

**PROJECT INFORMATION DOCUMENT (PID)  
APPRAISAL STAGE**

Report No.: AB1139

<b>Project Name</b>	Agricultural Research and Extension APL Phase 2
<b>Region</b>	LATIN AMERICA AND CARIBBEAN
<b>Sector</b>	Agricultural extension and research (100%)
<b>Project ID</b>	P082588
<b>Borrower(s)</b>	GOVERNMENT OF PERU
<b>Implementing Agency</b>	
	Government of Peru Peru
	Ministry of Agriculture Peru
<b>Environment Category</b>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> FI <input type="checkbox"/> TBD (to be determined)
<b>Safeguard Classification</b>	<input type="checkbox"/> S <sub>1</sub> <input checked="" type="checkbox"/> S <sub>2</sub> <input type="checkbox"/> S <sub>3</sub> <input type="checkbox"/> S <sub>F</sub> <input type="checkbox"/> TBD (to be determined)
<b>Date PID Prepared</b>	September 29, 2004
<b>Date of Appraisal Authorization</b>	October 18, 2004
<b>Date of Board Approval</b>	December 16, 2004

## 1. Country and Sector Background

### *Overview*

Peru is a lower-middle-income country in the Latin America and Caribbean (LAC) region, with a per capita gross national income (GNI) of US\$2,150 (income category III), making it eligible for a World Bank loan. Despite experiencing significant positive growth in recent years, and having the highest growth potential in the subregion, per capita GDP and poverty rates show little progress due to lack of employment creation. Deep inequalities of wealth and well-being persist. The national poverty rate, according to 2003 estimates, was 49 percent (Annex 14), an increase from 42.7 percent in 1997. Thirty percent of Peru's population lives in rural areas, three-quarters of which are categorized as poor<sup>1</sup> (living on less than US\$2 a day), and one-half of which is categorized as extremely poor (living on less than US\$1 a day). This poverty is most pronounced in the highlands (*sierra*) and jungle (*selva*), where poverty rates are nearly double that of the coast. Agricultural research capacity is an important factor in reducing poverty by building food security and economic stability while new and better-targeted technologies and a well-developed agricultural innovation system with sound policies for efficient and effective functioning are important prerequisites for dissemination and adoption of new innovations.

### *Government Strategy*

<sup>1</sup> In comparison, a household is also defined as poor when per capita consumption is lower than the cost of a minimum basket of goods and services, and extremely poor when per capita consumption is lower than the cost of a minimum basket of food necessary to maintain adequate caloric intake.

According to the 2002 Country Assistance Strategy (CAS), the current Government of Peru's (GOP's) development strategy to address the issue of poverty has three main objectives: (a) increased competitiveness of the private sector and employment generation; (b) equity, and social justice—to provide access to quality health, education, cultural, and basic services; and (c) institutionalization of public sector democracy, and creating an efficient, transparent, decentralized state. Due to the high monetary indebtedness of the Peruvian public and private sectors, the GOP, through World Bank assistance, is attempting to strengthen the fiscal balances through controls on expenditure, improved debt management, increased tax collection, and initiation of a national competitiveness program to address barriers to private sector growth and increasing exports. The Bank's assistance is directed at moderating the overall decline in public sector funding of agricultural research, stimulating private sector funding of the transfer of agricultural technology, and efforts to strengthen institutions. The presence of a strong economic program and institutional infrastructure is essential to reduce the detrimental effects of periodic economic shocks on poverty reduction gains due to tactical investments on programs and projects related to agricultural productivity.

As most recently articulated in the revised "Policy Letter" (Annex 15), the strategy describes the following issues: (a) the current context of Peruvian agriculture and its insertion into an internationally competitive economy; (b) the role of science, technology, and the innovation system in improving competitiveness in the national and international context; (c) the present status/organizational arrangements, financing, and quality of this system; (d) the specialized roles of the various actors in a modernized system; (e) program objectives and commitments of the GOP in terms of institutional reforms, policies, and financing; (f) program achievements to date and the proposal for the Phase 2 Project; (g) the triggers for Phase 3; and (h) the GOP's commitment to the program up to and including its institutionalization during Phase 2.

### ***Agricultural Sector Issues***

Agriculture plays a dominant role in the Peruvian economy. About 80 percent of the rural poor are employed in agriculture and fishing. Rural poverty is closely associated with low agricultural productivity. Over the past several years, government policies have led to an opening of the economy, thereby increasing pressure on the agricultural sector to be more competitive. The need to improve competitiveness will be further increased with the finalization of trade agreements with the United States, the European Commission, and MERCOSUR. These agreements will have immediate implications for the development and strengthening of science, technology, and innovation policies, the level of public investment required, research orientation, the intellectual property environment that would influence incentives for the private sector in innovation, and the rules and regulations that affect commerce. Such new demands on the technological competitiveness of the country pose new challenges that must be addressed by the program (described in detail in Annex 1).

