A. A preventive approach to environmental management in Argentina**

- 1.1 The Argentine Constitution of 1994 establishes general principles on the environment, such as the universal right to a healthy, balanced environment for economic activities and the government's obligation to protect this right. In keeping with these principles, the provincial governments established legal and regulatory frameworks to set policies and create instruments for environmental protection and management within their jurisdictions. The national government, which is responsible for issuing policy principles and guidelines on environmental matters, developed a set of legal instruments to govern specific issues related to the protection, conservation, and sustainable use of natural resources. It also established the Preventive Environmental System for Mining Activity, which has been in effect since 1996 under the coordination of the national government's Department of Mining.
- 1.2 The General Law on the Environment, which instituted the National Environmental Policy, was enacted in 2002. One of the objectives of this policy was to establish a federal system of interjurisdictional coordination to implement environmental policies at the national and regional levels and to establish procedures and mechanisms to prevent and mitigate the harmful or hazardous effects of anthropic activity on the environment, to allow for sustainable economic, social, and ecological development. In keeping with these policy principles, the government, acting through its agencies, has been taking measures to adopt instruments to promote and encourage the identification and reduction of environmental costs for the Argentine economy. One of these measures is the National Policy on Clean Production, under the responsibility of the Department of the Environment and Sustainable Development (SAyDS).

#### **1. The National Policy on Clean Production<sup>1</sup>**

- 1.3 The National Policy on Clean Production is an environmental policy instrument for the continuous application of a strategy to prevent environmental pollution with improvements in efficiency integrated into production processes. Approved in 2004 through a process of consultation and interaction with representatives of the public and private sectors, the academic and scientific communities, and civil society, this policy made it a priority to have the public and private sectors come up with clean production programs, including development of promotion instruments, execution of implementation plans, and training and dissemination activities. The policy also introduces the concept of sustainable consumption as a strategy to raise awareness within civil society about the environmental consequences of current lifestyles and the importance of modifying nonsustainable consumption patterns.

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<sup>1</sup> According to the definition adopted by the United Nations Environment Programme, "Cleaner Production is the continuous application of an integrated preventive environmental strategy to processes, products, and services to increase overall efficiency, and reduce risks to humans and the environment."

- 1.4 The SAYDS is responsible for promoting implementation of the National Policy on Clean Production. To this end, it established the Clean Production and Sustainable Consumption Unit in 2004. The duties of this unit include coordinating and implementing the policy, as well as developing promotion instruments and carrying out implementation plans and training and dissemination activities. In March 2007, as part of the SAYDS restructuring plan, the Clean Production and Sustainable Consumption Office (DPLyCS) was formally established, creating the institutional structure necessary to implement the policy. In 2004, the Advisory Committee on Clean Production was established as a forum for public-private dialogue and cooperation to promote sustainable production. This advisory committee consists of 42 members, half of whom represent chambers of commerce.
- 1.5 Implementing the National Policy on Clean Production will help generate a preventive management tool to complement the provincial authorities' mechanisms and instruments for environmental management of production activities. These instruments take a preventive approach and are part of a "command and control" strategy, with emphasis on the control of industrial pollution. While these instruments are effective, they tend to target big business due to the greater effort required to monitor small and medium-sized enterprises (SMEs). The SAYDS will use the National Policy on Clean Production to improve the environmental management carried out by SMEs.
- 1.6 Some 300,000 SMEs account for 72% of all jobs and 48% of all industrial production, especially food and beverages, chemicals, machinery, textiles, and tannery products. Only a small fraction of these SMEs, however, make efforts to protect the environment. According to the latest [National Survey on Technological Innovation and Behavior of Argentine Businesses](#) (1998–2001), one of every three SMEs improved its efficiency in the use of inputs, water, and energy; one of every four incorporated systems to treat effluents and waste; and one of every six replaced or modified polluting processes. The survey identified local environmental regulations and a firm's environmental image as the two main factors that motivate SMEs to invest in environmental management; it also found that approximately 40% of all SMEs consider cost to be the primary obstacle to incorporating these technologies into their production processes.
- 1.7 To encourage the use of clean production practices in the business sector, the SAYDS has been developing pilot programs in SMEs from various industrial sectors, using a methodology known as "Programs for Clean Production and Business Competitiveness" (PPLyCE). A PPLyCE is a public-private partnership organized for a particular productive sector or for multiple sectors. Its implementation is governed by a guide developed by the SAYDS, which provides technical assistance and training to companies participating in a PPLyCE for a full review of production processes at each company in order to identify areas where the use of water and energy inputs, the use of hazardous materials, and the generation of waste may provide an opportunity to implement clean production methods and improve the environmental indicators prioritized by the PPLyCE. Each provincial

government monitors the objectives of the PPLyCEs within its jurisdiction through the appropriate environmental authority, and the SAyDS monitors, evaluates, and disseminates outcomes at the national level. Eleven PPLyCEs have been established thus far in eight provinces. The table indicates their location, the productive sectors to which they belong, and the number of businesses participating in each PPLyCE. Of the 140 participating SMEs, about 120 receive support from the SAyDS for identifying environmental problems and preparing a plan for clean production measures, as part of a clean production business project.

- 1.8 Both the outcomes of the National Survey on Technological Innovation and Behavior of Argentine Businesses and the experience gained in the process of implementing PPLyCEs have demonstrated the potential demand among SMEs for preventive technologies to improve their environmental performance.<sup>2</sup> To

Province	Sector	Number of participating SMEs
Jujuy	Lumber	16
	Multisector	8
Santa Cruz	Fishing	8
	Meatpacking	3
San Juan	Winemaking	24
Santa Fe	Metalworking/ Electroplating	20
	Multisector	20
Buenos Aires	Multisector	12
Córdoba	Multisector	12
Chaco	Lumber	10
Misiones	Lumber	7

Source: <http://www.ambiente.gov.ar/?idarticulo=909>

meet this demand, the SAyDS identified three important challenges: (i) introducing economic incentives for implementing clean production projects set forth as part of the Business Projects for Clean Production, since not all benefits generated by a reduction of environmental impacts are appropriate for SMEs; (ii) strengthening the technical capacity of the SAyDS for promoting, monitoring, evaluating, and disseminating outcomes to meet the objectives of the National Policy on Clean Production; and (iii) strengthening the capacity of the provincial governments to promote and encourage clean production practices at the business level, as a complementary environmental management tool for controlling pollution in production-related activity.

## 2. The Preventive Environmental System for Mining Activity

- 1.9 The mining sector has posted strong growth during this decade due to rising prices of basic and precious metals since 2002. According to the Department of Mining, the sector grew at an average annual rate of 17% between 2002 and 2006, and

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<sup>2</sup> This survey and experience in implementing PPLyCEs have also demonstrated the demand among SMEs for technologies for environmental impact mitigation and process restructuring. To meet this demand, as of February 2007, a line of credit for SMEs was established through the Department of Small and Medium-Sized Enterprises for the equivalent of US\$33 million, to finance up to 80% of new capital goods aimed at reducing environmental pollution, up to a maximum of US\$260,000 equivalent. The SAyDS is responsible for assessing each project and issuing a certificate affirming that the financing being granted represents an improvement in the company's environmental performance.



investment increased from US\$162 million in 2002 to US\$623 million in 2004, and is expected to reach US\$1.3 billion in 2006. In 2004, large-scale metal mining generated 86% of all investments, while the remaining 14% came from SMEs focused on ornamental stones and industrial minerals. SMEs account for 90% of all mining enterprises and 84% of all jobs in the mining sector.

- 1.10 Despite its contribution to the country's economic growth, expansion in the mining sector has created negative perceptions and resistance in communities near areas with mining potential, due to the potential for degradation of the environment and the quality of life. The government has a legal and institutional framework specifically designed to prevent environmental damage caused by mining activity and thereby prevent further social conflicts with the communities in question. The environmental legal framework is consistent with the General Law on the Environment, and fundamentally consists of provisions set forth in the Mining Code and the Law on Environmental Protection for Mining Activity (Law 24585 of 1995). The institutional framework consists of the provincial authorities charged with enforcing Law 24585,<sup>3</sup> with assistance from the Provincial Environmental Management Units for Mining (UGAPs) and the Department of Mining, through its Mining Environmental Management Office. The interrelation of these frameworks forms the basis for the Preventive Environmental System for Mining Activity.
- 1.11 The Preventive Environmental System for Mining Activity incorporates environmental management instruments, including the environmental impact report, which must be submitted by those wishing to carry out mining activity prior to the prospecting, exploration, and production stages, and the environmental impact statement, which is issued by the appropriate provincial authority to approve the environmental impact report. The Environmental Adaptation and Management Plan is a complementary instrument that is required as part of the environmental impact report when resuming mining activity in previously mined areas. This plan must identify liabilities and offer proposals to recover affected areas.
- 1.12 The environmental management instruments of the Preventive Environmental System for Mining Activity are up against a number of problems within the government, especially at the provincial level. For one thing, the authorities charged with enforcing Law 24585 lack the capacity to monitor and control environmental quality in mining operations in areas under their jurisdiction. The provincial regulatory frameworks for environmental management of mining activities—and especially instructions and procedures for evaluating environmental impact reports—are not standardized for nonmetallic minerals and industrial stones. Also, many authorities lack procedure manuals for monitoring environmental management and recovery plans. In addition to weaknesses in guides and procedures, Argentina lacks a geoenvironmental system to provide the baselines for

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<sup>3</sup> In Argentina, mineral resources are the property of the provinces, which have the authority to grant production concessions on them.

effective evaluation of environmental impact reports, as well as for land use planning for mining activity throughout the country.

