

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PARAGUAY

MODERNIZATION OF AGRICULTURAL SUPPORT MANAGEMENT

(PR-L1001)

LOAN PROPOSAL

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Annex I Performance matrix

Proposed resolution

Electronic Links and References	
Basic socioeconomic data	http://www.iadb.org/RES/index.cfm?fuseaction=externallinks.countrydata
Status of loans in execution	IDBDOCS # 800533
Tentative lending program	http://opsgs1/ABSPRJ/tentativelending.ASP?S=PR&L=SP
Information available in RE1/EN1 technical files	IDBDOCS # 810606

ABBREVIATIONS

BCP	Central Bank of Paraguay
DINCAP	Dirección Nacional de Coordinación y Administración de Proyectos [National Project Administration and Coordination Office]
FAO	Food and Agriculture Organization of the United Nations
IRR	Internal rate of return
JICA	Japan International Cooperation Agency
KFW	Kreditanstalt für Wiederaufbau [Reconstruction Loan Corporation]
MAG	Ministry of Agriculture
PCR	Project Completion Report
PDL	Performance-driven loan
POU	Procurement Operations Unit
PPEF	Project Preparation and Execution Facility
SECI	Sistema de Evaluación de la Capacidad Institucional [Institutional Capacity Evaluation System]
SICP	Sistema de Información de Contrataciones Públicas [Public Procurement Information System]

PROJECT SUMMARY

PARAGUAY MODERNIZATION OF AGRICULTURAL SUPPORT MANAGEMENT (PR-L1001)

Financial Terms and Conditions ¹				
Borrower: Government of Paraguay Executing agency: Ministry of Agriculture (MAG)			Amortization period:	25 years
			Grace period:	5 years
			Disbursement period:	5 year
Source	Amount	%	Interest rate:	Adjustable
IDB (Ordinary Capital/IFF)	US\$31,500,000	90	Inspection and supervision fee:	0%
Local	US\$3,500,000	10	Credit fee:	0.25%
Total	US\$35,000,000	100	Currency:	US dollars from the Single Currency Facility
Project at a glance				
Project objective:				
The general objective of the Program is to raise the productivity and income of the country's small and medium-scale agricultural producers.				
Special contractual conditions:				
<i>Special conditions precedent to disbursement (advance) of loan proceeds:</i>				
<ul style="list-style-type: none"> - Entry into force of the Procedures and Operations Manual as agreed with the Bank (paragraph 3.5). - Implementation of the Procurement Operations Unit in the DINCAP (paragraph 3.13). 				
<i>Special conditions precedent to disbursement of the first tranche of the performance-driven loan:</i>				
<ul style="list-style-type: none"> - Contracting of the consulting services to conduct the Program's performance evaluations as agreed with the Bank (paragraph 3.20). - Contracting of the financial and operations auditing firm as agreed with the Bank (paragraph 3.23). 				
<i>Special conditions precedent to disbursement of each tranche of the performance-driven loan:</i>				
<ul style="list-style-type: none"> - Achievement of the targets indicated in the Performance Matrix for each tranche (Annex I). 				
Exceptions to Bank policies: None				
Project consistent with country strategy: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Project qualifies as: SEQ <input checked="" type="checkbox"/> PTI <input checked="" type="checkbox"/> Sector <input type="checkbox"/> Geographic <input checked="" type="checkbox"/> Headcount <input type="checkbox"/>				
Procurement: See paragraphs 3.11 to 3.13.				
Verified by CESI on: September 22, 2006				

¹ 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. The agricultural sector

1.1 The agricultural sector plays a strategic role in the Paraguayan economy. Agriculture has traditionally accounted for over one-quarter of the country's annual Gross Domestic Product (GDP), nearly 90% of exports including agro-processed products, and about 43% of employment nationwide. According to preliminary figures from the Central Bank of Paraguay (BCP), the agricultural sector contributed 26.1% of GDP and generated about US\$1.3 billion in foreign exchange in 2005.

1.2 Since 1980 the agricultural sector has experienced a growth trend that has outpaced that of the overall national economy (see table). The sector's moderate growth in the 1980s came about as the result of public policy and programs aimed at settlement of public lands and road infrastructure development. These programs sparked an expansion of the agricultural frontier for corn, cotton, and soybean production. The two latter crops accounted for 62% of agricultural exports in 1990. A downturn in international prices and an influx of crop pests slowed growth in the 1990s, affecting cotton in particular. Beginning in 2000, the recovery in international markets—reflected particularly in soybean and meat prices—and the introduction of technological changes in the soybean subsector brought rapid recovery to the agricultural sector.

Average Annual Rate of Growth (%)

Period	Agricultural GDP	Total GDP
1980-1990	4.0	2.8
1990-2000	1.7	2.0
2000-2004	5.3	1.4
1990-2004	2.7	1.8
1980-2004	3.2	2.2

Source: Central Bank of Paraguay (BCP)

1.3 Performance of the sector is closely tied to the consolidation of soybeans as its principal crop. The tripling of soybean production in Paraguay in the period 1991-2004 demonstrated farmers' capacity to respond to the growing trend in international prices and strong demand from external markets. Soybean producers were able to introduce technological improvements in cultivation (i.e. no tillage farming) on a mass scale. This enabled them to obtain average yields of 2.6 MT/ha, which exceeded the yields of producer countries such as Brazil (2.4 MT/ha), Argentina (2.2 MT/ha), and Bolivia (2 MT/ha), according to FAO [United Nations Food and Agriculture Organization] figures. Soybeans are currently Paraguay's principal export. In November 2005, the BCP estimated that soybean grain exports generated US\$566 million (35% of total agricultural exports), an 85% increase over the 2000 figure and three times above 1991 exports. That amount does not include exports of soy flour and soybean oil, which together totaled US\$264 million in 2004 and US\$192 million in 2005. In 2005 the soybean subsector demonstrated a higher capacity to generate foreign exchange than did the meat (US\$253 million), cereal (US\$100 million), and timber (US\$80 million) subsectors.

- 1.4 The momentum shown by soybeans since 1990 stood in contrast to a downturn in the cotton subsector during the same period. Having been the country's primary generator of foreign exchange in the 1970s and 1980s, the cotton subsector experienced a systematic reduction in its exportable supply after 1990. The value of cotton exports fell from US\$319 million in 1991 to US\$40 million in 2005. This downturn in the subsector, combined with economic recessions, led to a drop in cash income for approximately 120,000 campesino families¹ (nearly two-fifths of the rural population) dependent on cotton. As a result, the levels of poverty and extreme poverty in rural areas rose, from 37.2% at the poverty level in 1995 to 50.5% in 2002, and from 21.4% to 31.1% at the extreme poverty level during the same period. The most recent household survey in 2004 estimated that 44.2% of those at the poverty level and 58% of those in extreme poverty in Paraguay live in rural areas concentrated in traditionally cotton-producing Departments.
- 1.5 The coexistence of the soybean and cotton subsectors reflects a modern/traditional duality in Paraguayan agriculture. Soybeans are an extensive, highly technified crop grown by large-scale agricultural producers. In contrast, cotton is produced by campesino family-run farms on land parcels smaller than 20 hectares. Most of these families do not have free title to their property, tend to farm on low-fertility soil, have little business acumen, and cannot easily access modern production technologies. The State has attempted to close the gap between modern and traditional agriculture, but such efforts have been largely ineffective.