In this regard, the public sector has a clear role in enabling and supporting the development of an innovation system that is characterized by institutional diversity, and that would generate the required scientific knowledge and information appropriate to the demands of the sector. The centralization and lack of competency to implement technology transfer and quality extension services and to identify the bottlenecks in information systems for innovation are the leading challenges to technological development, especially at the regional level. The institutional changes that have taken place in the last few years are driven by an increasing awareness of a demand structured around several dimensions requiring a more open, decentralized, and demand-oriented National Agricultural Innovation System (NAIS). The supply system also needs to be multidimensional, specialized, and well coordinated to ensure appropriate allocation of scarce public resources to high-priority issues and areas. This calls for better orchestration of the NAIS to facilitate the involvement of a large number of actors, and the efficient

implementation of policies, financing, and implementation of research and extension by the various specialized institutions.

The NAIS has had difficulties in adjusting to these new demands. Deficiencies still exist in the areas of research, extension, and education capacities among public and private sector partners. This Adaptable Program Loan (APL) addresses a range of issues in the NAIS. The Program is justified since it aims to create new opportunities and increase agricultural competitiveness by improving innovations arising from new knowledge. Phase 1 of the loan now in place has assisted the GOP in supporting reforms in this subsector. The institutional changes brought about in the last few years through Phase 1 indicate the existence of a multidimensional demand for innovation. The supply side is also shown to be multidimensional. This situation implies a larger window of opportunity for the reorganization of the NAIS with the objective of facilitating multi-actor participation and institutional specialization. The scope of this framework, consisting of policies and priorities, investments, and research and extension, thus requires different disciplines, instruments, variety of inputs, and distinct mandates.

The Phase 2 Project loan is expected to deepen these reforms led by the Peruvian private sector, and to improve public sector management, while giving continued attention to social demands such as the inclusion of indigenous populations and rural women. A substantial portion of the rural communities living in geographically dispersed areas lacks appropriate knowledge, experience, and skills required to become members of modernized and efficient farms and agribusinesses. To assure the participation of traditionally excluded sectors of the population, such as indigenous populations (representing 15 percent of the population of Peru) and rural women in general, special efforts have been made to target investments and to ensure their active participation in the modernization efforts. For example, in Phase 1, a pilot developed with rural communities in Huancavelica demonstrated the existence of the demand for innovation services in certain population segments, and the need for assistance with specific instruments. The competitive grant program, which was the instrument of choice and is successfully being implemented in Peru, will have various subcomponents to address specific challenges posed by various populations segments, and to integrate the urgent need to link the extension technology transfer with adaptive and strategic research, education, mechanisms for improved information flow, and agribusiness management skills.

In response to the demands of greater local control and full participation, increased political, administrative, and fiscal decentralization is being designed and implemented by the GOP. In Phase 1, a strategy of a gradual process of decentralization was adopted, and will be extended to the whole country in Phase 2. The institutional sustainability of such regional agricultural development activities is an issue that requires certain preconditions by the regional authorities to ensure opportunities for greater participation of civic society. These preconditions include resource availability, current levels of competence at the regional level, availability of communications facilities, and upgrading of essential infrastructure.

## 2. Objectives

### ***Project Development Objective, Phase 2 (2005–2009)***

The overall objective of Phase 2 is to contribute to the expansion, strengthening, and institutional development of the rural agricultural technology and innovation system so it is pluralistic, decentralized, demand driven, and led by the private sector.

During Phase 2 the project will also establish a unit within the MOA that will be responsible for policy formulation and coordination of public investments, which will contribute to the sustainability of the agricultural innovation system.

### ***Key Performance Indicators of Phase 2***

The overall impact<sup>2</sup> of the Phase 2 Project will be measured using the following indicators: (a) number of farmers (direct and indirect participants, female and indigenous participants) that adopt new technologies generated and disseminated through Project activities; (b) percent of farm income increased for direct and indirect participants, and female and indigenous participants, through adoption of new technologies; (c) client satisfaction with new technologies or management recommendations (percent of positive responses and ratings); and (d) the number of hectares on which new environmentally sound technologies (such as soil and water conservation practices and Integrated Pest Management [IPM]) have been adopted. Annex 3 details the proposed indicators for different Project components and their instruments of finance.