- 1.13 Moreover, the Preventive Environmental System for Mining Activity provides no specific solutions for treating mining-related environmental liabilities that occurred prior to enactment of Law 24585. The limited amount of information on the location of degraded areas and the extent of the problems that these liabilities pose for the environment and the quality of life in affected communities—as well as the lack of procedures on remediation and subsequent monitoring efforts—compromise the flow of investment to the mining sector and make it difficult to reactivate mining areas with economic potential.
- 1.14 In addition to the challenges in implementing the preventive environmental management instruments included in the Preventive Environmental System for Mining Activity, the National Mining Plan, which was launched in 2004, set priorities that included promoting the incorporation of environmental considerations into mining production as an environmental protection measure. Specifically, this plan called for serving the segment of mining activity carried out by small-scale brickmakers. These family-run businesses operate outside the country's formal economy, generally near urban centers, use very low levels of technology, lack any knowledge of environmental protection practices, and are characterized by inadequate working conditions. Since 2005, brickmaking has been recognized as a formal mining operation that is subject to applicable legal and regulatory provisions, including environmental laws and regulations governing the mining sector. Enforcing these laws and regulations requires a detailed diagnostic assessment of the cottage brickmaking industry, including the number of families involved and their working conditions and quality of life; an assessment of the environmental problems caused by this cottage industry (degradation of arable land and the natural landscape, air pollution, and land-use conflicts); and dissemination of the most appropriate production techniques, in order to improve productivity and minimize negative environmental impacts on the soil and the air. In response to some of the recommendations of the National Mining Plan, the Department of Mining signed an agreement with the SAyDS to promote clean technologies in mining production, as well as to strengthen joint actions in treatment and recovery of degraded areas, which will foster synergies within the government.

## **B. The Bank's country and sector strategy**

- 1.15 The main objective of the Bank's country strategy with Argentina 2004-2008 (document GN-2328) is to help the country to achieve sustainable, more equitable growth. To meet this objective, the Bank calls for targeting actions in the following areas: (i) institutional strengthening for better governance and fiscal sustainability; (ii) strengthening of the environment for growth in investment and productivity, in order to make Argentina more competitive; and (iii) poverty reduction, rebuilding of human capital, and promotion of sustainable, inclusive social development. The proposed program will support the country strategy's second area of action, through activities aimed at promoting clean production

practices among SMEs as a strategy for improving environmental performance in production, as well as to encourage the inclusion of environmental considerations in mining activity to ensure the sustainability of investments in the sector. The program will also contribute to the country strategy's first area of action, by strengthening the environmental management capacity of the government at the national and provincial levels, both in clean production and in mining activity.

- 1.16 With regard to the sector strategy, the proposed program supports two priority action areas set forth in the Bank's Environment Strategy (document GN-2208-4): (i) *environmental governance*, by strengthening the framework of policies and incentives to promote the incorporation of clean production strategies in businesses, and to expand and strengthen the awareness and capacity of public-sector institutions and civil society with regard to issues related to environmental management of productive activity; and (ii) *environment and competitiveness*, by supporting improvements in production processes aimed at encouraging greater efficiency in the use of natural resources.

### **C. Bank activity in the environmental sector in Argentina**

- 1.17 The Institutional strengthening program for environmental management (768/OC-AR and 907/SF-AR), approved in 1993 with US\$30 million in financing and completed in 1999, marked the beginning of the Bank's activity in the environmental sector. As a result of that operation, an environmental policy and legislative framework was established, and the federal institutional structure and the provinces of Mendoza, Buenos Aires, Córdoba, and Misiones were strengthened. This operation had significant multiplier effects by strengthening the framework of sustainable development policies, thereby fostering the maturation of civil society organizations and heightening awareness about the importance of environmental protection. At present, all provinces have a regulatory framework and institutions responsible for implementing it, though installed capacity does still vary.
- 1.18 The Technological Modernization Program II (1201/OC-AR) helped to develop environmental technologies for both prevention and mitigation of industrial pollution. Projects financed under this program included development of technologies for treating industrial waste, controlling air emissions and water pollution, reusing industrial waste, and solar energy. The Technological Modernization Program III (1768/OC-AR), approved in 2006, will continue to finance projects in these areas, in order that resources may support the development of clean technologies and/or environmental mitigation.
- 1.19 In the area of clean production specifically, the Program for productive and job development in the province of San Juan (1798/OC-AR), approved in 2006, calls for assistance and training to implement PPLyCEs in clusters promoted by this operation, based on the experience of the PPLyCE for the grape and winemaking sector currently being carried out by the SAyDS. Also, resources from the Multilateral Investment Fund (MIF) are being used for the program Environmental management for cleaner production in the central region of Argentina

(ATN/ME-9531-AR), which was recently launched to raise awareness among SMEs in the region about clean production, expand the supply of professionals in clean production services, and prepare clean production programs at the business level. This operation was in the MIF cluster “Achieving Ecoefficiency Through Cleaner Production and Environment Management.”<sup>4</sup>

#### **D. Lessons learned**

- 1.20 The Bank has learned lessons from its participation in technical-assistance and institutional strengthening programs related to environmental management and clean production. First, *designing and executing preventive environmental management programs requires awareness-raising and training aimed at a broad spectrum of stakeholders*. Raising awareness among—and providing training for—entrepreneurs, environmental authorities, professional consultants, and public- and private-sector institutions ensures standardization and consistency among methodologies for diagnostic assessments, interventions, and monitoring efforts. This is particularly important for Argentina, where environmental management is decentralized at the provincial level. The program calls for strengthening, training, and promoting partnerships between public-sector entities, communities, and nongovernmental, sector, and cross-sector entities.
- 1.21 Second, *environmental authorities play a critical role in promoting efforts to improve environmental performance by businesses*. Environmental authorities should complement their environmental management policy based on command-and-control instruments with preventive actions such as clean production. This program incorporates this lesson by strengthening capacity of provincial environmental authorities to implement instruments developed through the National Policy on Clean Production, with special emphasis on SMEs.
- 1.22 Third, *sustained success in the adoption of clean production programs by businesses requires that they have access to financial resources to invest in improved technology*. Not all economic benefits generated by clean production practices among businesses are appropriated by them, particularly SMEs. As a result, taking advantage of positive external environmental factors generated by clean production requires the participation of the government as a promoter of initiatives aimed at maximizing private-sector investment in such projects. This program includes specific initiatives by the national government, including technical assistance and cofinancing for adoption of clean technologies by SMEs.
- 1.23 Fourth, *early building of strategic partnerships that translate into the use of more sustainable practices by the productive sector is important for the success of preventive environmental management projects*. To ensure the continuity of preventive environmental management policies, sufficient capacity for interagency coordination is needed in the national government. The program incorporates this lesson by strengthening this capacity, establishing the PPLYCEs as forums for

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<sup>4</sup> Multilateral Investment Fund, Final Report, Cleaner Production Cluster, 2005.

dialogue where subnational authorities, professional associations, and the scientific community may participate.

**E. Coordination with other international organizations**

- 1.24 The issue of environmental management, ecoefficiency, and clean production has received support from various international organizations. Specifically, the German Agency for Technical Cooperation is financing a regional program on competitiveness and the environment with the countries of the Southern Common Market (MERCOSUR), with the objective of making microenterprises and small and medium-sized businesses more competitive within the framework of sustainable development, based on promoting environmental management and clean production strategies. These initiatives have allowed the SAYDS to develop a policy framework for clean production and preventive environmental management, as well as specific actions to promote this topic in provinces and businesses. The World Bank has financed the Argentina mining sector technical assistance project (PASMA I and II), completed in 2001, through which the Department of Mining has successfully developed and implemented the Preventive Environmental System for Mining Activity, including development of the regulatory framework of Law 24585 and implementation of the environmental management units for mining activity at the national and provincial levels. The World Bank is also preparing the Uranium mining environmental restoration project, at a total cost of US\$35 million, to help the National Atomic Energy Commission prepare studies and begin the remediation program and closure of inactive uranium mining areas.

**F. Program strategy**

- 1.25 The program's strategy is based on promoting the sustainable growth of productive activity in Argentina. To this end, the program complements actions being pursued using a corrective approach through actions aimed at fostering the adoption of measures to gradually reduce environmental impacts and increase the productivity of SMEs. While the program supports implementation of initiatives that emerge from the pilot programs for clean production at the provincial level through the creation of instruments to encourage SMEs to adopt clean production practices, it also supports the Department of Mining's strategic guidelines for improving environmental management in the sector. For both lines of action, the program will intervene in three ways: (i) offering technical assistance and support to SMEs and small producers in the mining sector, to make their production processes and environmental performance more efficient than under current provisions; (ii) training and enabling national and provincial institutions to encourage the adoption of prevention and environmental management instruments; and (iii) generating specific instruments and experiences to consolidate a framework for prevention and remediation of negative environmental and social externalities related to the productive sector. The program has been divided into two subprograms, each carried out by the responsible entity at the national level: the SAYDS and the Department of Mining.