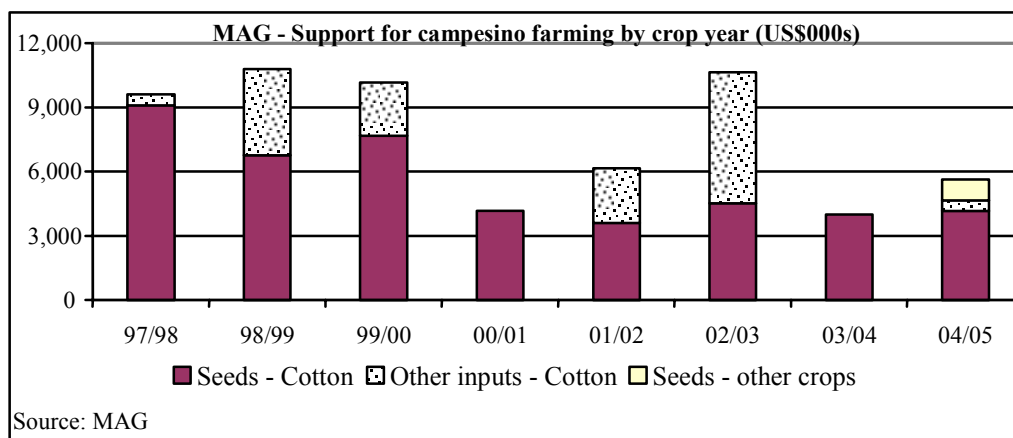
B. The role of the State in the agricultural sector

- 1.6 The high percentage of campesino families living below the poverty line has motivated the State to focus its agricultural policy on that population segment. In 1995, the State instituted mechanisms to support campesino family-run farms through free provision of seeds and other inputs (e.g., phytosanitary products, pesticides, market bags), with a strong emphasis on cotton production because of its historical importance in the families' income.² This type of support was given on an ad hoc basis by way of budget revisions and cuts in key agricultural services intended to raise competitiveness in the sector, such as research, innovation, and agricultural health. The support averaged US\$10 million annually from 1997 to 1999. Owing to fiscal constraints beginning in 2000, however, the average State support fell to US\$5 million, except in the 2002-2003 growing season. Despite the reduced levels, the support continued to account for a significant share of the

¹ The Ministry of Agriculture (MAG) defines small-scale family farming as production on land areas smaller than 50 hectares. This includes dwarf holdings (<2 ha), small farms (2-20 ha), and medium-sized farms (>20-50 ha), which when combined account for 96% of the producers in Paraguay.

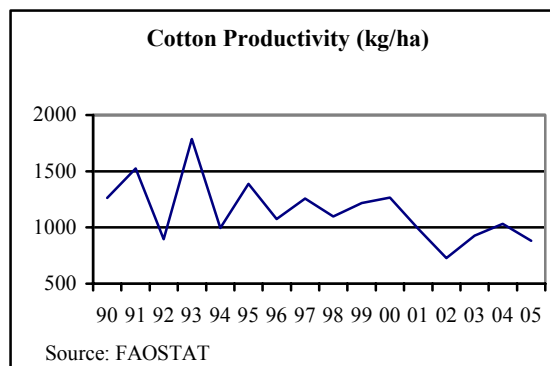
² Until 1995, the State's strategy focused on direct intervention in agriculture with unwavering priority given to cotton through several mechanisms: financial incentives channeled through the cotton ginning industry and financed largely through discount operations of the Central Bank of Paraguay; seed marketing and distribution; and preferential credit in the public banking system. The discount operations were eliminated in 1994, and in 1995 the Seed Act was passed, which reduced State intervention in the sector.

physical investment budget of the Ministry of Agriculture (MAG), amounting to 60% in the 2001-2002 growing season.



1.7 In addition to support through input deliveries, the State has been providing technical assistance for campesino farming. Technical assistance services from the State were provided mainly through extension agents until 1998, when they began being outsourced through contracts with private companies. The outsourcing of technical assistance services brought satisfactory results, successfully overcoming the quality and coverage limitations inherent in public agricultural extension service. Outsourcing also made it possible to consolidate private-sector delivery of technical assistance services in rural areas. The effectiveness of this method was limited, however, by the absence of closer ties to the promotion of economically and environmentally viable agricultural technologies, and by insufficient involvement of the beneficiaries in the service provider selection process. From 2003 to 2005, the State budgeted an annual average of US\$6 million to technical assistance for campesino farming, of which 50% was allocated to outsourcing.

1.8 The State's support for campesino farming through input deliveries and technical assistance had little effect on productivity levels of campesino family-run farms. In the case of cotton—the basic income-generating crop for campesino farmers who received the majority of the support—per-hectare production dropped systematically beginning in 1995, from about 1,300 kg/ha in that year to 880 kg/ha in 2005 (see figure). Current cotton yields in Paraguay are below the average for other countries in the region, such as Argentina (1,330 kg/ha) and Brazil (1,950 kg/ha). In addition



to the lack of effect on productivity levels and campesino income, the fact that the support was targeted almost exclusively to cotton crops created negative externalities throughout the agricultural sector. These externalities included: (i) distortions in the agricultural services and inputs markets and limitations on private investment participation in those markets; (ii) disincentives to diversification as a means of market risk management among producers; and (iii) negative environmental impact on soil quality in some areas, owing to the use of unsound agricultural practices, such as monoculture.

C. Management of the Ministry of Agriculture

- 1.9 Law 81 of 1992 gave the MAG responsibility for a group of services targeted to the agricultural sector which, by their very nature, are solely limited to the public sector: agricultural health; research and technological innovation; social assistance and rural development; and information provision and market improvement. Other responsibilities of the MAG include agricultural education, cooperativism, and marketing. To carry out these functions, the MAG is organized into several technical departments under two deputy ministers and the Minister's cabinet. The organizational restructuring and functional modernization of the MAG began in 2004 in an effort to: (i) focus its operations on the design, coordination, supervision and evaluation of policies targeted to the agricultural sector; and (ii) tailor its services to user demand. To achieve these goals, basic functions have been transferred to decentralized agencies with technical, administrative and financial autonomy. The National Plant and Seed Health and Quality Service and the National Animal Health and Quality Service, both created in 2004, took over the country's agricultural health service. In addition, the Legislative Branch is currently considering laws that would create decentralized agencies to manage forestry and agricultural research services.
- 1.10 Under its mandate, the MAG is responsible for managing the State's support to small-scale family-run farms. Certain deficiencies in management practices, however, have had a negative effect on the quality, effectiveness, flexibility, and coverage of the support, and contributed to inefficient management of public spending in the agricultural sector. The following deficiencies have been observed:
 - a. *Lack of a consolidated policy governing State support for the agricultural sector.* Although the MAG is responsible for managing the support, the input deliveries and technical assistance to campesino farmers are provided through several programs within and outside the Ministry. For example, rural technical assistance is channeled through the MAG, and also through other Government entities such as the Rural and Land Development Institute (formerly the Rural Welfare Institute), the National Occupational Promotion Service, the National Relief and Social Assistance Department, and the first-tier public banking system. These efforts are being carried out without a consolidated regulatory framework governing the mechanisms of execution or resource transfer, the areas of intervention, or the type of beneficiaries receiving the support.

- b. *Lack of monitoring, control and evaluation systems.* Until 2005, the MAG did not have a safe, reliable system to monitor and control the support delivery. No information has been available regarding the beneficiaries of the programs it was responsible for executing, or the amounts they received. The lack of any such system also made it impossible to do periodic measurements of the economic, social, and environmental impact of the support delivery. At the present time, the MAG has a single computerized record of farmers, the *Register of Producers*, which contains information on the support received by each beneficiary since 2003. This register forms the database for the monitoring and evaluation system implemented at the MAG for purposes of the Program³.
 - c. *Limited producer involvement in decision-making.* The procurement of inputs and hiring of technical assistance services targeted to campesino farms has been carried out directly by the MAG. Without direct involvement in the procurement and contracting decisions, many beneficiaries of State support have been hurt by the quality, quantity, and coverage of these inputs and services. This situation has led to periodic claims from farmers, which have often included requests to the MAG for indemnification of loss of productivity.
 - d. *Untimely support delivery.* Since this system relies on input deliveries and the provision of technical assistance services contracted by the MAG, the implementation of the support is subject to the Ministry's slow, unreliable system of goods and services management. The lack of formal procedures outside the purview of senior ministerial officials has resulted in cumbersome and inflexible procedures that negatively impact the effectiveness of the support.
- 1.11 In acknowledgement of the ineffectiveness of the support now being provided to traditional farming through input deliveries, and the above-mentioned managerial deficiencies, the MAG held a dialogue with the Bank to identify alternative mechanisms that will improve outcomes and impacts. The support mechanisms they identified are intended to: (i) close the technology gap between traditional agriculture and more modern subsectors; and (ii) prevent a transitional drop in producers' income as a result of elimination of the current ad hoc support system based on input deliveries. The two support mechanisms share two main characteristics: they are based on direct cash transfers to producers through subsidies; and they do not limit the producer to a particular commodity or the use of a specific input. As a result, decisions about what, how, and when to produce, which are currently in the hands of the State, are transferred to the producer. These

³ MAG used a register of producers to compensate monetarily at the beginning of the 2006-2007 growing season small farmers affected by drought. Although the results were lower than expected, this experience showed the importance of having a reliable database of beneficiaries for the implementation of direct support mechanisms.

features will be instrumental in improving public management of the support system and enhancing its effectiveness, as a result of the benefits it offers, both to producers and to the State. The new support system will help reduce farm families' income dependence on commodities that have no comparative advantage, encourage greater product diversification, provide better access to expanding markets, introduce technologies that have positive economic and environmental impact, and in many cases, overcome liquidity constraints. The features of the new mechanisms will also enable the State to redirect its efforts towards achieving greater efficiency in the provision of agricultural services, achieve more transparent management of public resources, streamline the complex monitoring performed under the current system of input deliveries and technical assistance, provide greater coverage with equal opportunity among producers, reverse the environmental degradation of the land, and consolidate the MAG's achievements in regard to expanded private-sector involvement in the provision of agricultural services. The new agricultural support mechanisms will also have a positive impact on the overall economy because they will have a less distortive effect on the markets than the current input-delivery system or other alternatives involving State intervention through price supports.