### ***Alignment with CAS***

This Project strongly supports the World Bank Group's assistance strategy for Bank borrowers, and is included in the Bank's lending program for Peru as stated in the CAS, while falling within agricultural extension and research, the largest sector of lending to agriculture by the Bank. It contributes to the three central objectives of the CAS, and to the GOP's strategy of: (a) generating competitiveness and employment, (b) equality and social justice, and (c) creation of an efficient state that is transparent and decentralized, by improving the competitiveness of the agricultural sector and the creation of a decentralized agricultural innovation system. Equity issues related to empowerment and inclusion of marginalized groups would be dealt with in this Project in various ways, including the continuation of the special fund for indigenous peoples and women. The Project would also support the Government's efforts to decentralize the agricultural service sector in the country, and ensure delivery of efficient services in poverty-ridden rural areas. Overall, the Project would help Peru improve the productivity and quality of agri-based food products, improve and modernize post-harvest processing, and increase the efficiency of farm-to-market food chains, leading to increased income and sustainable development within the framework of environmental and natural resource protection and other safeguards.

### ***Alignment with Millennium Development Goals (MDGs)***

The rural commitment of the APL program in general, and the Phase 2 Project in particular, is well aligned with the Bank's MDGs for 2015, largely in the area of eradication of extreme poverty and hunger, and to a lesser extent to ensure environmental sustainability and to establish a global partnership for development. The Project would focus on improving economic opportunities for and constraints on rural poor households, and address some of the issues related to agricultural employment driven by innovations as a risk-diversification strategy and an escape from poverty.

## **3. Rationale for Bank Involvement**

### ***Relevant Policies and Commitment of the Government***

---

<sup>2</sup> The stated indicators may be refined during finalization of the complete M&E plan at appraisal and/or during the midterm review (end of 2006).

The project, “Research and Agricultural Extension for the Innovation and Competitiveness of Peruvian Agriculture,” is Phase 2 of an (APL), which was based on an agriculture sector strategy outlined in a Policy Letter signed October 25, 1999 by the GOP that emphasized the central role of innovation in fulfilling its sectoral objectives. That Policy Letter recognized the complementary roles of the public and private sectors in achieving the stated objectives of the strategy. Despite the substantial progress that is under way in the APL first Phase, as mentioned above, to address issues and challenges posed by the Peruvian economy, there remains a significant unfinished APL agenda. Public institutions would play an important role in defining and implementing strategic and regulatory elements of the innovation system related to the agricultural sector. The focus of this Project on private-sector-led innovation as a means to enhance competitiveness and reduce rural poverty follows logically from the earlier stated Government strategy. The Government continues to be committed to the strategy outlined in the Policy Letter, as illustrated by the successful implementation of Phase 1 of the program, begun in January 2001. The APL program has received strong support from the Ministry of Finance and the Ministry of Agriculture (MOA), and sufficient counterpart funds from the GOP. During the preparation mission in March 2004 and the pre-appraisal mission in July 2004, the Ministry of Agriculture reiterated the Government’s agreement on the stated objectives, and has allocated government funds for FY2005. Recognizing the need for high-quality agricultural services to improve the competitiveness and sustainability of the rural agricultural sector, the Government included this project in the World Bank’s Peru CAS for FY2003–06 (approved in August 2002), and a Program Human Resources Development (PHRD) grant was used for project preparation.

### ***Comparative Advantage of the Bank***

Because of the Bank’s involvement in the initial design phase of this APL, it is seen as a long-term strategic partner in the agricultural innovation system in Peru, and therefore has a comparative advantage in continuing its support of this endeavor. The Bank can capitalize on the lessons learned from Phase 1 of the project, and those from similar Bank-supported projects in other countries in the LAC region and elsewhere. The Bank also has considerable experience in the design and implementation of agricultural research and extension projects in India and Kenya, and in other countries in the region such as Colombia, Ecuador, Mexico, and Venezuela. The Bank has long been viewed as a world leader in financing and policy support to agricultural research and development (R&D), at both the country level and internationally (through its support to the Consultative Group on International Agricultural Research [CGIAR]). The Bank’s support to the agriculture sector is partly responsible for the observed increase in agricultural output in Peru, where the agricultural production index rose from 121 (1990–99) to 170 (2000–02), using 100 as the base in 1989–91. The Project follows new innovative approaches to lending for agriculture by the Bank that are characterized by the increased role of the private sector and rural communities, diversification of supply, diversification of funding, and institutional specialization.

### ***Portfolio of Projects in the Rural Agricultural Sector***

In the last two decades the Bank has assisted Peru with a number of projects relevant to the rural agrarian sector (Annex 2). The Bank program for FY2002–06 has three main components: (a) to create conditions to increase economic competitiveness and productivity; (b) to improve social policy efficiency; and (c) to create a modern, decentralized, efficient state at the service of the people. Currently, all loans in the Peru portfolio are focused on poverty alleviation. Projects specifically targeted to rural sector poverty include: (a) FY2003—rural water and sanitation (US\$50 million) and rural education and teacher development APL (US\$52.5 million); and (b) FY2004—agricultural research and extension APL Phase 2 (US\$50 million), and Sierra rural development (US\$20 million pipeline project). The ongoing Phase 1 Project on agricultural research and extension comprises a competitive grants program called the Agricultural Technology Fund (ATF), aimed at financing priority agricultural research and extension subprojects, and a modest institutional strengthening component in strategic research of the NAIS.