- 1.26 As for promoting clean production, the operation helps expand the scope of Bank environmental operations by supporting a national strategy with general guidelines for action at the provincial level. The program seeks to support effective implementation of this tool as an instrument for bringing production activities into line with current environmental laws and regulations in the provinces, and creating the institutional, technical, and economic conditions for SMEs—especially those in the industrial sector—to adopt practices to reduce their environmental impact, while increasing production efficiency. To this end, the program will strengthen capacities to promote the clean production strategy in the provinces, as well as the public-private partnership mechanism being developed at the provincial level (PPLyCEs). Furthermore, considering similar experiences in other countries, it will establish the Fund for Clean Production and Business Competitiveness (FONPLyCE), with nonreimbursable contributions to finance clean production projects by SMEs that help achieve the environmental objectives in the PPLyCEs.<sup>5</sup> The objective of the FONPLyCE is to produce successful projects that can be replicated throughout the country and to encourage more businesses to adopt clean production practices as a business and environmental management strategy.
- 1.27 As for environmental management in the mining sector, the outcomes of World Bank operations to support the mining sector lay the basis for the conceptual design of the proposed program. The program strengthens the institutional framework of the Preventive Environmental System for Mining Activity and the communities in mining provinces, to improve the practices of the most vulnerable producers in the sector (i.e., small-scale producers) and implement a strategy and procedures for remediation of negative environmental impacts caused by past activities. The program also generates synergies with clean production activities, by promoting the adoption of similar strategies at the level of artisanal mining and institutional strengthening in this area in the main mining provinces.

## **II. THE PROGRAM**

### **A. Objective and description**

- 2.1 The objective of the program is to help make production-related activities environmentally sustainable. The program is structured in two subprograms, which have the following specific purposes: (1) to promote the adoption of clean production practices by SMEs as a business environmental management strategy; and (2) to promote the incorporation of environmental considerations into mining activities. The expected impacts of the program, as well as the expected outcomes and products of each subprogram, are listed in the logical framework (Annex I).

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<sup>5</sup> The FONPLyCE proposal will be set up with nonreimbursable financing from the Bank. The experience and results derived from the fund will give the national and provincial governments the information they need to determine whether to continue offering the line of cofinancing for clean production.

## **1. Subprogram I: Promotion of clean production**

- 2.2 To meet its objective, this subprogram includes two components, to strengthen the technical and institutional capacity of the public sector at the national and provincial levels to implement the National Policy on Clean Production and to promote clean production among SMEs, respectively. At the provincial level, activities under both components will mainly target eight provinces, which have been selected on the basis of the size of the SME segment of their industrial sectors and the experience that most of them have with clean production programs (Jujuy, Santa Cruz, San Juan, Buenos Aires, Santa Fe, Tucumán, Mendoza, and Córdoba). Both components are described below.

### **a. Component 1: Federalizing clean production (US\$4.2 million)**

- 2.3 Activities under this component to strengthen the SAyDS (US\$3 million) will consist of: (i) the design and implementation of a nationwide information and communication system for clean production to record and monitor activities, including those related to the proposed program and clean production programs with businesses, and computerizing information related to the institutions that make up the National Network on Clean Production; (ii) the preparation of sector-specific studies on various topics, sector-specific user guides, training materials, and technical assistance for development of indicators and proposals for economic and noneconomic incentives for clean production; (iii) the design of a strategy for dissemination, use of the mass media, and meetings and workshops for disseminating clean production programs and outcomes; and (iv) the provision of equipment and training and the hiring of specialists in engineering, environmental sciences, and economics for the Clean Production and Sustainable Consumption Office (DPLyCS) to effectively perform its duties related to institutional promotion and coordination, program monitoring and dissemination, and regular updates of the clean production information system.
- 2.4 At the provincial level (US\$1.2 million), this component will support implementation of a regional coordination unit for clean production in the provincial environmental authorities of the eight provinces selected, through the provision of computer equipment and industrial measurement equipment; technical assistance to develop and implement clean production policy instruments in the provinces; training of professionals and specialists in clean production methodologies; and dissemination of information on successful experiences with implementing clean production in SMEs, in order to continue promoting the adoption of clean production measures over the long term. In the other provinces, workshops and materials will be financed to create a chapter of the National Network on Clean Production.

### **b. Component 2: Implementing clean production practices in SMEs (US\$15.2 million)**

- 2.5 This component includes workshops and technical assistance for addressing clean production at the provincial level, as well as for recruiting SMEs interested in

meeting common environmental objectives through participation in clean production and business competitiveness programs (PPLyCEs) in the eight selected provinces. Groups of SMEs participating in a PPLyCE will be supported through methodological training and onsite technical assistance to develop Business Projects for Clean Production, which include a diagnostic assessment and an action plan that integrates clean production projects to improve their production processes and reduce their environmental impacts in a manner consistent with the objectives of the PPLyCE. These groups may be supported with technical assistance to develop proposals for technological innovation projects for clean production aimed at solving common environmental problems.

- 2.6 Financing in the amount of US\$12.2 million will be provided to create the Fund for Clean Production and Business Competitiveness (FONPPLyCE), which will offer two lines of nonreimbursable financing to encourage eligible SMEs to adopt clean production practices. The first line will finance the reimbursement of up to 80% of eligible expenses related to implementation of measures included in the Business Projects for Clean Production, up to a maximum amount of US\$28,000. Eligible expenses include consulting services for technical assistance and training, purchase of equipment and materials, and physical and chemical testing. The second line will finance eligible expenses to develop and implement on a pilot scale technical innovation projects in clean production of common interest identified in the PPLyCEs and requested by a group of businesses, up to a maximum of US\$61,000. Component resources allocated for this second line of financing will not exceed US\$600,000.

## **2. Subprogram II: Environmental management of mining activities**

- 2.7 The subprogram includes activities grouped into four components aimed at strengthening the institutional framework for environmental management of mining activities in the public sector at the provincial level, incorporating environmental practices in the cottage brickmaking industry, supporting environmental management in degraded mining areas, and generating baseline geoenvironmental information of interest to the mining sector. These components are described below.

### **a. Component 1: Strengthening decentralized environmental management of mining activities (US\$2.3 million)**

- 2.8 This component calls for technical assistance, discussion workshops, and provision of equipment to improve performance in management and control duties in all Provincial Environmental Management Units for Mining (UGAPs) or the equivalent provincial units. It includes: (i) standardization of environmental legal and regulatory frameworks, development of procedure manuals for implementing environmental measures and standardizing environmental assessment procedures for mining of nonmetallic and industrial minerals; (ii) training courses for personnel in areas such as environmental management of mining activities, assessments of risks and processes of environmental pollution and liabilities, and mine closure; and basic computer equipment and environmental control and monitoring equipment;



and (iii) awareness-raising and informational campaigns on socioenvironmental aspects of mining activities at the national level, in 10 provinces and 70 mining locations.

**b. Component 2: Incorporating environmental practices in the cottage brickmaking industry (US\$1.5 million)**

- 2.9 This component calls for the development of a nationwide diagnostic assessment of the cottage brickmaking industry and a draft action plan to address social, environmental, and technological problems in the industry. For each province, this assessment will identify the number, characteristics, and location of producers, type of ownership, technology utilized, and jobs created, as well as the environmental problems caused by brickmaking. The action plan will offer recommendations for addressing the social, environmental, and technological problems faced by brickmakers, prioritizing other component activities based on the problems identified. Accordingly, financing will be provided to raise the awareness of and train 4,550 small-scale brickmakers in good production practices, health, occupational safety, options for joining the formal economy, and environmentally sustainable technologies. Of this group, 1,800 will be trained in the use of more efficient production technologies with the operation of simple machinery and tools. To meet these goals, 900 specialists or instructors will be trained to serve as multipliers. A greater number of workshops will be scheduled in those provinces that have the most producers, as determined by the nationwide diagnostic assessment.
- 2.10 This component will also include technical assistance, equipment, inputs, and transport of materials to help the Argentine Mining Geological Service (SEGEMAR) identify potential areas with deposits of clay proven to be appropriate for brickmaking in the zones with the greatest concentration of brickmakers in each region of the country (Northwest, Northeast, Central, Cuyo, and Patagonia), as more suitable alternatives for structuring brickmaking activity and reducing negative impacts. This identification will include surveying, surface and drill sampling, technological profiling, and the measuring of deposits.