- 1.12 A key aspect of the support mechanisms identified by the MAG is their conduciveness to more efficient management of public spending in the agricultural sector. A support policy based on these mechanisms will clarify the early stages of budget management for the sector and thereby prevent the periodic fiscal cutbacks associated with the current policy of ad hoc support through input deliveries, which have been having a negative impact on the quality and coverage of agricultural services with direct repercussions on the sector's competitiveness (i.e., agricultural health, research, and technological innovation).

D. The Bank's strategy

1. The Bank's strategy with the country

- 1.13 The Bank's strategy with Paraguay for 2004-2008 (document GN-2312) calls upon the Bank to focus its work on the following three spheres of action: (i) strengthening governance, (ii) laying the foundation for sustainable growth through the deepening of the market economy and greater regional and global integration, and (iii) reducing poverty and improving the quality of life of low-income sectors of the population.
- 1.14 This operation is consistent with the Bank's strategy to strengthen governance. The operation seeks to enhance the effectiveness and cost-efficiency of services aimed at promoting agricultural production, and thereby to help improve the quality, effectiveness, and efficiency of public policy and management, particularly in the provision of services to benefit the poorest segments of the population. The Program will also help lay the foundation for sustainable growth by introducing new intervention tools that improve producer access to expanding markets, reduce farm income dependence on commodities with no comparative advantages, and increase private-sector involvement in service delivery. Furthermore, by focusing

agriculture-related public spending on campesino families, who constitute an important segment of the poorest rural population, the Program will also support the Bank's efforts to reduce poverty and improve the quality of life of the low-income population sectors.

2. The Bank's operations in the Paraguayan agricultural sector

1.15 Since 1992, the Bank has supported the Paraguayan Government's efforts in the agricultural sector through two operations that provided total financing of US\$81.25 million:

- a. **Consolidation of Rural Colonies Program (694/OC and 891/SF).** This operation sought to improve the quality of life of small-scale farmers in selected rural colonies. The large number of intervention areas (technological development; land titling; credit; environmental protection; rural roads; producer organization; drinking water and sanitation; education; health; protection of indigenous communities) and participating entities resulted in delays in the project execution. The operation received financing of US\$55.6 million during the project execution period from 1993 to 2003. Under the project, a pilot experiment to provide for outsourcing of agricultural technical assistance served 4,375 campesino families.
- b. **Support Small-scale Cotton Producers Program (1109/OC).** The objective of this operation was to promote sustainability of production systems on small-scale cotton farms by improving farm income. There were five project components: pest monitoring and control; media campaigns; outsourced technical assistance; seed improvement; and research. The project execution began in 1998, and all loan funds totaling US\$25.65 million have now been disbursed. Based on the experience gained in operations 694/OC and 891/SF, 74% of the resources from this operation were devoted to expanding outsourced technical assistance, and the project met its goal of serving 20,000 producers. In August 2003, project resources were redirected to partially subsidize the purchase of cottonseed for 90,000 producers in the 2003-2004 growing season, through the use of a flexible, transparent execution mechanism whereby the private sector replaced the State as provider of inputs to producers. In order to create a reliable procedure for monitoring this subsidy, a system based on a *Register of Producers* was set up at the MAG. The midterm evaluation of the operation revealed that the outsourcing of technical assistance encouraged adoption of agricultural technologies with positive environmental effects, although with modest productivity gains: the 6% increase in average cotton yield was below the 11.5% expected by the end of the program. Nevertheless, private technical assistance was more effective than a State extension service, producing 50% higher cotton yields in the areas served.

1.16 The Bank is currently helping to improve competitiveness in the agricultural sector through three operations now under way: (i) *Modernization and Diversification of Small-scale Farming Program (1255/OC)*, a US\$10 million operation begun in

September 2001, seeks to raise and stabilize the income of producers in the fruit and vegetable chain; (ii) *Cadastral and Property Registry Program (1448/OC)*, with US\$9 million in financing under way since January 2005, seeks to lay the technical and legal foundations for future regularization of land tenure in Paraguay; and (iii) *Science, Technology and Innovation Program (1698/OC)*, with a loan of US\$6.5 million, was approved in December 2005 and seeks to enhance the country's research and innovation capabilities.

3. The Bank's experience in restructuring agricultural support

- 1.17 In 1998 the Bank provided support for the design and execution of PROCAMPO in Mexico through a US\$400 million sector loan (960/OC-ME) and a US\$500 million investment loan (1334/OC-ME). PROCAMPO converted generalized price subsidies for importable commodities into direct support to producers affected by tariff reductions associated with the North American Free Trade Agreement. Eligible producers receive a fixed payment for each eligible hectare, leaving them free to allocate their land to the commodity or conservation activity of their choice. The payments have focused the impact of the support onto small farmers on community-owned land. An independent evaluation of PROCAMPO⁴ found that: (i) between 1994 and 1997, the income of these producers grew 14%; (ii) each peso from PROCAMPO leveraged 1.5 to 2.6 additional pesos of agricultural investment and removed liquidity constraints of the beneficiaries; and (iii) the fiscal cost was lower than it had been under the earlier price subsidy system.
- 1.18 In the Dominican Republic, the Bank initiated financing in 2002 for the Support for the Transition to Competitive Agriculture Program (1397/OC-DR). This operation includes a technology adoption support component, which includes partial cash reimbursements for farmers to cover the cost of goods and services provided by private agents chosen from a menu of eligible options. The design of the operation took into consideration a similar experience in Mexico, *Proyecto Alianza para el Campo*, which showed how to promote agricultural investment and improve productivity, the quality of final products, and returns on investment.

4. Lessons learned

- 1.19 The principal lessons learned from the Bank's activities in the Paraguayan agricultural sector and experience in restructuring agricultural incentives in other countries pertinent to the proposed Program are summarized below:
- a. *State-provided agricultural support have greater impact when they are based on mechanisms that reduce economic distortions and are managed cost-effectively.* Agricultural support with the greatest impact is that which maximizes social benefits to the overall economy. Direct support through

⁴ Sadoulet, E., A. de Janvry and B. Davis, *Cash Transfer Programs with Income Multipliers: PROCAMPO in Mexico*, World Development Vol. 29, Issue 6, June 2001, pp. 1043-1056. PROCAMPO evaluations for 2004 and 2005 can be accessed at <http://www.procampo.gob.mx/evaluaciones.html>. The PCR of operation 1334/OC-ME classified it as Very Effective in the achievement of its development objective.

income transfers that is decoupled from production, inputs, or prices is a more efficient policy mechanism than price supports or input deliveries because they create fewer markets distortions⁵. The Program builds on this lesson by promoting a system of direct support through income transfers. This system is expected to produce a net positive economic impact at the farm level, greater product diversification, and increased liquidity in rural areas. It will also introduce a new sector policy with fewer negative effects on the economy and more fiscal discipline at the MAG.

- b. *Agricultural technology innovations with positive long-term environmental impact have a higher rate of adoption among producers if they show adequate short-term profitability.* The adoption of soil conservation technologies may be limited among small and medium-scale producers if there is a long time interval between investment in the technology and observation of the benefits. The Program will encourage environmentally appropriate technologies that have positive effects on crop yields at the farm level.
- c. *Agricultural technical assistance services are more effective if they are linked to the introduction of technological changes at the farm level.* The economic impact of technical assistance or agricultural extension is limited if it is not linked to on-farm introduction of technology packages aimed at increasing productivity at the farm level. Technical assistance should therefore provide input that will enable producers to adopt such packages in order to increase its effectiveness. On the basis of this lesson, the agricultural incentives under the Program directly link technical assistance to technological innovation by specifically incorporating into the subsidy for technology adoption an amount that will enable the beneficiary to hire the most efficient service provider in the marketplace.