The portfolio of projects active in the rural sector of Peru and funded by various other donors (listed in Annex 2) illustrates the active nature of the donor community in assisting the Peruvian economy. The total investment (US\$430.66 million from donors) in agriculture between 1996 and 2005, and for projects implemented through the MOA, is US\$578.48 million, of which US\$147.82 million is counterpart funding.

#### 4. Description

The total APL Phase 2 Project cost is expected to be US\$68.97 million (Bank share: US\$34.35 million; GOP share: US\$19.60 million; other stakeholders: US\$14.84 million) and be of four years' duration, beginning June 1, 2005. The Project would finance the following four components, the details of which are given in Annex 4.

##### ***Component 1. Strengthening the Market for Innovation Services***

Expected cost: US\$31.32 million (Bank share: US\$17.01 million; GOP: US\$8.88 million; Others: US\$5.43 million).

The aim of Component 1 is to advance the development of a decentralized market for professional services for agricultural innovation. It will strengthen producer organizations as clients of quality services, and improve entrepreneurial capacity of private service providers. The result will be a more efficient market for services, including advisory and business services, technical information, and training. Special emphasis will be given to the development of instruments that would ensure adequate participation opportunities to vulnerable groups such as organizations of indigenous and women's groups, and those in disadvantaged regions. To realize this objective the component will: (a) finance a Competitive Fund that will co-finance subprojects in adaptive research and extension based on business plans that reflect producer demands, including vulnerable groups such as indigenous populations and women's organizations; (b) co-finance local participant forums, internships of pre-professionals, and training workshops, to improve the administrative capacity of organizations and the agribusiness of producers, and to strengthen the capacity of the suppliers with a managerial orientation to provision of services. The participation of technical representatives of Regional Governments of the macro-regions would be ensured in the evaluation, priority setting, and negotiation of subproject proposals for the competitive fund. Implementation of the competitive fund will be decentralized at the macro-region level. Local capacity to formulate and implement innovative subprojects that contribute to regional agricultural competitiveness will be strengthened.

##### ***Component 2. Strengthening the National Agricultural Research and Development System***

Expected cost: US\$21.39 million (Bank share: US\$8.07 million; GOP: US\$3.91 million; Others: US\$9.41 million).

The aim of Component 2 is to strengthen agricultural research and technological development for innovation in strategic areas of national importance, and to strengthen institutional and professional competence. The component would establish support mechanisms for "centers of excellence" in emerging areas of science and technology, and for regional training programs in high-skill innovation services that are critical to increasing the competitiveness of the agricultural sector. The component will manage the Strategic Services Development Fund (FDSE). The FDSE would: (a) finance the strategic national and international alliances to co-finance research activities and capacity building, initially in three high-priority areas—genetic resources conservation and use, biotechnology, and integrated plant

and animal management—and which would be gradually expanded to include natural resource management (NRM; soils and land management, irrigation and water management, agro-forestry), post-harvest handling and processing, and sustainable agriculture; (b) finance the strengthening of regional training and information programs for extension service providers and to co-finance curriculums with a focus on capacity building and institutional development; and (c) co-finance training programs for researchers in specialties included in high-priority areas of strategic research that require a certain critical mass of professional talent.

### ***Component 3. Monitoring and Evaluation (M&E), Information Sharing, and Policy Formulation for Innovation***

Expected cost: US\$12.47 million (Bank share: US\$7.22 million; GOP: US\$5.35 million).

The aim of Component 3 is to develop the institutional capacity of the public sector to formulate and implement agricultural innovation policy in conjunction with the private sector, and regulate the quality of the NAIS. The outcome of this component would be the formation of an agricultural technology innovation unit in a modernized MOA that is responsible for defining policies, and which would coordinate investments in this sector. The outputs of this component would be: (a) validation of an M&E system to generate performance measurement standards to measure the results of modernization of the agricultural innovation system services; (b) a modernized and systematized information system composed of virtual networks that will increase the sector's capacity to generate and use systematized updated scientific and technological information; and (c) policy definition on critical areas such as promotion of public investments in science and agricultural technology, intellectual property rights, and public-private partnerships. The activities to be financed would be the following: (a) an M&E system for subprojects using measuring instruments that permit comparison of designs, identify best practices of quality, submit information to public scrutiny, reward the best subprojects, and ensure the achievement of maximum results and desired impacts; (b) an information system that is in the public domain and enriched with data generated by subprojects, operational plans, and programs in place, available to all NAIS stakeholders; (c) studies and consultations on prospective technologies and technological forecasting, creation of a concerted agenda of the innovation system, identification of the constraints on the development, adoption, and dissemination of innovations, and (d) defining priorities and formulating policies designed to overcome these restrictions.