**c. Component 3: Supporting environmental management in degraded mining areas (US\$13.7 million)**

- 2.11 This component calls for: (i) a nationwide inventory of inactive or abandoned areas degraded by mining activities predating enactment of Law 24585 of 1995, including a prioritized list of critical areas for remediation; and (ii) a detailed evaluation of liabilities, with onsite profiling of pollution sources, a description of impacts, and a risk assessment in eight degraded areas prioritized due to their impact on the environment and the health of affected communities. Remediation projects will be prepared on a pilot basis, and the corresponding investments will be made for the remediation of environmental liabilities (elimination of pollution sources, adequate disposal of contaminated waste, and monitoring systems) will be carried out in three of these areas, at an estimated cost of US\$10.4 million. This

experience will be reflected in a technical manual for subsequent remediation of other mining-related environmental liabilities.

**d. Component 4: Collecting baseline geoenvironmental data (US\$2.6 million)**

- 2.12 This component will generate and computerize mining-related geoenvironmental information through SEGEMAR in relevant areas of the country, so that baseline information is available to support environmental management actions, including environmental impact assessments, land-use planning, and mining-related prospecting and exploration studies. It includes consulting and laboratory services, as well as sampling materials and equipment and per diem and transportation allowances for SEGEMAR personnel to conduct a survey at a 1:100,000 scale of geological, hydrogeological, geochemical, and environmental features of eight areas selected based on existing and potential investment in mining, as well as possible immediate and short-term social and environmental conflicts.<sup>6</sup> This will build SEGEMAR's capacity to survey similar data elsewhere in the country.
- 2.13 This component also includes consulting services and equipment for designing and implementing a mining-related geoenvironmental information system at SEGEMAR, in order to facilitate the management of information aimed at national and provincial authorities, the private sector, civil society, and communities in the projects' areas of influence. This system will feature a database of baseline information for the eight selected mining areas, will adjust and expand the existing network system, and will allow access to information through the websites of both the Department of Mining and SEGEMAR.

**B. Cost and financing**

- 2.14 The total cost of the program is US\$50 million. The Bank will contribute US\$40 million (80%) from its Ordinary Capital resources. The national government will provide US\$10 million equivalent (20%) in local counterpart funding. The table below provides a breakdown by source of funds and cost category for each subprogram.

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<sup>6</sup> The selected areas are: Farallón Negro (Catamarca); Paramillos de Uspallata (Mendoza); Castaño Viejo (San Juan); Concordia-La Poma-San Antonio de Los Cobres (Salta); El Guaico (Córdoba); Gonzalito-Vicentito (Río Negro); La Ferrocarrilera-Lago Fontana-La Plata (Chubut); and Ushuaia (Tierra del Fuego).

**Program cost and financing (US\$ million)**

Category	Bank	Local	Total	%
<b>Subprogram I: Promotion of clean production</b>				
<b>I. Administration and supervision</b>	<b>0.9</b>	<b>0.1</b>	<b>1.0</b>	<b>2.0</b>
<b>II. Direct costs</b>	<b>17.9</b>	<b>1.5</b>	<b>19.4</b>	<b>38.8</b>
1. Federalizing clean production	3.4	0.8	4.2	8.4
2. Implementing clean production practices in SMEs	14.5	0.7	15.2	30.4
<b>III. Monitoring, evaluation, and audits</b>	<b>0.7</b>	<b>0</b>	<b>0.7</b>	<b>1.4</b>
<b>IV. Financial costs</b>	<b>0</b>	<b>3.2</b>	<b>3.2</b>	<b>6.4</b>
<b>Subprogram I Total</b>	<b>19.5</b>	<b>4.8</b>	<b>24.3</b>	<b>48.6</b>
<b>Subprogram II: Environmental management of mining activities</b>				
<b>I. Administration and supervision</b>	<b>1.4</b>	<b>0.2</b>	<b>1.6</b>	<b>3.2</b>
<b>II. Direct costs</b>	<b>18.5</b>	<b>1.6</b>	<b>20.1</b>	<b>40.2</b>
1. Strengthening decentralized environmental management of mining activities	2.0	0.3	2.3	4.6
2. Incorporating environmental practices in the cottage brickmaking industry	1.3	0.2	1.5	3.0
3. Supporting environmental management in degraded mining areas	13.4	0.3	13.7	27.4
4. Collecting baseline geoenvironmental data	1.8	0.8	2.6	5.2
<b>III. Monitoring, evaluation, and audits</b>	<b>0.6</b>	<b>0</b>	<b>0.6</b>	<b>1.2</b>
<b>IV. Financial costs</b>	<b>0</b>	<b>3.4</b>	<b>3.4</b>	<b>6.8</b>
<b>Subprogram II Total</b>	<b>20.5</b>	<b>5.2</b>	<b>25.7</b>	<b>51.4</b>
<b>PROGRAM TOTAL</b>	<b>40.0</b>	<b>10.0</b>	<b>50.0</b>	<b>100.0</b>
<b>%</b>	<b>80.0</b>	<b>20.0</b>	<b>100.0</b>	

- 2.15 Costs under the “Administration and supervision” category include consulting services, equipment, and materials to support the units responsible for execution within the program’s executing agencies. In the direct costs category, the local counterpart contribution covers per diem and transportation allowances for personnel employed by the SAyDS and the Department of Mining, as well as by the provincial governments, in relation with workshops, training sessions, and field activities.

### **III. EXECUTION**

#### **A. Borrower and executing agencies**

- 3.1 The borrower will be the Government of Argentina, and the executing agencies will be the Department of the Environment and Sustainable Development (SAyDS) for Subprogram I and the Department of Mining for Subprogram II.

**B. Program execution and administration**

- 3.2 Each executing agency will be responsible for the general administration, the financial and accounting management, and the monitoring and evaluation of its respective subprogram. General responsibilities include: (i) opening separate bank accounts and maintaining accounting records that identify sources and uses of program resources; (ii) preparing and submitting to the Bank disbursement requests, supporting documentation for eligible expenses, and audited financial statements for the program; (iii) preparing competitive bid processes and conducting contracting processes, making payments, and providing technical and environmental supervision of the contracts; (iv) preparing, submitting to the Bank, and making available to the public the required monitoring and evaluation reports; and (v) ensuring compliance with the contractual clauses in the loan contract. Each executing agency will have a consolidated accounting system that will allow it to perform effective financial administration of its respective subprogram and deliver reports as scheduled.

**1. Department of the Environment and Sustainable Development (SAyDS)**

- 3.3 The SAyDS will perform its administrative and financial duties, as well as tasks associated with implementation of the subprogram for which it is responsible through its Clean Production and Sustainable Consumption Office (DPLyCS). The duties of the DPLyCS include setting policies, developing promotion instruments, executing implementation plans, and carrying out training and dissemination activities on clean production. Subprogram I activities and the responsibilities assigned to the DPLyCS during program execution will directly strengthen its performance.
- 3.4 As part of its responsibilities in executing the component for implementation of clean production practices, the DPLyCS will verify the eligibility of participating businesses, contract and make payments for technical-assistance services in clean production, approve the Business Projects for Clean Production, evaluate and approve requests for financing under the Fund for Clean Production and Business Competitiveness (FONPLyCE), supervise regular verification of fulfillment of the environmental performance targets established for the business projects, and authorize the corresponding reimbursement payments.
- 3.5 The national director of the DPLyCS will implement, administer, and supervise the subprogram. An assessment of the DPLyCS's institutional capacity identified the need for strengthening in the form of a coordinator who specializes in project management and two specialists in monitoring systems. Also, the DPLyCS will have specialists in industrial processes, economic evaluation of projects, and clean production. During the program's fourth year, these specialists will be hired as permanent staff of the DPLyCS, to ensure the continuity of its promotion and monitoring work, as well as allow for the future expansion of clean production activities to other provinces.

- 3.6 Specifically to carry out its administrative, financial, and fiduciary tasks, the DPLyCS will have the support of the Coordination Unit for International Technical and Financial Management (UCOFI). Within the SAyDS, UCOFI handles procurement processes, the issuance of payments upon authorization by the DPLyCS, and accounting and financial management of operations with international institutions. For the purposes of the subprogram, a full-time procurement specialist and two financial specialists with knowledge of internal control policies will be hired.

## **2. Department of Mining**

- 3.7 The Department of Mining will perform its administrative and financial duties, as well as tasks associated with implementation of Subprogram II through an executing unit to be established for this purpose. This unit will report directly to the Department of Mining and will be headed by a general coordinator specializing in project management. The coordinator will have the support of a technical and operational coordinator, three specialists (administrative/financial, procurement, and monitoring), and experts in areas including environmental management of mining activities and remediation of mining liabilities. The duties assigned to the executing unit go beyond the regular duties of the Department of Mining and are not expected to become permanent upon completion of the program. **The legal establishment of the executing unit within the Department of Mining will be a condition precedent to the first disbursement for Subprogram II.**
- 3.8 The executing unit will have the support of the Argentine Mining Geological Service (SEGEMAR), a decentralized national agency attached to the Department of Mining that produces geological and mining data and provides technological assistance to mining businesses. SEGEMAR will perform specific tasks related to identification of areas with potential clay deposits (paragraph 2.10), development of a nationwide inventory of degraded mining areas (paragraph 2.11), and surveying of baseline geoenvironmental data (paragraph 2.12). In support of these tasks, the Department of Mining will procure equipment and inputs for field and laboratory activities and transfer them to SEGEMAR, which will be responsible for maintaining these assets. SEGEMAR has signed a resolution that sets forth its responsibilities and commitments for performing activities, transferring and maintaining assets, and supporting Subprogram II (see online references).