E. Coordination with other international agencies

- 1.20 International cooperation agencies have played a role in the development of the Paraguayan agricultural sector. Sector projects financed by Kreditanstalt für Wiederaufbau (KfW) and the Japan International Cooperation Agency (JICA) have supplemented the efforts of operation 1109/OC-PR to outsource technical assistance services. As a result, there has been close coordination with these entities on strategy and intervention targeted to small-scale family-run farmers. The World Bank is preparing an operation for sustainable management of natural resources in microwatersheds in the country's eastern region, with a design based on the experience from the natural resources management operation approved in 1994.
- 1.21 During the preparation stage of this operation, the MAG led meetings with the teams from projects financed by the World Bank, KfW, and JICA, to tailor the

⁵ For a discussion of the comparative advantages of direct agricultural support through income transfers versus price supports, and results of experiences in several countries, see Baffes, J. and H. de Gorter, *Disciplining Agricultural Support through Decoupling*, World Bank Policy Research Paper 3533, March 2005.

support targeted to small-scale family farms under those projects to give small-scale producers more effective and efficient access to State subsidies in a manner consistent with the efforts of the State and the proposed Program.

F. Program design

- 1.22 Low effectiveness of agricultural support through input deliveries and technical assistance on productivity and income prompted the Bank to engage in a sector policy dialogue with the new Government administration in August 2003. An independent study on the [performance of public expenditure on agriculture in Paraguay](#), as well as the outcome evaluation of the two Bank operations in the sector since 1993, demonstrated the need to implement alternative support tools with greater environmental and economic impacts to promote a more efficient allocation of fiscal resources to the sector, allow a more agile and transparent management by the State, and generate minimum economic distortions on markets and agricultural subsectors. Such a need motivated the Government to explore, together with the Bank, experiences in other countries, with emphasis on outcomes, lessons learned and relevant elements of Bank operations on restructuring of agricultural support in Mexico and Dominican Republic. As a result, the Government decided to implement a new agricultural support policy based on direct income transfers (subsidies), decoupled from production, as support tools of two types: (i) conditional support on the adoption of technologies that have positive economic and environmental impact; and (ii) compensatory support for the elimination of the current policy, mainly for cotton producers. The Program assists in the implementation of this new Government's sector policy.
- 1.23 The new agricultural support policy will improve the management of the MAG, as the entity responsible for channeling public resources to the sector, by enhancing their quality, effectiveness, flexibility, and coverage. Under the new policy, State-level decisions on agricultural production that are implicit in the current delivery of inputs and services will be transferred to the direct beneficiaries of the proposed incentives, thus giving them complete control over when, how, and what crops to grow. The design of the proposed support system stipulates that entitlement to the payments is not a function of, or based on, the type, volume, or price (domestic or international) of a particular crop or a specific production factor that the farmer may choose to use, so as to prevent market distortions. This new support policy is expected to help reduce small-scale farmers' income dependence on crops with no comparative advantages, encourage greater product diversification, and provide better access to expanding markets.
- 1.24 Satisfactory achievement of the Program development objective will require the Government's strong commitment to the proposed support policy. The effort will involve a pledge from MAG and its decentralized agencies to refrain from establishing or implementing support programs through input and service deliveries or from implementing price-based compensation mechanisms during the Program execution period. Such a commitment, which must go together with a permanent dialogue of the central Government with local governments and binational entities to align their agricultural support programs to the unique national policy that the

MAG seeks to establish through the Program, will ensure the effectiveness of this new support policy and guide the organization of the State's activities targeted to the agricultural sector, and in particular small-scale family farms.

G. Justification for the lending instrument

- 1.25 The Program characteristics based on conditional and compensatory direct income transfers allows it to be focused on performance measurement of outcomes related to its development objective. Quantitative effectiveness and coverage indicators will allow periodic measurement of those outcomes through a credible and reliable monitoring system. With this new focus, the State will cease its current efforts on procurement of inputs and services and will redirect them towards three more crucial activities: (i) the introduction of a new agricultural support policy that eliminates duplication of effort and promotes greater efficiency in public spending targeted to agriculture; (ii) the supervision and systematic verification of the effectiveness and efficiency of the support that has been received; and (iii) the development and promotion of agricultural technologies designed to improve the performance, impact, and social returns of small-scale farms.
- 1.26 Its characteristics and focus on outcomes associated with the operation's development goal create an appropriate framework for justifying the use of a performance-driven loan (PDL) as the financing modality for the Program. The operation fulfills with the rationality and criteria established in the PDL policy (GN-2278-3). Its focus allow Government efforts to be oriented towards development effectiveness. As a result, each loan disbursement will occur once specific outcomes are achieved (Annex I), which will contribute to a greater efficiency in public management of State agricultural support. First disbursement will be an advance of 20% of loan proceeds that will become effective once pertinent conditions are met, two of which will allow the implementation of recommendations from the institutional capacity analysis of the Executing Agency performed during project preparation. Remaining disbursements will occur in five tranches and will be considered reimbursement of eligible expenditures incurred to achieve the associated outcomes with each tranche. These outcomes are explained in the next section.

II. THE PROGRAM

A. Objective

- 2.1 The general objective of the Program is to raise the productivity and income of the country's small and medium-scale agricultural producers. The specific objectives are: (i) to increase the rate at which environmentally appropriate agricultural technologies with positive economic returns are adopted; and (ii) to partially and temporarily offset the reduction in income resulting from the elimination of support mechanisms through the delivery of inputs by MAG and its decentralized agencies.

B. Program structure and expected outcomes

- 2.2 The Program is structured around the achievement of a final outcome associated with the general objective, and interim outcomes related to the level of coverage (i.e., number of beneficiaries) and effectiveness of the two types of agricultural support included in the operation: *Support for technology adoption* and *Direct support to family-run farms*. The interim outcomes are a key element for demonstrating progress towards the expected final outcome. The indicators, baseline values and targets associated with each loan tranche are presented in the Performance Matrix (Annex I). The methodology used to calculate these parameters is presented below.
- 2.3 **Final outcome.** The expected final outcome is an increase of farm productivity and, consequently, an increase in farmers' income as a result of the agricultural support provided under the Program. The associated indicator will be the percentage of beneficiaries, in an acceptable, statistically representative sample, who received support for technology adoption and achieve an internal rate of return above 12% of net profits generated, in a 10-year project horizon. In view of the fact that the economic impact of technology adoption cannot be observed in fewer than three years, this indicator will be measured only for beneficiaries who received support for technology adoption in the first two growing seasons in which this support was offered. The target to be met is 80% of those beneficiaries.
- 2.4 **Interim outcome #1.** The first expected interim outcome is an increase in the rate of adoption of the agricultural technologies proposed under the Program. The measurement indicator is the expected number of producers who adopt at least one of the proposed technologies. The targets associated with each disbursement were established on the basis of traditional patterns of agricultural technology adoption observed over time⁶. Using this pattern, the targets were calculated in absolute terms considering the following incremental percentages for the 12,700 expected beneficiaries of the support for technology adoption (i.e., total amount allocated to this eligible category divided by the aggregate cap per producer over the life of the Program – paragraph 2.9): 14%; 30%; 57%; 80%; and 100%.
- 2.5 **Interim outcome #2.** The second expected interim outcome is a partial and temporary compensation of producers' income loss due to the elimination of the State's current policy of input deliveries. Given the fact that this policy largely favored cotton producers, the compensation will be targeted to that group. Therefore, the indicator used to measure the outcome will be the number of

⁶ Given the role played by a number of economic and social factors in the demand for agricultural technology, innovations are spread over time according to a pattern resembling an S-shaped curve. In other words, the rate of adoption of an innovation initially progresses slowly before experiencing rapid, relatively dramatic growth. A discussion of the topic, with bibliographic references, is presented in the FAO publication, *The Economics of Conservation Agriculture*, Rome, 2003. This pattern was observed in the participation of farmers who received technical assistance financed under operation 1109/OC-PR: only 38% of the 20,000 beneficiaries at the end of the program participated in the first year of actual project execution, achieving participation rates of 74%, 82%, 91.5%, and 100% of the total in subsequent years.

beneficiaries who received cottonseed during the 2003-2004 growing season with financing from operation 1109/OC, and are registered in the MAG's *Register of Producers*. The target is that at least 90% of the 86,500 registered producers are receiving *Direct support to family-run farms*.

- 2.6 **Interim outcome #3.** Agricultural support provided under the Program will be effective only if the State makes a firm commitment to refrain from delivering inputs to or establishing price-based compensation mechanisms for the agricultural sector during the Program execution period. Therefore, the third expected interim outcome is maximized effectiveness of the agricultural support provided under the Program. The proposed measurement indicator for this outcome will be the number of existing programs or support policies in the MAG and its decentralized agencies that support agriculture through input deliveries or price-based compensation mechanisms. The target associated with each disbursement is that no such programs or policies exist during the Program execution period.