### ***Component 4. Project Implementation***

Expected cost: US\$3.34 million (Bank share: US\$1.89 million; GOP: US\$1.45 million).

The aim of Component 4 is to finance the present Project Implementation Unit (PIU), which would continue to be the implementing agency for Phase 2. The main responsibilities of the PIU would be to: (a) implement and monitor the Project at the national level; (b) be the principal contact with the World Bank in Project supervision and financial management of the Bank's and public investment, including efficient administration of the organizational structure of the Project; (c) conduct annual program audits; (d) ensure quality assessments of Project implementation in terms of social impacts and environmental safeguards; (e) maintain the Project's Operational Manual up to date; (f) implement the planning, monitoring, and evaluation of the Project; and (g) guide the evolution of the PIU, as outlined in the Policy Letter, toward a permanent entity in the modernized MOA that would have responsibility for the implementation of public programs in innovation of the rural agriculture sector. The Steering Committee (SC) would oversee overall Project implementation, with technical advice provided by the Technical Advisory Committee (TAC). The PIU's organizational arrangement will consist of an Executive Bureau and four units—three of technical nature plus one for administration. The technical units will be: (a) a unit for strengthening the market for innovation; (b) an FDSE unit; and (c) a unit for the promotion of

policies and quality of the agricultural innovation system. The latter will be in charge of coordinating and supervising the 11 decentralized units, each of which will receive support from its respective Regional Consultative Council (RCC).

The Project would provide for the purchase of additional equipment and vehicles for the decentralized units, rehabilitation of premises, and salaries and other operational costs over four years. (See Table 1 for a summary of Project costs by component.)

**Table 1: Project Costs by Component and World Bank Financing  
(in US\$ million)**

	<b>Cost, Including Contingencies</b>	<b>% of Total</b>	<b>World Bank Financing</b>	<b>% Financing</b>
1. Strengthening the Market for Innovation Services	31.32	45.6	17.01	54.3
2. Strengthening the National Agricultural Research and Development System	21.39	31.2	8.07	37.7
3. Monitoring and Evaluation (M&E), Information Sharing, and Policy Formulation for Innovation	12.6	18.3	7.22	57.4
4. Project Implementation	3.34	4.9	1.89	56.5
<b>Total</b>	<b>68.63</b>	<b>100.0</b>	<b>34.19</b>	<b>49.8</b>
<b>Front-end fee</b>	<b>0.34</b>	<b>1.0</b>	<b>0.34</b>	<b>100%</b>
<b>Total cost</b>	<b>68.97</b>	<b>100.0</b>	<b>34.53</b>	<b>49.8</b>

## 5. Financing

Source:

(\$m.)

BORROWER

19.6

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

34.53

LOCAL SOURCES OF BORROWING COUNTRY

14.84

Total

68.97

## 6. Implementation

1. Not applicable.

2. The loan partner and implementing agency remain unchanged from the Phase 1 APL Project.

*Loan partner:* The Government of Peru.

*Implementing agency:* Ministry of Agriculture, INCAGRO.

The overall Project implementation responsibilities would remain unchanged from the earlier Phase. The Bank loan will be disbursed by direct payments to a special account.

*Co-implementing agencies:* Producer organizations, other research and extension services providers (INIEA, universities, NGOs, private enterprises).

## 7. Sustainability

In the last three years, as a result of the interventions of Phase 1 of the Project, important lessons of institutional changes have been generated in the Peruvian NAIS. These institutional innovations would be built into Phase 2 of the Project to assure the sustainability of the achieved results.

*Leading role within the MOA, and GOP support.* In this context, the GOP continued to be fully committed to the implementation plans of this Project. The establishment of a policy unit within the MOA would ensure GOP long-term sustainability and support.

*Mainstreaming the competitive grant scheme.* The Project would ensure that the competitive grant scheme would be an important component of public resources for innovation, and would help to increase GOP/MOA funds once the Bank-funded program is completed.

*Institutional analysis* of the agricultural innovation system done by this Project has documented a large number of institutions active in the sector, its problems, and its capacity to participate in the Project, which makes it possible to identify and implement remedies and facilitate the long-term viability of innovation processes.

*Role of producer organizations.* The producer organizations assisted and strengthened by the Project would continue to operate with increased self-sufficiency in terms of funds generated through technological interventions that would help sustain them in the longer term.