## **C. Provincial governments**

- 3.9 The participation of the provinces is envisaged throughout the project cycle. The project calls for procurement of equipment and consulting services in order to strengthen the capacity of the provincial authorities in the areas of clean production and environmental management of mining activities. These procurements will be handled by the executing agency responsible for each subprogram. A framework agreement between each executing agency and the provincial government will formalize participation in, and the commitments assumed under, each subprogram. These agreements will establish the terms of cooperation for selecting the activities

to be pursued and, as applicable, for selecting and monitoring consulting services, works, and equipment, as well as the commitments for transferring and maintaining assets, identifying personnel to be trained, and performing the oversight and monitoring activities corresponding to program activities in each province. Accordingly, **a framework agreement between the SAyDS and the appropriate provincial environmental authority must be signed and in force, in accordance with the previously established terms, as a condition precedent to the first procurement of goods or consulting services in each province. Similarly, a program participation agreement must be signed and in force between the Department of Mining and the provincial government, in accordance with the previously established terms, as a condition precedent to the first procurement of goods or consulting services in each province.**

**D. Execution mechanism**

**1. Implementation of clean production practices in SMEs**

- 3.10 In conjunction with the corresponding provincial environmental authority, the DPLyCS will hold events to raise awareness about clean production, describe the scope of the subprogram, and recruit SMEs to participate in clean production and business competitiveness programs (PPLyCEs), especially in those sectors identified by the provincial environmental authority based on the role they play in the province's environmental problems. This process will mobilize the province's private companies, nongovernmental organizations, and public institutions. Every PPLyCE will consist of a minimum of 10 and a maximum of 20 SMEs that adopt clean production practices, with a view to meeting common environmental quality objectives prioritized by the province. In the framework agreement signed between the SAyDS and the provincial agreement, each SME agrees to implement the PPLyCE through an individual letter of agreement.
- 3.11 Execution of the two lines of financing under the FONPLyCE will be governed by operating regulations developed during program preparation. These regulations establish, *inter alia*, the objectives, applicant (beneficiary) requirements, levels of cofinancing, eligible expenses, and the mechanisms and procedures for submitting and evaluating proposals and for reimbursement of expenses incurred. These procedures will be posted on the SAyDS website's dedicated page on the program. Below is a summary of these mechanisms for both lines of financing. **As a condition precedent to the first disbursement for the component to implement clean production practices in SMEs, the operating regulations for the FONPLyCE must be in effect.**

**a. Line 1: Business Projects for Clean Production**

- 3.12 Once a PPLyCE is agreed on, the DPLyCS will provide support through technical assistance and training for each group of eligible SMEs<sup>7</sup> under the PPLyCE to develop Business Projects for Clean Production. Each project will include a diagnostic assessment of management of emissions, effluents, waste, and/or use of inputs, as well as an action plan with the clean production that, as a whole, will help improve the environmental indicators prioritized under each PPLyCE. The action plan will also indicate the degree of compliance with applicable legal provisions on the environment. For businesses requesting support from the FONPLyCE to cofinance their action plan, their respective Business Projects for Clean Production must also include a description and cost of the projects to be financed, a detailed timetable for execution, cash flow and quantitative improvement targets of at least 10% (measured at project completion against the baseline) for at least one of the priority indicators listed in the table. Each business project will be accompanied by accounting/financial documentation supporting the applicant SME's ability to provide 20% cofinancing.
- |                          |   |
|--------------------------|---|
| <b>Global indicators</b> | Greenhouse gases, as listed in the Kyoto Protocol (CO <sub>2</sub> equivalent)                                    |
|                          | Ozone layer-depleting substances, as listed in the Montreal Protocol  |
|                          | Persistent organic pollutants, as listed in the Stockholm Protocol  |
| <b>Local Indicators</b>  | Related to air emissions: particulate material, sulfur dioxide (SO <sub>2</sub> ), and volatile organic compounds |
|                          | Related to wastewater spills: biological demand for oxygen, chemical demand for oxygen, and others.               |
|                          | Related to the use of inputs: water, energy (fuel, electricity), toxic inputs                                     |
|                          | Related to reduced generation of waste, especially hazardous waste.   |
- 3.13 The technical and financial evaluation of the Business Projects for Clean Production will cover the following: consistency and relevance of the proposed measures and the environmental problem identified; environmental, technical, and economic feasibility; consistency between the budget, the execution timetable, and the expected environmental improvements; and the relevance of each specific measure. As part of this evaluation, the DPLyCS—with support from the respective provincial environmental authority—will also carry out the actual onsite measurement (ex ante) of the environmental indicators in question to confirm the baseline given in the business projects. The projects will be evaluated by a committee consisting of three members of the SAYDS and outside professionals who are leaders in their field, as warranted by the nature of the business project in question. The committee's report stating its opinion on each project will be submitted to the director of the DPLyCS, who will see that it is posted on the

<sup>7</sup> Eligible businesses will be those that are legally established and defined as SMEs in accordance with applicable laws and regulations, with no outstanding tax or social security debts. Two businesses owned by the same individual may not participate in the same PPLyCE.

program webpage. The obligations and commitments resulting for the beneficiary company and the SAYDS for each approved project will be set forth in a private contract. The Business Project for Clean Production will be an integral part of this contract.

- 3.14 After the approved measures are implemented, the beneficiary SME will submit a request for reimbursement of payments made to the DPLyCS, supported by an expense report signed by the beneficiary's legal representative and a registered public accountant certifying the existence of the original documentation and the corresponding accounting records. The DPLyCS will authorize UCOFI to release the corresponding payments after verifying that the financed measures have been implemented. This verification will also include onsite measurement of environmental improvements (ex post), for which the corresponding provincial environmental authority will provide support.

**b. Line 2: Technological innovation projects for clean production**

- 3.15 Groups of SMEs belonging to a PPLyCE that have identified common environmental problems may submit a specific application to the DPLyCS to develop and implement technological innovation pilot projects of collective interest for clean production. The application will include a description of the problem identified and the environmental improvements expected by the group of SMEs as a result of the innovation.
- 3.16 Once the application is accepted, the DPLyCS, in coordination with the appropriate provincial government and the group of requesting SMEs, will invite universities and research and technology centers—preferably at the provincial level—to submit technical proposals in response to the application. Each proposal will include a description and cost of the project, a timetable with milestones for development and implementation, and an estimate of expected improvements in productivity and environmental performance at the business level. The entity will be selected on the basis of the evaluation of the technical proposal, in particular the consistency between the project and the needs of the group of applicant SMEs, and the qualifications of the proposing entity. The selection process will be conducted by an ad hoc committee consisting of two professionals from the SAYDS, a representative of the provincial environmental authority, and a representative of the group of applicant SMEs, and may include outside evaluators, as warranted by the nature of the technological innovation in question, provided that confidentiality is maintained.
- 3.17 Once a successful bidder is chosen, the obligations and commitments resulting for said entity, the applicant SMEs, and the SAYDS will be established in a private contract. The DPLyCS will authorize UCOFI to make the corresponding payments following the awarding entity's confirmation of delivered products, based on progress reports and the supporting documentation submitted for expenses.



## **2. Supporting environmental management in degraded mining areas**

- 3.18 As part of the tasks for establishing a nationwide inventory of degraded mining areas, consulting services will be engaged to develop the surveys, the basic sampling method, and the electronic form and database, as well as training and laboratory analyses. SEGEMAR will have equipment and inputs for sampling, per diem and transportation allowances for data surveying, uploading the information to the geographic information system, and subsequently posting the results on the Internet.
- 3.19 Consulting services will be procured for detailed evaluations of the environmental liabilities of each degraded area selected. The following areas have tentatively been selected: Fundición de Plomo Metal Huasi in Abra Pampa (Jujuy); Fundición de Plomo in San Antonio Oeste (Río Negro); Sulfateras de Calingasta (San Juan); Minas Concordia-La Poma in San Antonio de los Cobres (Salta); Mina Capillitas in Andalgalá (Catamarca); Mina Río Diamante in San Rafael (Mendoza); Grupo de Minas El Guaico in Cruz del Eje (Córdoba); and Mina La Ferrocarrilera (Chubut). These evaluations will describe the pollution source of pollution and impacts (extent, type, and distribution) on receiving waters in the area of influence, measured using the quantitative environmental indicators that constitute the baseline. Also, consulting services will be engaged to design liability remediation plans for the first three aforementioned areas. Each remediation plan will include a technical and economic analysis of alternatives for eliminating the source of pollution, transporting and disposing of the polluted material, and rehabilitating the land; final designs for the least-cost option; a technical/legal report with guidelines for carrying out the interventions in accordance with national and provincial laws and Bank policies; a monitoring plan with improvement targets for the baseline environmental indicators; and the corresponding environmental impact assessment. The supporting technical documentation for remediation efforts will be prepared by the Department of Mining and submitted for consideration to the provincial enforcement authorities before procurement activities are initiated. The Department of Mining will also inform the SAyDS of proposed interventions, to ensure consistency with SAyDS activities in terms of environmental management of contaminated soil. The documentation will be submitted to the Bank for its nonobjection.
- 3.20 Comprehensive remediation of environmental liabilities will be carried out at Fundición de Plomo Metal Huasi in Abra Pampa (Jujuy), Fundición de Plomo in San Antonio Oeste (Río Negro), and Sulfateras de Calingasta (San Juan). Remediation services will be provided by firms with proven experience in the recovery of degraded mining areas, in accordance with technical and legal guidelines in the corresponding remediation plans. The Department of Mining, in coordination with provincial enforcement authorities, will be responsible for technical supervision and verification of contractor compliance with national and provincial environmental provisions. Contracts for remediation of degraded areas will incorporate environmental measures derived from such provisions.