C. Eligible financing

- 2.7 The Program targets will be achieved through activities in three eligible financing categories: (i) support for technology adoption; (ii) direct support to family farms; and (iii) Program management and supervision. A fourth category includes reimbursement of the Project Preparation and Execution Facility (PPEF).

1. Support for technology adoption

- 2.8 Financing in this category will include cash payments to eligible producers to partially cover the cost of investment associated with implementation of technologies included in a menu of options specified by the Program. The payments will consist of a fixed amount per hectare required to adopt each technology. In each case, the amount includes the economic cost of inputs, associated labor, and required technical assistance, and any initial loss of productivity as a result of the transition to the new technology.
- 2.9 The support in this category will have an aggregate cap of the equivalent of US\$1,300 per producer during the Program execution period, regardless of the technology(ies) adopted, number of hectares utilized, or Program year of implementation. The aggregate cap equals the amount needed for technological conversion of a five-hectare farm—the mode size of a campesino farm—using all technologies on the list. The maximum payment may be revised by mutual agreement between the Borrower and the Bank. The use of this aggregate cap will favor small-scale producers, and hence those in the lowest income group.
- 2.10 The menu of options will include technologies to be selected based on the available information on Paraguay according to the following criteria of efficiency and economic/environmental viability: (i) economically significant medium-term impact on producers' net income; (ii) applicability to a broad range of commodities so as to minimize distortive effects in the producers' allocation of resources to specific commodities; (iii) neutral or positive environmental effects, particularly in

regard to soil quality; and (iv) ease of objective verification of the technology adoption by the beneficiary producer.

- 2.11 The initial menu includes at least four technologies promoted as part of operation 1109/OC: minimum tillage, cover crops, liming, and subsoiling. The associated costs and amount of the support are presented in the accompanying table. The support (subsidy) in each case was calculated as the additional amount that would generate a 100% internal rate of return for the technology, assuming that it is used on the crop with the lowest losses (paragraph 4.6). The menu may be revised, adjusted, and/or expanded in accordance with the *Manual of Operations and Procedures*.

Cost and support for technologies on the initial menu (US\$/ha)

Technology	Cost	Support
Minimum tillage	48	43
Cover crops	36	32
Liming	114	80
Subsoiling	48	34

2. Direct support to family farms

- 2.12 Financing in this category includes fixed payments equivalent to about US\$17 per hectare, to be paid in *Guaraníes* at the beginning of each growing season, up to a maximum of three hectares per eligible producer, which producers may use without restriction. The total amount of compensation to be given each year will be determined by the MAG according to the applicable budget allocation, using the same criteria for all eligible producers⁷. The temporary nature of the support will hinge on the Government's review of the support's economic and fiscal impact and the country's commercial and sector policy development at the end of the Program.
- 2.13 Producers who received benefits under the *Support for the 2003-2004 Growing Season* component of operation 1109/OC-PR, and have a civil identity card will be eligible to receive this support. The three-hectare limit will favor small-scale producers, and hence the lowest income group.

3. Management and supervision

- 2.14 Eligible expenses in this category include consulting services, equipment, materials, and operating expenses for the Program execution, management, and supervision; implementation of the DINCAP's (National Project Administration and Coordination Office) Institutional Strengthening Plan (paragraph 4.2); operation of the monitoring system; the management fee of the participating financial

⁷ For example, a total compensation of US\$34 per hectare (i.e., 50% covered by resources from the financing) would account for 11.5% of the average income from planting cotton for farmers with three or fewer hectares whose yield is 1,000 kilos per hectare, at a price of G\$1,800 per kilo. In fiscal terms, this compensation would equal the average annual budget for ad hoc State supports from 2001 to 2005, or US\$5 million, less 5% in administrative expenses, divided by the number of hectares planted to cotton served by the Support for the 2003-2004 Growing Season component of operation 1109/OC-PR, or 140,000 hectares.

institutions; performance evaluations; external audits of the program; and awareness-building campaigns to promote the support policy under the Program. Under no circumstances will the eligible expenses under this category exceed 10% of the total operating cost.

D. Cost and financing

- 2.15 The total cost of the Program is US\$35 million. The Bank will finance US\$31.5 million (90%), from resources from the Ordinary Capital's Single Currency Facility, while the local counterpart amount of the equivalent of US\$3.5 million (10%) will be provided by the Government of Paraguay. Resources of the Intermediate Financing Facility Account will be used to pay a portion of the interest due by the Borrower on outstanding balances on the total amount of the loan. The Program cost by eligible financing category is presented in the table below:

**Cost by eligible financing category
(US\$ millions)**

Category	Amount	%
1. Support for technology adoption	16.5	52.4
2. Direct support to family-run farms	10.0	31.7
3. Management and supervision*	2.0	6.4
4. PPEF	3.0	9.5
Total	31.5	100.0

- 2.16 The financing modality will be a performance-driven loan (PDL) in accordance with Bank policy (document GN-2278-3). The project was designed on the basis of the estimated cost required to achieve the levels of potential beneficiaries for each type of agricultural support included under the Program. At those levels, the targets in the Performance Matrix (Annex I) would be met.

III. PROGRAM EXECUTION

A. Project management

- 3.1 The executing agency will be the Ministry of Agriculture (MAG). The entity responsible for Program execution will be the DINCAP, the MAG's organizational unit that has financial and administrative autonomy and responsibility for managing projects with international financing. The projects managed by the DINCAP include the Support Small-scale Cotton Producers Program (1109/OC-PR) and the Modernization and Diversification Small-scale Farming Program (1255/OC-PR). The DINCAP has three departments: a technical office in charge of project planning and monitoring, in addition to assessment of target achievement; a financial administration office, which is responsible for accounting and financial

management of internal and external resources; and a project coordination office in charge of project implementation and monitoring. The DINCAP also has an internal auditing office.

- 3.2 The DINCAP will have responsibility for Program execution, administration and supervision. In specific terms, it will prepare the annual programming of activities required to achieve the desired outcomes; prepare calls for proposals, hold bidding competitions, handle contracting and related payments, and provide technical supervision of contracts; maintain exclusive bank accounts and appropriate financial and accounting records that distinguish the use of the resources from the financing; prepare disbursement requests with the appropriate receipts for eligible expenditures, as well as financial statements for the Program; verify producer eligibility and authorize support payments; supervise the periodic verification of achievement of agreed outcome targets; properly manage and maintain the monitoring system; prepare and publicize periodic progress reports on achievement of agreed targets, as well as external program auditing reports; and supervise compliance with the loan contract and any agreements with financial institutions for the support payments provided for under the Program.
- 3.3 The DINCAP will have assistance from financial institutions in order to make the Program-sponsored support payments, once the beneficiaries have been identified. These financial institutions will be subject to the applicable rules governing supervision and regulation and will have experience with service delivery in rural areas, appropriate geographic coverage, and networked information systems at their customer service branches. Their responsibilities include: maintenance of the database provided by the DINCAP without any modification; authorization of special accounts for deposit of funds for support payments; maintenance of exclusive bank accounts and appropriate financial and accounting records that distinguish the sources and uses of the Program resources from other resources managed by that institution; provision of access to its records for the independent auditing firm; presentation to the DINCAP of information from statements and reconciliations showing application of funds, broken down by beneficiary; and maintenance of a file with the pertinent supporting documents. The participating financial institutions will be selected in accordance with the national laws in force governing public contracting and procurement. The participation of each institution will be formalized through a signed agreement with the MAG, under the terms set forth in the *Manual of Operations and Procedures*.
- 3.4 The national director of the DINCAP will be responsible for Program execution, management, and supervision. He will be assisted by a Program's executive director, two coordinators to manage Program support payments, and a team of technical and financial specialists, all of whom will be assigned exclusively to the Program. In addition, professionals in the MAG regional offices will be assigned to carry out promotion and monitoring activities. The DINCAP will have an accounting system that is integrated with the Program monitoring system and operated centrally with access to the participating financial institutions. This system

will make it possible to integrate the accounting and financial management of the Program with the statistical reports of outcomes.