*Institutional plurality in the NAIS.* The diversity and the great number of organizations of existent producers would allow the Project to be selective and provide direct support to the most capable organizations, while investing in training and promotional activities to strengthen the capacity of others.

## 8. Lessons Learned from Past Operations in the Country/Sector

### *Lessons from Previous Bank-Assisted Projects*

The Bank has a long history of supporting rural-development-related projects in Peru, including the *Programa Nacional para el Manejo de las Cuencas Hidrológicas y Conservación del Suelos* (PRONAMACHCS), rural roads, irrigation, and community development (see Annex 2 for a list of Bank-funded projects in the rural sector). The experience of these Bank lending programs has provided valuable pointers to guide future investments in the rural agricultural sector. The Project would also build on the Bank's experience in agricultural extension and research projects in other countries in LAC and other regions.

In addressing issues such as sustainability, commitment by the national government, and poor implementation raised by the Operations Evaluation Department (OED) in connection with overall Bank assistance to Peru (2002),<sup>3</sup> this Project is attempting to ensure sustainability by leveraging resources from co-financers, and commitment from the GOP has been evident from budget support. Moreover, a private business group has recognized the successful implementation of Phase 1 of the Project by a special award for creativity in 2003. The Phase 1 Project, through its two competitive funds (107 subprojects), has leveraged US\$1.04 from both public and private partners for every dollar invested by the Project. Sixty-seven private groups or institutions are participating in this Project as demanders or suppliers of services. A special funding window, *Huchuy Ayni* (Mutual Help), has been established to facilitate the participation of indigenous peoples.

The lessons learned from Phase 1 of the APL Project described below on research, extension, and institutional framework are invaluable in the design and implementation of the Phase 2 Project. Phase 1, which initially focused on three regions of the country, and later expanded to five, has shown that a

---

<sup>3</sup> OED Peru Country Assistance Evaluation 2002.

demand-driven, decentralized, and competitive system for the allocation of resources to research and extension can be successfully implemented in Peru. This corroborates evidence from similar agricultural technology and extension projects financed by the Bank in other LAC countries (Colombia, Ecuador, Mexico, and Venezuela) and in the rest of the world (Cameroon, Georgia, India, and Kenya).

*On research:* **Attention to excellence in research quality** needs to be enhanced through: (a) competitively awarding research grants based on explicit economic, eco-regional, social, and technical criteria; (b) external review of research programs and subprojects at least once during the project life; (c) active involvement of strong research institutions and universities; (d) effective linkages with international, regional, and national research centers of excellence; and (e) needs-based training of participants at all levels of the production chain. **A bottom-up approach to determine the needs of clients** requires involvement of farmers/producers in setting the research agendas, including special consideration of the needs of disadvantaged groups (that is, gender issues, indigenous peoples issues, and vulnerable groups). **An innovation systems concept** that is fully inclusive of all players in the demand-supply chain is required to promote synergies among technology generation (scientists and educators), other market stakeholders (industry, agribusinesses, and so forth), and extension service providers and producers. **Regional and national level research priority setting and planning** is required to address the differences in innovation system supply and demand, and to ensure local ownership by all players, which in turn would lead to a more sustainable system. **Rationalizing existing resources** and limiting expansion of facilities are important to developing financially sustainable research systems. Policy and regulatory regimes should be favorable to private sector research and technology spill-ins.

*On extension:* **Extension systems must be adaptable** to respond to rapidly changing economic, trade, and sectoral conditions. **Investment in countrywide extension systems may be inappropriate** when there is a lack of resources or technology to support such systems. **Both public and private sector services** should be considered in extension system design, and both traditional mass media and new web-based communication technologies are appropriate tools for extension use, that is, web-based networking. **Needs-based extension staff training** should focus on the training of extension workers to encourage producer organization participation in extension, in addition to providing technical information and skills development.

*On institutional framework including the role of the Government:* **A strong Government commitment** is essential for a sustainable and effective research and extension system. **Developing in-house socioeconomic capacity and setting up of effective monitoring and evaluation (M&E) systems** are essential to the success of the Project. An M&E system should assess the short- and medium-term impacts of the Project that result from the development and adoption of new technological interventions. **Both public and private sector services** must be involved in strategic plans for implementing rural agricultural development activities.

#### ***Partner Activities in Relation to Bank Assistance***

A number of other partners, such as the Inter-American Development Bank (IADB), the International Fund for Agricultural Development (IFAD), and the United States Agency for International Development (USAID), are active in Peru's development of human resources, infrastructure, and services in rural areas. While these donor agencies are active in the rural areas, according to a country client survey conducted in 2002,<sup>4</sup> the Bank is recognized for bringing important expertise and international experience to Peru and demonstrating strong leadership in the design and preparation of new and relevant projects.