- 3.21 The Department of Mining will engage consulting services to help it oversee the technical and environmental aspects of remediation works. As part of its semiannual execution report, the Department of Mining will submit the results of these efforts, indicating contractor compliance with environmental provisions, general problems encountered, and measures adopted to resolve them. When remediation activities are completed, the Department of Mining will use loan proceeds to commission independent environmental audits to verify the environmental outcomes of the interventions, using as a reference the baseline indicators from the detailed evaluations for each area. The results of such audits will be included in the subprogram evaluation reports (paragraph 3.28b).

#### **E. Procurement**

- 3.22 Program-financed goods and related services will be procured in accordance with the Bank policies contained in document GN-2349-7, "Policies for the Procurement of Goods and Works Financed by the Inter-American Development Bank," of July 2006. Program-financed consulting services will be selected and contracted in accordance with the Bank policies contained in document GN-2350-7, "Policies for the Selection and Contracting of Consultants Financed by the Inter-American Development Bank," of July 2006. International competitive bidding will be used to procure works with an estimated cost at or above US\$5 million and to procure goods and related services with an estimated cost at or above US\$500,000. Goods costing between US\$100,000 and US\$500,000 may be procured through national competitive bidding, and goods costing less than US\$100,000 may be procured through shopping. Consulting contracts with an estimated value of more than US\$200,000 must be publicized internationally, while shortlists of consultants for contracts valued at less than US\$200,000 may comprise entirely national consultants. The works, goods, and related services, including consulting services, scheduled for procurement during the first 18 months of program execution, are listed in the Procurement Plan (see online references).
- 3.23 In view of the executing agencies' lack of prior experience in executing Bank operations, it has been decided that all procurements made by the executing agencies will initially be reviewed on an ex ante basis. Twelve months after the date on which the first procurement is made, regular reviews, external audits of program financial statements, and inspection visits will be conducted to determine the quality of each executing agency's internal controls. Based on the results of this analysis, a decision will be made as to whether an ex post review of procurement and disbursement processes may be performed in the case of works and goods contracts under the thresholds for international competitive bidding and consulting contracts for less than US\$200,000, in the case consulting firms, and less than US\$50,000, in the case of individual consultants. In each case, authorization to conduct procurements under the ex post review modality for all or part of the program may be revoked at any time. Furthermore, as a result of the findings of ex post reviews and on a case-by-case basis, financing from loan proceeds or counterpart funds may be denied.

## **F. Revolving funds**

- 3.24 For each subprogram, a revolving fund of up to 5% of the amount of the Bank's loan for the corresponding subprogram will be created, in order to advance funds for program-financed activities.

## **G. Execution period and disbursement timetable**

- 3.25 The program will have a disbursement period of six years. The following table shows the disbursement timetable for each subprogram:

**Disbursement timetable (US\$ million)**

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
<b>Subprogram I</b>							
IDB	2.1	5.0	4.9	4.1	2.5	0.9	19.5
Local contribution	0.6	1.2	1.2	1.1	0.6	0.1	4.8
Total	2.7	6.2	6.1	5.2	3.1	1.0	24.3
%	11.1	25.5	25.1	21.2	12.8	4.3	100.0
<b>Subprogram II</b>							
IDB	1.0	3.9	5.1	5.3	3.5	1.7	20.5
Local contribution	0.3	1.0	1.3	1.4	0.9	0.3	5.2
Total	1.3	4.9	6.4	6.7	4.4	2.0	25.7
%	5.1	19.1	24.7	26.1	17.1	7.9	100.0

## **H. Monitoring and evaluation**

- 3.26 Each executing agency will monitor and evaluate fulfillment of periodic targets related to product, outcome, and impact indicators for the subprogram for which it is responsible, as set forth in the logical framework (Annex I). To this end, each executing agency will have a computerized monitoring system to help integrate financial and accounting management of the operation with the regular attainment of products. In the case of the SAYDS, the system will include a database with information from the beneficiary SMEs, their Business Projects for Clean Production, the results of the ex ante and ex post onsite measurements of environmental indicators, and the amount of the reimbursements granted in each case. This information will serve as the basis for measuring the subprogram outcomes included in the logical framework and evaluating the efficiency of the FONPLYCE as an environmental management tool.
- 3.27 Each executing agency will prepare a monitoring report on the status of the activities of the subprogram for which it is responsible, and will submit this report to the Bank no later than 30 days before the end of each six-month period during the program. These reports will focus on the fulfillment of product indicators and the progress made towards attaining the outcomes set forth in the logical framework (Annex I), analyze the problems encountered, and indicate the corrective measures

- that were adopted. Reports covering the second half of the year will also include programming for the following calendar year, with forecasted disbursements and an updated procurement plan. Any adjustments made to the program as a result of the discussion of these reports will be agreed upon with the Bank at the corresponding meetings held every six months with each executing agency. Upon acceptance by the Bank, the monitoring reports will be made available to the public on the dedicated program webpage on the website of the corresponding executing agency.
- 3.28 As part of the program evaluation, each executing agency will deliver to the Bank a midterm evaluation report on the subprogram for which it is responsible, 90 days after the date on which 50% of the loan proceeds for the subprogram have been committed. Each executing agency will also prepare a final evaluation report for the subprogram for which it is responsible, and will submit this report to the Bank 90 days after the date on which 90% of the loan proceeds for the subprogram have been disbursed. These reports will include an assessment of the quality of data in the monitoring system, the fulfillment of the product, outcome, and impact indicators set forth in the logical framework (Annex I), and compliance with contractual commitments and related agreements. The reports from each executing agency will also include the following:
- a. The SAYDS: (i) a quantitative assessment of the effectiveness and efficiency of the processes in place for the development of the PPLyCE and for preparation, evaluation, and approval of Business Projects for Clean Production, with emphasis on quality, time, and cost; and (ii) an economic assessment of the suitability of the cofinancing percentage and the FONPLyCE reimbursement cap in view of current demand among beneficiary SMEs (number, location, and production-related sector), and the reduction of environmental impacts.
  - b. The Department of Mining: The results of the environmental audits to ascertain the environmental outcomes attained through remediation of environmental liabilities in the three areas selected, as well as the extent of compliance by the implementing authorities with regard to regular monitoring efforts.
- 3.29 The evaluations will be carried out by independent consultants, preferably economists and environmental specialists, to be commissioned by each executing agency and financed with loan proceeds. After being accepted by the Bank, each evaluation report will be made available to the public on the dedicated program webpage on the website of the corresponding executing agency. The reports, including supporting documentation and statistical data, will be available for an ex post evaluation in the event that the Government or the Bank should decide to conduct one after program completion. **Within 90 days after the date on which 50% of the loan proceeds for each subprogram have been committed, the corresponding executing agency will submit to the Bank a midterm evaluation report on the subprogram for which it is responsible. In addition, within 90 days after the date on which 90% of loan proceeds for each subprogram**

**have been disbursed, the corresponding executing agency will submit to the Bank a final evaluation report on the subprogram for which it is responsible.**

**I. Audits**

- 3.30 Within 120 days after the end of each fiscal year or, at the end of the program, within 120 days after the last disbursement, each executing agency will submit to the Bank the audited financial statements along with the opinion duly issued by independent auditors acceptable to the Bank. Each audit will be carried out in accordance with terms of reference previously approved by the Bank (document AF-400) and Bank policy and requirements for external audits (documents AF-100 and AF-300). The costs of each audit may be financed with loan proceeds. Auditors will be selected and contracted in accordance with standard procedures for external auditing firms (document AF-200).