- 3.5 The Program management will be governed by a *Manual of Operations and Procedures* prepared during the preparation stage. The provisions set forth in the manual include: rules and procedures for the DINCAP in regard to procurement and contracting, handling and filing of supporting documentation, accounting and financial management, operation and maintenance of the monitoring and evaluation system, supervision of performance evaluation, and outside audits. The manual also specifies and governs the mechanisms for financial and operational implementation of each type of support under the Program, including penalties for noncompliance with the rules. These mechanisms are summarized below. **The entry into effect of the manual will be a condition precedent to the first disbursement under the program.**

B. Financial and operating mechanism for support payments

- 3.6 Prior to the beginning of each growing season, the DINCAP will conduct information campaigns to promote awareness of the objective and scope of the Program and the requirements for obtaining support. The campaigns will be designed, based on the sociocultural profile of potential beneficiaries of the *Support for technology adoption*, and of the farmers eligible for *Direct support to family-run farms*. In both cases, the campaigns will provide information on eligibility criteria and the financial and operating mechanisms. In the case of the *Support for technology adoption*, the campaigns will also give information on the technologies included on the menu and the applicable subsidy amounts. The campaigns will be conducted in Spanish and Guaraní and will be guided by the experience gained from the communication and awareness-building activities included in operation 1109/OC-PR.

1. Support for technology adoption

- 3.7 A producer can apply for the applicable support at one of the MAG Regional Offices throughout the country, after having chosen the technology best suited to his farm. The procedure calls for the producer to submit an *Application for Technology Adoption Support*, which will provide basic information for determining eligibility, the location of his farm, and a description of his farming operations. The appropriate regional office will verify his eligibility and inform the DINCAP of its decision. Producers who legally occupy, in any capacity, farms of up to 50 hectares in size located outside of protected areas are eligible to receive support.
- 3.8 Upon verification of eligibility, the DINCAP will either confirm the beneficiary's registration in the monitoring system, or enter an initial registration. The DINCAP will authorize the appropriate financial institution to issue and deliver to the beneficiary individual certificates for the amount of the subsidy associated with the authorized technology. Through the appropriate regional office, the DINCAP will notify the beneficiary when the certificates are available. The certificates will be registered and numbered, indicate the authorized technology and effective period,

be endorsable to technology service providers registered with the DINCAP, function like payment orders, and be backed by Program funds on deposit at the financial institution. The certificate can be redeemed for cash upon presentation at a DINCAP regional office of a sworn declaration of technology adoption signed by a technology service provider and the producer. The endorsable nature of the certificates will enable producers to negotiate for technology services with the most efficient providers when needed.

- 3.9 Upon receipt of the declaration, the DINCAP will authorize the financial institution to redeem the certificates for cash at its branch offices. Private firms hired by the DINCAP will be responsible for independent verification of the technology implementation according to procedures described in the *Manual of Operations and Procedures*. The manual also specifies the penalties for noncompliance.

2. Direct support to family-run farms

- 3.10 On the date and location specified by the DINCAP, the producer will come with his civil identity card to the nearest branch of the applicable financial institution. His eligibility will be verified on the basis of the information in the *Register of Producers*, which is integrated into the Program monitoring system. The payment transaction will consist of identification of the beneficiary by means of his identity card, entry of the unpaid beneficiary on the list contained in the financial institution's database, and signing of a receipt by the producer. The transaction will be recorded simultaneously at the financial institution's central office in its computerized system that performs on-line reconciliations with the appropriate branch office. This system will be able to compile statements and reconciliations showing application of funds. The original payment documents in support of the electronic statements will be sent by the financial institution to the DINCAP for potential review by the Program's independent auditing firm.

C. Procurement of goods and services

- 3.11 The proposed Program provides only for the procurement of goods and related services and consulting services in the category of *Management and supervision*. The Program will not include civil works construction. In accordance with the Bank's policy governing performance-driven loans (document GN-2278-3), the procurement of goods and services using Program resources will adhere to the practices and procedures set out in the Paraguayan Public Procurement Act (Law 2051 of 2003) and its governing regulations, except in the following two cases: (i) the hiring of the independent auditing firm to conduct external audits (paragraph 3.23); and (ii) the hiring of the independent consultants who will conduct the performance evaluations (paragraph 3.20).
- 3.12 An independent analysis of this legal framework confirmed that the practices and procedures set out in Law 2051 of 2003 and its governing regulations included therein are compatible with the principles of competition, economy, transparency, equality, publicity, and due process. As to dispute settlement, the analysis concluded that the legal framework specifies the procedures for disputes and arbitration, and ensures that current or potential providers and contractors, and civil

society in general, will have unrestricted access to any claims received, and is therefore regarded as suitable⁸. The analysis also concluded that the Public Procurement Office of the Ministry of Finance has provided training to the DINCAP staff on the regulations in force.

- 3.13 The financial administration office within the DINCAP is responsible for management of goods and services. The institutional analysis of this unit noted its poor performance in the management of goods and services owing to the lack of a functions manual consistent with the needs and parameters established by the Public Procurement Office of the Ministry of Finance, as well as the lack of an information system compatible with the Public Procurement Information System (SICP) set out in the legal framework. To rectify these limitations, a Procurement Operations Unit (POU) will be set up within the DINCAP's financial administration office and equipped by the Ministry of Finance. The staff of this unit will receive training from the Ministry of Finance in current procurement practices and procedures, and will have a manual consistent with the Ministry of Finance's *Organization and Functions Manual for Procurement Operations Units* and direct access to the SICP. The POU will handle the procurement of goods and services and the contracting of consulting services under the Program. The external financial and operations audits of the Program (paragraph 3.23) will verify the unit's ongoing compliance with the procedures set out in Law 2051. **The implementation of the POU within the DINCAP through ministerial decision of the MAG will be a condition precedent to the first loan disbursement.**

D. Schedule of disbursements

- 3.14 The disbursement period for the Program will be five years. Under the tentative plan of net disbursements presented below, there will be an initial disbursement and five subsequent ones. The table shows the estimated schedule of net disbursements, after deducting the first disbursement:

Schedule of net disbursements (US\$ millions)

	First disbursement	Tranche 1	Tranche 2	Tranche 3	Tranche 4	Tranche 5	Total
IDB	6.3*	4.3	4.3	6.2	5.6	4.8	31.5
%	20.0	13.7	13.7	19.6	17.8	15.2	100.0

* The first disbursement includes the funds required to amortize the sum of up to US\$3 million to finance PPEF operation PR-L1020.

- 3.15 The Program will provide an advance payment equivalent to 20% of the loan amount and five tranches. The advance will be released upon entry into force of the

⁸ The public sector in general has an information system for consultation and communication in regard to procurement, which is accessible over the Internet (<http://www.contratacionesparaguay.gov.py/index.html>). In addition to serving as a tool that citizens and stakeholders may consult for information on public procurement, the system can also be used to report complaints.

loan contract and fulfillment of the contractual conditions precedent to the first disbursement. The amount of the advance will be deducted gradually from the five subsequent tranches.

- 3.16 Authorization to make the disbursements of each tranche will be tied to achievement of the agreed targets as set out in the Performance Matrix and to the Bank's subsequent verification of the eligibility of the expenditures to meet those targets. The Bank will confirm its verification that targets have been met based on a favorable performance evaluation report to be issued by an independent consulting firm (paragraph 3.20). As a general approximation, each loan tranche is associated with a growing season of approximately one year in length.

E. Monitoring and evaluation

1. Monitoring system

- 3.17 Program monitoring will be carried out through a passworded multi-user information system designed around a central base at the DINCAP main office. The main office will be networked with the MAG regional offices to provide applicant database information and maintain the *Register of Producers*, and with the financial institutions for verification of payments to beneficiaries. The design also includes software tools that can be used to automatically, reliably, and safely generate information from different modules and directly incorporate mechanisms to measure quality and traceability of procedures. These modules include: financial management; management of goods and services; verification of producers' eligibility for agricultural support; and monitoring of interim and final outcomes. The monitoring system will allow the MAG to make more transparent the support payment process, have available precise information to perform necessary adjustments to improve its effectiveness, measure periodically its outcomes and economic impacts, and assess the efficiency of this new agricultural policy.
- 3.18 The MAG's *Register of Producers* will be used to verify the eligibility of each applicant for *Direct support to family-run farms* and to determine the number of hectares eligible for the payments. The register includes, in a single database that will be integrated into the monitoring system, beneficiaries of the 2003-2004 cotton growing season financed by the operation 1109/OC-PR, and identifies each one by his civil identity card, residential address, and number of bags of cottonseed received in the 2003-2004 growing season. The latter element will be the indicator of the number of hectares eligible for the support. The register will be set up at participating financial institutions to handle payments and will not be modified during the Program execution period. Annually, MAG could adjust the *Register of Producers* following procedures stated in the *Manual of Operations and Procedures*.
- 3.19 The monitoring system for the *Support for technology adoption* will include additional fields for registration and subsequent adoption by the applicants. The DINCAP will input into these fields basic information to be submitted to the regional offices by each individual producer in his *Application for Technology Adoption Support*, which will include applicant profile (civil status, age, sex,

ethnicity), a description of his farm (size and type of tenancy), information on the previous growing season (planted area and yield by type of crop, technology used, income earned), and whether he is receiving *Direct support to family-run farms*. This information will form a baseline (“without project” situation) against which the performance of the final outcome indicator in the Performance Matrix can be measured. It can also be used to conduct an economic analysis of the determinants of technology adoption by campesino farmers, which will be included in the final performance evaluation report, and to conduct future ex-post evaluations of the Program.