---

<sup>4</sup> *Apoyo Opinión y Mercado*, April 2002. See 2002 CAS, p. 18.

The lessons of other donor-funded projects in the sector (see Annex 2) also influenced the Project design, particularly the need for (a) synergetic input on the role of the private sector in innovation by input from medium-to-larger-sized agricultural entrepreneurs and multinationals; (b) greater focus on end users, particularly the disadvantaged groups, by location, ethnicity, gender, age, or education; (c) encouraging the participation of universities and other institutions of higher learning as partners of the NAIS; and (d) empowerment of regional bodies as knowledge-transfer channels, and integration with the broader agricultural sector inclusive of the export and tourism sectors.

## 9. Safeguard Policies (including public consultation)

The safeguard-screening category of the Project is S2. Most safeguard policies are not triggered negatively by the Project, and the safeguard policies that might be of concern are given adequate attention, as described below. Environmental and pest management might be triggered due to the introduction of new agricultural innovations. Following the experience of the Phase 1 Project, environmental monitoring criteria would continue to be included in the subproject evaluation and selection. Pest management safeguards would be activated in the Project and its subprojects by: (a) advocating integrated pest management (IPM) practices; (b) training activities related to promoting biological and environmental control methods over chemical pesticides where possible; and (c) following the World Health Organization/Food and Agriculture Organization (WHO/FAO) guidelines on the safe use of pesticides which are effective only against the target species, have minimal effects on non-target species and the environment, and have negligible human health effects. A pest management action plan is given in Annex 10.3. During Project implementation, appropriate IPM and other technical experts as needed would be included in the supervision missions.

The Indigenous People's Action Plan developed during the Phase 1 Project was revised and updated, taking into account lessons of the pilot studies. In the last decade, several social changes have taken place among the indigenous peoples. Local communities have been strengthened, giving rise to the emergence of territorial and ethnic organizations and national indigenous fronts, which are the focal point in the proposed interventions to enhance social inclusion and improve overall productivity to alleviate pervasive poverty. The Project would also strive to ensure that indigenous people would benefit directly from the Project through a special fund that will specifically cater to the needs of disadvantaged groups.

Table 4 presents the safeguard policies triggered by the Project.

**Table 4. Safeguard Policies Triggered by the Project**

<b>Safeguard Policies Triggered by the Project</b>	<b>Yes</b>	<b>No</b>
<a href="#">Environmental Assessment (OP/BP/GP 4.01)</a>	[x]	[ ]
Natural Habitats ( <a href="#">OP/BP 4.04</a> )	[ ]	[x]
Pest Management ( <a href="#">OP 4.09</a> )	[x]	[ ]
Cultural Property ( <a href="#">OPN 11.03</a> , being revised as OP 4.11)	[ ]	[x]
Involuntary Resettlement ( <a href="#">OP/BP 4.12</a> )	[ ]	[x]
Indigenous Peoples ( <a href="#">OD 4.20</a> , being revised as OP 4.10)	[x]	[ ]
Forests ( <a href="#">OP/BP 4.36</a> )	[ ]	[x]
Safety of Dams ( <a href="#">OP/BP 4.37</a> )	[ ]	[x]
Projects in Disputed Areas ( <a href="#">OP/BP/GP 7.60</a> )	[ ]	[x]
Projects on International Waterways ( <a href="#">OP/BP/GP 7.50</a> )	[ ]	[x]

## 10. List of Factual Technical Documents

### Bank Documents:

Project Concept Note  
Project Information Data Sheet (PCN stage)  
Integrated Safeguards Data Sheet (PCN stage)  
Minutes of the PCN Review Meeting  
Project Appraisal Document  
Project Information Data Sheet (PAD stage)  
Integrated Safeguards Data Sheet (PAD stage)  
Letter from the Government  
Country Assistance Strategy for the Republic of Peru. 2002. CAS Report No. 24205-PE, August 19, 2002, 33p.  
PAD Report No. 19841-PE. PAD of the First Phase. 1999. 94 pages.  
Loan Agreement (October 2004)  
Program and Project Agreement (December 2004)

### Project Studies and Reports

Barrantes, R., C. Trivelli, R. Morales, y J. J. Miranda. 2004. *Analysis economico, social y financiero de las inversiones en innovación y evaluación ex ante de los retornos del proyecto INCAGRO. INCAGRO–Segunda fase.*

Chavez-Tafur, J., and R. Ugas. 2004. *Casos de brechas entre oferta y demanda de innovaciones tecnológicas agrarias. Estudio Critico No. 8.*