**IV. VIABILITY AND RISKS**

**A. Institutional viability**

- 4.1 The viability of the proposed execution plan for the program, with two executing agencies from the national government, was evaluated during program preparation by looking at the agencies' regular functions and the findings of the institutional capacity assessment performed for each entity using the Institutional Capacity Assessment System (ICAS). In keeping with their regular functions, the SAYDS and the Department of Mining have been assigned execution, monitoring, and evaluation tasks, which will be complemented by general administrative and financial/accounting responsibilities. Based on this delegation of responsibilities, the planning, execution, and control capacity of the organizational units responsible for these tasks was assessed using the ICAS.
- 4.2 The ICAS assessment found that the SAYDS has sufficient execution capacity. UCOFI, which will support the DPLYCS in procurement and accounting/financial management of operations with international organizations, has satisfactory, low-risk systems for personnel and financial administration. A similar finding was made of its external control system. Despite these positive findings, the assessment determined that the SAYDS must reinforce certain aspects related to administrative planning, administration of goods and services, and internal control. The ICAS found that the SAYDS lacks formal procedures for preparing annual work plans. To address this weakness, the program calls for annual work plans to be developed and submitted in accordance with guides prepared by the Bank, as part of the year-end semiannual monitoring reports. Also, the ICAS rated the SAYDS's system for administering goods and services as medium-risk, due to insufficient capacity to administer the procurement processes planned for Subprogram I. Accordingly, the program will reinforce the SAYDS with a procurement specialist to handle these procurements. As for internal control, the ICAS found that the SAYDS lacks effective policies and procedures for efficient, transparent internal control. The program will engage accounting and financial specialists whose terms of reference

will include preparation of such policies and procedures, to identify and mitigate operational risks, and to perform self-evaluations and internal audits at the SAyDS.

- 4.3 The ICAS found that the Department of Mining's capacity for planning, organization, execution, and external control is satisfactory and low-risk. However, the ICAS rated its internal control system as medium-risk, due to the lack of a comprehensive system for maintaining information with clear policies and procedures for use in Subprogram II. To improve the risk level of this system, an administrative and financial specialist will be engaged to develop the policies and procedures needed to ensure effective internal control by the Department of Mining for the purposes of the program.
- 4.4 As for the preparation, monitoring, and evaluation of program activities, the executing units in both executing agencies will be reinforced by hiring coordinators with project management experience, to ensure the executing units have sufficient management capacity.

**B. Socioeconomic viability**

- 4.5 The program is expected to generate the following economic benefits: (i) reduction of costs or generation of income at the private level as a result of the implementation of clean production practices; (ii) losses avoided at the social level as a result of the improved quality of bodies of water for the final disposal of effluents in the environment by SMEs, as a result of the implementation of clean production practices; and (iii) losses avoided at the social level from damage to the health and environment of communities near environmental mining liabilities. In addition, the program is expected to produce other indirect benefits related to improved environmental management at both the national and subnational levels.
- 4.6 As part of the economic assessment of the program, a private cost-benefit analysis was performed on the adoption of clean production practices by SMEs. Because it was limited to the private sector, this analysis only considered benefits appropriated by businesses—i.e., cost reductions or generation of income as a result of new practices—and not the benefits resulting from the social losses avoided as a result of improved environmental quality, which are not appropriated by businesses. As such, the reported findings of the cost-benefit analysis should be considered as conservative. The analysis provided indicators of the sustainability of the FONPLYCE as an instrument for promoting clean production. For purposes of the economic analysis, four of the PPLYCEs currently receiving support from the SAyDS (paragraph 1.7) were selected from various provinces and sectors: (i) Jujuy, multisector; (ii) Santa Cruz, fishing; (iii) Santa Fe/Rosario, metalworking; and (iv) San Juan, winemaking. For each of these PPLYCEs, five businesses were selected to form a representative sample of 20 companies. The businesses that have detailed action plans in their Business Project for Clean Production were selected.
- 4.7 For each company in the sample, annual private economic benefits were estimated on the basis of the savings created by lower costs and/or higher income as a result of the implementation of clean production practices. The benefits identified include

savings from reduced consumption of water, energy, and raw materials, reduced costs of handling and final disposal of waste and effluents, and increased revenues from the sale of recycled materials or byproducts. To estimate the annual incremental costs, investment, operation, and maintenance costs were taken into consideration, including a fraction of the costs of administration and supervision by the SAYDS. For the flow of annual net economic benefits, calculated as the difference between annual benefits and costs, the net present value (NPV) was calculated by using a discount rate of 12%, the benefit-cost ratio (BCR), and the internal rate of return (IRR). This analysis—the results of which are given in the following table—shows that the adoption of clean production practices by businesses in any sector is economically viable.

PPLyCE	NPV (pesos)	BCR	IRR (%)
Jujuy, multisector	1,529,126	1.08	18.8
Santa Cruz, fishing sector	4,849,885	3.48	187.1*
Santa Fe/Rosario, metalworking sector	452,115	1.93	34.0
San Juan, winemaking sector	25,347	1.17	19.3

\* Unlike in other sectors, the adoption of clean production practices by the commercial fishing sector allows for reductions ranging from 12% to 83% in water use and reductions ranging from 13% to 16% in energy use. These reductions explain the private economic profitability of clean production projects in the sector.

- 4.8 These convincing economic results were corroborated by a sensitivity analysis. This analysis included a calculation of the IRR assuming a 10% increase in the cost of investing in the adoption of clean production practices (S1). Also, the percentage and maximum amount of the increase in the investment cost needed to reduce the IRR to 12% was estimated (S2). Finally, the percentage of annual decrease in expected benefits assuming a 12% reduction in the IRR (S3) was calculated. The results of the sensitivity analysis are presented in the following table.

Sensitivity table					
		Jujuy	Rosario	Santa Cruz	San Juan
<b>S1</b>	10% increase (IRR)	16%	30%	170%	16%
<b>S2</b>	Incremental investment % for IRR = 12%	25%	94%	897%	27%
<b>S2</b>	Maximum investment amount for IRR = 12% (pesos)	7,571,538	931,863	5,389,288	118,720
<b>S3</b>	% reduction in benefit for IRR = 12%	-4%	-48%	-71%	-10%

- 4.9 The economic analysis helped determine the scale of the FONPLyCE. The financing cap for each business project (US\$28,000) is equivalent to the estimated investment for 70% of a sample of 63 business projects for clean production. The number of SMEs was based on the PPLyCE business-group methodology, the number of participating provinces, the implementation capacity of the SAYDS and

each province, and the cumulative experience gained from PPLyCEs that have already been implemented.

**C. Social and environmental viability**

- 4.10 The program will have positive effects on the environment, as it is focused on promoting improvements in environmental performance and reducing the environmental impact of SMEs in various productive sectors and small-scale brickmakers. The central premise for all proposed activities is to work with companies and small-scale producers on introduction of pollution prevention measures, better use of resources, and use of materials that are less harmful to the environment. Training programs for business owners and producers also incorporate improved occupational health and safety conditions and options for joining the formal economy, and so the program is expected to have positive impacts on working conditions. The liability remediation plans in the three pilot areas include the corresponding impact assessments to mitigate any possible impacts that the remediation efforts may cause.
- 4.11 Also, interest groups and civil society organizations are expected to participate in various ways in promoting the project, raising awareness, monitoring the project, and disseminating outcomes, both in the clean production subprogram and in the subprogram for environmental management of mining activities. Lastly, the program will have positive effects in areas of mining interest in Argentina, by providing access to detailed information on the geoenvironmental features of such areas and the status of environmental liabilities in areas of previous mining activity, as well as by including the assessment and remediation of liabilities deemed a priority.

**D. Benefits and beneficiaries**

- 4.12 The direct beneficiaries of the program include at least 800 SMEs participating in the PPLyCEs, of which at least 600 are expected to benefit from the financing for implementation of their respective cleaner production projects, in at least eight productive sectors based on their relative importance in economic and environmental terms. The beneficiaries will also include the managers and business leaders among whom awareness is raised, as well as an as yet undetermined number of artisan producers in the mining sector (brickmakers), who will incorporate pollution control and waste reduction measures in production, thereby improving working and health conditions. The program will also directly benefit the provincial public sectors and the local population by improving their ability to understand the environmental and social implications of mining activity and by promoting planning, prevention, and control strategies to guide the sustainable growth of mining activity. The program will also help establish an enabling environment for modern mining practices by strengthening the environmental legal and institutional framework for the sector and by working towards remedying environmental problems and damage caused by previous mining activity.



## **E. Risks**

- 4.13 **Institutional commitment in environmental management.** The prevention and mitigation of the harmful effects of production-related activity—which is one of the objectives of the General Law on the Environment to achieve an environmentally sustainable economic growth—requires a long-term commitment from the enforcing authorities to incorporate and promote preventive strategies as part of their environmental management efforts. This commitment is to ensure the resources needed to promote, oversee, monitor, and evaluate the outcomes of such actions as clean production at the business level, or of measures aimed at key productive sectors such as mining. This risk will be mitigated through training and by strengthening the provincial enforcing authorities, as well as through awareness-raising programs specifically for SMEs and small-scale miners on environmental management with a preventive approach as a way of improving the quality of the final product.
- 4.14 **Future demand for clean production practices.** As with any technological change, a company's decision to introduce clean production practices depends on economic factors that affect the profitability of the necessary investment. While the economic analysis showed that these practices are profitable at current prices, a negative change in market conditions during the program may cause demand for clean production technologies among SMEs to fall. To mitigate this risk, the program includes activities to promote and disseminate positive outcomes to improve productivity, reduce costs, and increase economic profitability of investments.
- 4.15 **Interagency coordination.** The program calls for the coordinated implementation of multiple technical-assistance and consulting activities, which could pose a risk inasmuch as this will require greater initiative and capacity to coordinate with multiple beneficiaries (national agencies, provincial agencies, and the private sector). To mitigate this risk, the executing agencies will be strengthened in the areas of administration and control, planning, and monitoring. In addition, close monitoring mechanisms will be established under the program, through the creation of a robust monitoring and information system for each subprogram and the delivery of annual work plans prepared in accordance with Bank guidelines.