2. Performance evaluation

- 3.20 In support of the disbursement request for each tranche, except for the initial advance, the DINCAP will present a performance evaluation report on achievement of the associated targets in the Performance Matrix (Annex I). The DINCAP will engage independent consultants to conduct the evaluation in accordance with the Policies for the Selection and Contracting of Consultants Financed by the Bank, dated July 2006 (document GN-2350-7). The selected consultants will be required to have demonstrated capability for gathering field information and conducting database analysis, as well as broad experience in economic and technical analysis of public-sector projects, preferably in the area of agriculture. The costs of the performance evaluation will be covered by the loan. **The contracting of the consulting services to conduct the performance evaluation, under the terms agreed with the Bank, will be a special condition precedent to disbursement of the first tranche of the Performance-Driven Loan.**
- 3.21 The specific activities to be carried out for the performance evaluation include: (i) examine and assess the quality of the data in the DINCAP monitoring system reported to the Bank by the executing agency in its disbursement request for each tranche, by analyzing the accuracy, reliability, relevance, validity and credibility of the data used to state the results; (ii) determine the degree to which the specific targets were met; and (iii) recommend that the Bank issue the disbursement if appropriate. Verification of the final outcome in the Performance Matrix will require a statistically appropriate sample of beneficiaries, for which the estimation methodology will be proposed by the entity chosen to conduct the performance evaluation. For each producer in the sample, the evaluation will compare productivity levels and net profits earned from the adopted technology against those reported in the initial support application submitted to the MAG. Based on the results of the comparative analysis, expected net profits will be projected out to a 10-year project horizon, and an internal rate of return (IRR) will be calculated. This calculation will be accompanied by a deeper economic analysis to identify the determining factors of technology adoption among producers. The analysis will be used in making any adjustments to the Government’s agricultural support policy after the end of the Program.
- 3.22 The performance evaluation reports, including the supporting documentation and statistical information, will be available for use in an ex post evaluation, if the Government or the Bank decides to do so after the end of the Program.

F. External financial and operations audit

- 3.23 The DINCAP will hire a firm of independent auditors acceptable to the Bank, chosen in accordance with the provisions of document AF-200. This audit will be carried out in accordance with the Bank's policies and requirements (documents AF-100 and AF-300) and the terms of reference (document AF-400). The DINCAP will present to the Bank: (i) within 120 days after the close of each fiscal year, the audited financial statements of the Program; and (ii) in support of the disbursement requests for each tranche, an interim auditing report containing certification from the external auditors regarding: (a) the level of compliance with the agreed upon Institutional Strengthening Plan (paragraph 4.2); (b) monitoring of procedures for disbursements and for procurement and contracting by the POU, including adherence to the procurement procedures set out in Paraguayan law; and (c) the eligibility and validity of expenditures in accordance with the criteria set out in the *Manual of Operations and Procedures* for the Program. The certification will specifically state that the expenditures are linked to the outcome indicators specified for each disbursement tranche. **The contracting of the auditing firm under the terms agreed with the Bank will be a special condition precedent to disbursement of the first tranche of the PDL.**

IV. VIABILITY AND RISKS

A. Institutional viability

- 4.1 The viability of the proposed execution scheme was evaluated during the Program preparation stage, on the basis of the results of the Institutional Capacity Evaluation System (SECI) analysis. The analysis covered activity programming, administrative organization, financial administration, management of goods and services, human resources management, and internal and external controls. The conclusions of the analysis indicated that the DINCAP will need to strengthen some elements in regard to activity scheduling, management of goods and services, financial administration, and internal controls. The weaknesses found are associated with the lack of formal procedures for preparing operating plans and for organizational management of the entity, cumbersome procedures for procurement and contracting, and a lack of formal procedures and of an integrated information system to manage financial transactions.
- 4.2 The SECI analysis has resulted in recommendations for addressing these weaknesses in order to strengthen the management and administration of the operation. These recommendations have been incorporated into the DINCAP's Institutional Strengthening Plan. The recommendations are:
- a. **Activity programming:** Design and implementation of a planning and programming manual, which will include a risk management methodology. The implementation of this manual will include staff training and creation of a support system.

- b. **Administrative organization:** Design and implementation of a manual of functions, which will specify the profiles and responsibilities of the permanent staff.
 - c. **Management of goods and services:** Strengthening of procurement and contract management functions by setting up a POU within the DINCAP, which will be equipped by the Ministry of Finance and have direct access to its management system. The Ministry of Finance will train the unit staff in the contracting procedures set out in the regulations in force.
 - d. **Financial administration:** Design and implementation of administrative procedures for payment processing, accounting records, and rendering of accounts to establish the responsibilities of the various departments under the DINCAP. These procedures will include contingency plans.
- 4.3 The Program's external financial and operations auditing firm will verify compliance with the Strengthening Plan. The Program will also support the implementation of the plan by setting up rules and procedures for effective execution, administration, and supervision to be incorporated into the *Manual of Operations and Procedures*, as well as the monitoring system, which will have appropriate modules (paragraph 3.17). The implementation of the POU within the DINCAP will be a condition precedent to the first loan disbursement.
- B. Socioenvironmental impact**
- 4.4 The Program will have positive environmental and social impacts. It encourages the adoption of technologies chosen, among other reasons, for their neutral or positive environmental impact, particularly in regard to soil quality (paragraph 2.10). The Program is designed to reverse the problems of soil degradation and low soil fertility that have resulted from a policy of State support that discouraged crop diversification and favored environmentally unsound agricultural practices such as monoculture, especially in the traditionally cotton-producing areas. Selected technologies could include indigenous ones. Since the only eligible producers are those who are already farming on land located outside protected areas (paragraph 3.7), the Program activities will not encourage an expansion of the agricultural frontier, nor will they endanger biodiversity or environmentally fragile areas of the country.
- 4.5 Access of producers to support payments on the Program will be eased through awareness-building campaigns to be conducted at the beginning of each growing season, which will address the Program's objective and scope and the eligibility requirements. Their design will draw on the sociocultural profile of the potential beneficiaries on lessons learned from earlier Bank operations (paragraph 3.6). The Program foresees monitoring of outcomes at the beneficiary level through the collection and storage of socioeconomic data of beneficiaries in the monitoring system (paragraph 3.19). These data will represent a baseline that will measure the Program's final outcome, as well as establish the determinants of technological adoption among eligible producers.

C. Socioeconomic viability

- 4.6 The economic analysis focused on two issues related to the *Support for technology adoption* category: (i) the profitability of each technology on the initial menu of options (paragraph 2.11); and (ii) calculation of the subsidy for each technology. The profitability analysis was carried out on the conservative assumption that the technologies would be used to produce commodities that are typical in small-scale farming: cotton, corn, beans, and cassava. In each case, the costs were calculated using technical labor and input coefficients associated with field work and harvesting valued at 2003-2004 prices, adjusted for inflation. The benefits were calculated on the basis of average yields for 2000-2004 as estimated by FAO and valued at average market prices for the same period as tabulated by the MAG. The expected changes in costs and benefits associated with the introduction of a technology were estimated using parameters obtained through field tests. The IRR for the flow of incremental net profits in a specific time horizon was used to measure the return on investment. Except in the case of minimum tillage, the subsidy was calculated as the additional amount that would yield an IRR of at least 100% for the technology, assuming that it was used on the crop with the lowest returns⁹. The calculation for minimum tillage was done on the basis of foregone loss of productivity due to soil degradation for the crop with the lowest losses. A description and results of the economic analysis of the four technologies for the first year are presented in the table below:

⁹ Several studies of technology adoption by small farmers around the world have estimated that the minimum return they need to offset the cost of capital, risk, and the management factor is 100% (see CIMMYT [International Wheat and Maize Improvement Center] publication, [*From Agronomic Data to Farmer Recommendations: An Economics Training Manual*](#), Revised Edition, Mexico D.F., 1988). The subsidy was estimated either on the basis of the initial investment or as an annual amount, depending on the technology evaluated. The crop with the lowest IRR was used as a criterion in order to cover adoption of the technology for the greatest possible number of crops.