INCAGRO. 2003a. *Evaluación Externa (Reporte). Proyecto de investigación y extensión agrícola (PIEA) para la innovación y competitividad del agro peruano (INCAGRO).*

INCAGRO. 2003b. *Disponibilidad de pago y costos de transacción en el Mercado de servicios profesionales especializados. Informe Final.*

INCAGRO. 2004a. *Perfil de Segunda Fase. Proyecto de investigación y extensión agrícola (PIEA) para la innovación y competitividad del agro peruano (INCAGRO).*

INCAGRO. 2004b. *Estudio de prefactibilidad Fase II. Proyecto de investigación y extensión agrícola (PIEA) para la innovación y competitividad del agro peruano (INCAGRO).*

INCAGRO. 2004c. *Plan de acción con organizaciones de mujeres rurales. Estudio Critico No. 6.*

Indarte, E. 2004d. *Ambiente institucional y experiencias organizacionales, operativas y estrategicas para la innovación tecnología en al sector agropecuario de America Latina. Estudio Critico No. 7. Producto No. 1.*

Indarte, E., J. Ramirez-Gaston Roe, M. B. de la Puente, V. A. Hart, G. A. German-Palacios. 2004. *Fortalecimiento institucional de los actors del systems: recomendaciones y estrategias. Estudio Critico No. 7. Producto No. 4.*

Indarte, E., J. Ramirez-Gaston Roe, M. B. de la Puente, V. A. Hart, G. A. German-Palacios. 2004. *Conversatorio: sistema nacional de innovación agraria propuestas estrategicas de desarrollo. Estudio Critico No. 7. Producto No. 3.*

Mendez, E. Z. 2004. "Identificación, estimación y caracterización de la población objetivo del proyecto INCAGRO." *Estudio Critico No. 4.*

Puente, M. B. de la, J. Ramirez-Gaston Roe, V. A. Hart, B. A. German-Palacios. 2004. *Estudio actual del desarrollo de redes y cadenzas en la construcción del sistema de innovación tecnológica agraria. Estudio Critico No. 7. Producto No. 2. Parte I: Relaciones interinstitucionales y redes.*

Puente, M. B. de la, J. Ramirez-Gaston Roe, V. A. Hart, G. A. German-Palacios. 2004. *Estudio actual del desarrollo de redes y cadenzas en la construcción del sistema de innovación tecnológica agraria. Estudio Critico No. 7. Producto No. 2. Parte II: Construcción de cadenzas productivas.*

Salgado, C. M. 2004. *INCAGRO en la descentralización. Analisis y recomendaciones.* INCAGRO Documento de consultoria.

Smith, R. C. 2004. *Plan de acción para poblaciones indígenas. Proyecto INCAGRO–Segunda fase.* 77 paginas y mapas.

Testino, M. G. 2004. "Riesgo medio ambiental de innovaciones tecnológicas." *Estudio Critico No. 2.*

### General Documents

Escobal, J., and M. Valdivia. 2004. *Peru: hacia una estrategia de desarrollo para la sierra rural. Estudio del Banco Interamericano de Desarrollo.* A commissioned report.

Kusek, J. Z., and R. C. Rist. 2004. *Ten Steps to a Results-Based Monitoring and Evaluation System. A Handbook for Development Practitioners*. Washington, D.C.: World Bank.

Ministerio de Agricultura. 2004. *Bases para una política de estado en la agricultura del Perú*.

Ministerio de Agricultura. 2004. *Lineamientos de política agraria para el Perú*.

World Health Organization (WHO/PCS). 2002. *The WHO recommended classification of pesticides by hazard and guidelines to classification 2000-2002*.

World Bank. 2002. *Legando a los pobres de las zonas rurales. Estrategia de desarrollo rural para América Latina y el Caribe. Región de América Latina y el Caribe. Departamento de desarrollo Ambiental y Socialmente Sostenible. Sector Rural*.

World Bank. 2003. "Restoring Fiscal Discipline for Poverty Reduction in Peru: A Public Expenditure Review." Washington, D.C.

World Bank. 2003. "Peru." In: *The Little Data Book 2003*. Washington, D.C.

World Bank. 2004a. *Agriculture Investment Sourcebook. Agriculture and Rural Development*.

World Bank. 2004b. "Peru." In: *The Little Green Data Book, from the World Development Indicators 2004*, p. 173.

## 11. Contact point

Contact: Matthew A. McMahon

Title: Lead Agriculturist

Tel: (202) 473-8586

Fax:

Email: [Mcmahon@worldbank.org](mailto:Mcmahon@worldbank.org)

## 12. For more information contact:

The InfoShop

The World Bank

1818 H Street, NW

Washington, D.C. 20433

Telephone: (202) 458-5454

Fax: (202) 522-1500

Web: <http://www.worldbank.org/infoshop>