**ARGENTINA**  
**ENVIRONMENTAL MANAGEMENT PROGRAM FOR SUSTAINABLE PRODUCTION IN THE PRODUCTIVE SECTOR**  
**(AR-L1026)**

**LOGICAL FRAMEWORK**

Narrative summary	Indicators	Means of verification	Assumptions
<b>Goal</b>			
To help make production-related activities environmentally sustainable.	<ul style="list-style-type: none"> <li>• 4 provinces independently implement new PPLyCEs and monitor existing ones 2 years after program completion.</li> <li>• 2 years after program completion, the country has a legal and regulatory framework for handling environmental liabilities in areas mined prior to enactment of Law 24585.</li> <li>• Remediation of environmental liabilities is expanded in accordance with priorities set forth in the nationwide inventory, 2 years after program completion.</li> </ul>	SAyDS and Mining Department monitoring and evaluation system.	
<b>Subprogram I: Promotion of cleaner production</b>			
<b>Purpose</b>			
To promote the adoption of clean production practices by SMEs as a business strategy for environmental management.	<ul style="list-style-type: none"> <li>• 8 provinces incorporate the clean production instrument into their environmental management policies by program completion. (Baseline: 0)</li> <li>• 90% of the beneficiary SMEs in an acceptable, statistically representative sample reduce their environmental impacts by 10% in at least one of the agreed on indicators by program completion, against the baseline set forth in their respective approved Business Projects for Clean Production. (Baseline: 0)</li> </ul>	SAyDS evaluation reports.	The national environmental authority and the provincial environmental authorities maintain their commitment to promote clean production as an environmental management instrument.

Narrative summary	Indicators	Means of verification	Assumptions
<b>Components</b>			
1. Federalizing clean production	<ul style="list-style-type: none"> <li>Nationwide information and communication system on clean production implemented in year 1 of the program.</li> <li>PPLyCE communication and dissemination program in execution after year 1 of the program.</li> <li>Clean production procedures and tools implemented in the DPLyCS in year 5 of the program.</li> <li>8 regional coordination units for clean production created, staffed by trained personnel, equipped, and have policies implemented by year 4 of the program.</li> <li>National Cleaner Production Network encompassing all provinces is created by program completion.</li> </ul>	SAYDS monitoring and evaluation reports.	
2. Implementing clean production practices in SMEs	<ul style="list-style-type: none"> <li>800 SMEs in the provinces of Jujuy, Santa Cruz, San Juan, Buenos Aires, Santa Fe, Tucumán, Mendoza, Córdoba, <i>inter alia</i>, have Business Projects for Clean Production by program completion.</li> <li>600 SMEs in the provinces of Jujuy, Santa Cruz, San Juan, Buenos Aires, Santa Fe, Tucumán, Mendoza, Córdoba, <i>inter alia</i>, receive support from the FONPLyCE by program completion.</li> <li>8 technological innovation projects of collective interest are developed and implemented on a pilot basis in groups of SMEs by program completion.</li> </ul>	SAYDS monitoring and evaluation reports.	Market conditions spur demand among SMEs for adoption of clean production measures.
<b>Subprogram II: Environmental management of mining activities</b>			
<b>Purpose</b>			
To promote the incorporation of environmental considerations into mining activities.	<ul style="list-style-type: none"> <li>100% of environmental impact reports for new mining operations are approved by the enforcing authority within the deadlines and quality standards set forth in Law 24585 by program completion. (Baseline: To be established in year 1 of the program)</li> </ul>	Department of Mining evaluation reports.	The Department of Mining and the Provincial Environmental Management Units for Mining (UGAPs) maintain their commitment to environmental management of mining activities.

Narrative summary	Indicators	Means of verification	Assumptions
	<ul style="list-style-type: none"> <li>• 100% of metal mining operations are controlled by the enforcing authority in accordance with procedures set forth in Law 24585 by program completion. (Baseline: To be established in year 1 of the program)</li> <li>• The improvements called for in the environmental indicators in the environmental liability remediation plans for the mining areas of Fundición de Plomo Metal Huasi in Abra Pampa (Jujuy), Fundición de Plomo in San Antonio Oeste (Río Negro), and Sulfateras de Calingasta (San Juan) have materialized upon completion of the corresponding remediation efforts. (Baseline: 0)</li> <li>• The authorities in the provinces of Jujuy, Río Negro, and San Juan monitor the remediated areas of Fundición de Plomo Metal Huasi in Abra Pampa (Jujuy), la Fundición de Plomo en San Antonio Oeste (Río Negro), and Sulfateras de Calingasta (San Juan), respectively, upon completion of the corresponding remediation efforts. (Baseline: 0)</li> </ul>		
<b>Components</b>			
1. Strengthening environmental management of mining activities.	<ul style="list-style-type: none"> <li>• All provinces have standardized, optimized legal and regulatory frameworks for environmental management of mining activities, procedure manuals for enforcing environmental measures, as well as evaluation procedures for standardized environmental impact reports for mining of nonmetallic and industrial minerals, as of year 5 of the program.</li> <li>• 100% of UGAPs or equivalent units in the provincial environmental authorities are equipped and have trained professionals (20 training courses, each lasting at least 40 hours, for 115 professionals), as of year 5 of the program.</li> <li>• Nationwide awareness-raising and informational campaigns carried out in 10 provinces and 70 locations in mining areas by program completion.</li> </ul>	Department of Mining monitoring and evaluation reports.	

Narrative summary	Indicators	Means of verification	Assumptions
2. Incorporating environmental practices in the cottage brickmaking industry.	<ul style="list-style-type: none"> <li>• Nationwide diagnostic assessment of the cottage brickmaking industry, with environmental problems identified and a proposed action plan to address them, is developed in year 2 of the program.</li> <li>• Clay deposits with proven usefulness for brickmaking identified in one province in each region of the country (Northwest, Northeast, Center, Cuyo, and Patagonia) by program completion.</li> <li>• 4,550 home-based brickmakers are trained in good production practices, health, occupational safety, options for joining the formal economy, and environmentally sustainable technologies by program completion.</li> <li>• 1,800 home-based brickmakers are trained in the use of simple machinery and tools for brickmaking by program completion.</li> </ul>	Department of Mining monitoring and evaluation reports.	
3. Supporting environmental management in degraded mining areas.	<ul style="list-style-type: none"> <li>• Nationwide inventory of areas degraded by previous mining activity is developed and made available to the public on the Department of Mining website by the end of year 4 of the program.</li> <li>• 8 studies to assess environmental liabilities for, initially, Fundición de Plomo Metal Huasi in Abra Pampa (Jujuy); Fundición de Plomo in San Antonio Oeste (Río Negro); Sulfateras de Calingasta (San Juan); Minas Concordia-La Poma in San Antonio de los Cobres (Salta); Mina Capillitas in Andalgalá (Catamarca); Mina Río Diamante in San Rafael (Mendoza); Grupo de Minas El Guaico in Cruz del Eje (Córdoba); and Mina La Ferrocarrilera (Chubut) are developed at a rate of at least 2 per year as of year 2 of the program.</li> <li>• Environmental liability remediation projects for Fundición de Plomo Metal Huasi in Abra Pampa (Jujuy), Fundición de Plomo in San Antonio Oeste (Río Negro), and Sulfateras de Calingasta (San Juan) are developed by year 3 of the program.</li> </ul>	Department of Mining monitoring and evaluation reports.	

Narrative summary	Indicators	Means of verification	Assumptions
	<ul style="list-style-type: none"> <li>• Environmental liabilities at Fundición de Plomo Metal Huasi in Abra Pampa (Jujuy), Fundición de Plomo in San Antonio Oeste (Río Negro), and Sulfateras de Calingasta (San Juan) are remediated by program completion.</li> <li>• Procedures manual for preparing mining-related environmental liability remediation plans is approved by the Department of Mining by program completion.</li> </ul>		
4. Collecting baseline geoenvironmental data.	<ul style="list-style-type: none"> <li>• Surveys of geoenvironmental features for Farallón Negro (Catamarca), Paramillos de Uspallata (Mendoza), Castaño Viejo (San Juan), Concordia-La Poma-San Antonio de Los Cobres (Salta), El Guaico (Córdoba), Gonzalito-Vicentito (Río Negro), La Ferrocarrilera-Lago Fontana-La Plata (Chubut), and Ushuaia (Tierra del Fuego) are developed at a rate of at least 2 per year as of year 2 of the program.</li> <li>• A system of mining-related geoenvironmental data, with a database that contains baseline data on the 8 mining areas selected and is available to the public through the website of the Department of Mining and SEGEMAR, is up and running at SEGEMAR by program completion.</li> </ul>	Department of Mining monitoring and evaluation reports.	