Technology	Assumptions of the economic analysis	IRR (%) or present value (US\$)	Subsidy per ha ¹
Cover crops: Introduction, into the customary crop, of new species that incorporate biomass, reduce undergrowth, simplify tilling and, in the case of leguminous plants, fertilize the soil. Benefits come from saving the cost of controlling undergrowth and increasing productivity up to the third growing season.	Analysis of net benefits from traditional corn-cotton rotation vs. similar rotation with <i>mucuna</i> (cover crop) in combination with corn in a 6-year time horizon.	29%	US\$32
Liming: Application of lime according to the level of acidity and presence of free aluminum in the soil. Increases productivity by 10% in the first growing season and 30%, 20%, and 10% in the following three years, respectively.	Cost-benefit of a single application of 2 MT of lime per ha at the beginning of the growing season. Project horizon = 4 years.	Cotton=17% Corn=15% Beans=17% Cassava = 154%	US\$80
Subsoiling: Deep furrowing at time of planting, to allow water to percolate more easily and penetrate roots in soils compacted by use. Increases productivity by 15% in the first growing season and 10% and 5% in the following two seasons, respectively.	Cost-benefit of implementation. Project horizon = 4 years.	Cotton=54% Corn=34% Beans=37% Cassava=327%	US\$34
Minimum tillage: Replacement of conventional tillage before planting by tillage in which little or no soil is turned over (i.e., weed management, application of herbicides). Lowers costs slightly; the principal benefits, however, are foregone loss of productivity due to soil degradation associated with conventional tillage.	Analysis based on present value of foregone losses associated with conventional tillage.	Corn=US\$43 Cotton=US\$54 Beans=US\$45 Cassava=US\$200	US\$43

¹ Amount that yields an IRR of at least 100% for the technology, for the crop with the lowest returns.

D. Benefits and beneficiaries

- 4.7 The Program will produce the following expected benefits: (i) an increase in productivity and income levels for Paraguay's small and medium-scale agricultural producers; (ii) foregone losses of social efficiency associated with deficiencies in the current agricultural support policies of input and service delivery implemented by MAG and its decentralized agencies, which will be eliminated; and (iii) improved efficiency in public spending for agriculture, through the establishment of agricultural support management mechanisms that are more effective, efficient, flexible, transparent, have better coverage, and are performance-driven. In the future, the Program will support the institutional modernization of the MAG, including its monitoring and evaluation functions, and will enable it to develop an efficient system of agricultural technology innovation.
- 4.8 The Program will directly benefit at least 12,700 small and medium-scale producers by giving them access to economically and environmentally viable technologies, and 78,000 producers who will receive compensatory support payments. The

beneficiaries are concentrated in Paraguay's lowest-income Departments, and therefore the operation qualifies as a PTI/SEQ project. Of the producers eligible to receive *Direct support to family-run farms*, 85% are located in the Departments with a poverty incidence above the national average, according to the 2003 household survey; half of these are in the four lowest-income Departments, as seen in the table below:

Department	Incidence of extreme poverty ¹	Registered campesino farmers	% of total	Cumulative %
San Pedro	0.325	17663	20.4	20.4
Concepción	0.324	5335	6.2	26.6
Canindeyú	0.298	4359	5.0	31.6
Caaguazú	0.296	16492	19.1	50.7
Caazapá	0.284	7672	8.9	59.6
Itapúa	0.241	13610	15.7	75.3
Misiones	0.236	2955	3.4	78.7
Amambay	0.228	69	0.0	78.7
Ñeembucú	0.213	1905	2.2	80.9
Guairá	0.207	3279	3.8	84.7
National average	0.198			

¹ Source: Robles, M. and H. Santander, *Paraguay: Pobreza y desigualdad de ingresos a nivel distrital*. IDB/SDS/POV/MECOVI – DGEEC Paraguay, October 2004.

- 4.9 In addition to being located in the Departments with the highest incidence of poverty, the beneficiaries are considered to be in the most vulnerable rural groups. Of the registered producers who will be served by the Program, 91% have three or fewer hectares (58% have one hectare and 24% have two hectares) and account for nearly 40% of total cotton production. Estimates indicate that rural families with land parcels of 2 to 20 hectares (45% of the total) make up 76% those in poverty and 71% of those in extreme poverty in the rural area¹⁰. The three-hectare maximum per beneficiary for *Direct support to family-run farms* will make it possible for 83% of the resources from this investment category to reach these beneficiaries directly.

E. Risks

- 4.10 **Demand for technological innovation.** A producer's decision to introduce a technological change on his farm depends on a set of socioeconomic factors that include the profile of the producer and his farm, but prices and market conditions are especially important. While a farmer and his farm tend to have a fixed profile over time, prices and market conditions are subject to fluctuations external to the Program. Unfavorable circumstances of input or crop prices can have a negative impact on producer demand for the technologies offered by the Program. Hence,

¹⁰ Raw, S. and Malarín, H. *Paraguay: Retos en la Lucha contra la Pobreza*. Sector Note, SO1/EN1, 2004.

the Program targets associated with the final outcome and interim outcome #1, number of beneficiaries who use at least one of the technologies on the list, were quantified on the assumption that the current market conditions are favorable to agriculture and that no events will negatively impact the sector as a whole. The risk of a drop in demand is considered to be low and is minimized by the establishment of a subsidy level that will yield an IRR of at least 100% for each technology for the least profitable crop.

- 4.11 **Resistance to sector policy change.** The current administration is firmly committed to overcome the limitations of effectiveness and management associated with agricultural support based on input deliveries, through the implementation of a new sector policy based on the support payments outlined in the Program. However, the historical sensitivity of the political order to the topic of campesino family farming presents a risk of returning to input delivery policies or of the creation of distortive price compensation mechanisms in the future if there is a change in the political environment. Although the indicator associated with interim outcome #3 represents a risk-minimizing incentive, the Bank will continue the sector dialogue, held throughout the project preparation stage, during the execution stage as a mitigation mechanism.

**PROGRAM TO MODERNIZE AGRICULTURAL SUPPORT MANAGEMENT
(PR-L1001)**

PERFORMANCE MATRIZ

Objective	Definition of Performance Indicator	First disbursement: Baseline	Targets				
			Tranche 1	Tranche 2	Tranche 3	Tranche 4	Tranche 5
To support improved productivity and higher income for small and medium-scale farmers by the end of the Program.	Final outcome indicator: Percentage of beneficiaries in the first two growing seasons, in an acceptable, statistically representative sample, who received support for technology adoption, and obtain an internal rate of return above 12% of net profits generated, in a 10-year project horizon.						80%
Increase the adoption rate of agricultural technologies with positive economic and environmental impact.	Interim outcome indicator 1: Number of beneficiaries who use at least one of the technologies on the option menu.	0	1,800	3,800	7,200	10,200	12,700
Partially and temporarily compensate for the loss of income of producers due to elimination of the current State policy of ad hoc agricultural support.	Interim outcome indicator 2: Number of beneficiaries who receive direct support to family-run farms.	0	78,000	78,000	78,000	78,000	78,000
Ensure that the agricultural support under the Program is truly effective.	Interim outcome indicator 3: Number of existing programs or policies implemented in the MAG or its decentralized agencies that support agriculture through input deliveries or price-based compensation mechanisms.	0	0	0	0	0	0

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION

Paraguay. Loan /OC-PR to the Republic of Paraguay
Modernization of Agricultural Support Management Program

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the Republic of Paraguay, as Borrower, for the purpose of granting it a financing aimed at cooperating in the execution of a modernization of agricultural support management Program. Such financing will be in the amount of up to US\$31,500,000, from the resources of the Single Currency Facility of the Bank's Ordinary Capital, and will be subject to the Financial Terms and Conditions and the Special Contractual Conditions of the Project Summary of the Loan Proposal.

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

RESOLUTION DE-28/06

Paraguay. Partial Payment of Interest on Loan /OC-PR to the Republic of Paraguay
Modernization of Agricultural Support Management Program

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such Representative as he shall designate, is authorized, in the name and on behalf of the Bank as administrator of the Intermediate Financing Facility Account (the "Account"), to enter into such contract or contracts as may be necessary with the Republic of Paraguay, as Borrower, and to adopt other pertinent measures to use the resources of the Account to pay a portion of the interest due by the Borrower on outstanding balances of the loan authorized by Resolution DE- /06, in accordance with the provisions set forth in Document FN-263-2, as amended, approved by the Board of Executive Directors on December 21, 1983.