

AGRICULTURAL SERVICES PROGRAM

(UR-0116)

EXECUTIVE SUMMARY

BORROWER AND: Eastern Republic of Uruguay
GUARANTOR:

EXECUTING AGENCY: Ministerio de Ganadería, Agricultura y Pesca
(Ministry of Livestock, Agriculture, and Fisheries, MGAP)

AMOUNT AND SOURCE: IDB: US\$32.4 million (OC)
Local counterpart funding: US\$17.9 million
Total: US\$50.3 million

FINANCIAL Amortization period: 20 years
TERMS AND Disbursement period: 5 years
CONDITIONS: Interest rate: variable
Inspection and supervision: 1%
Credit fee: 0.75%
Currency: US\$

OBJECTIVES: The purpose of the agricultural services program is, by way of response to the opportunities and challenges presented by the country's increasing economic liberalization, to boost the efficiency of production in the agricultural and agroindustrial sector. Specific objectives are: (i) to increase the productivity of the factors of production on farms and in agribusiness; (ii) to raise the net income of agroindustrial companies and small and medium-sized rural producers; (iii) to meet marketing standards (health and quality) required for foreign markets which demand higher standards for animal products; and (iv) to increase access to new markets by emphasizing products that have a larger value-added component.

DESCRIPTION: In pursuit of these objectives, the program includes the following subprograms and components:

1. Subprogram for technology development and transfer (US\$22.0 million)

This subprogram will contribute to the technological transformation of the chain of agricultural production through investment in:

- a. **Strategic projects** (US\$11.85 million). This component will contribute to financing 11 projects designed to promote technological development. Priority has been assigned to these projects based on the strategic areas identified in the medium-term indicative plan (Plan Indicativo de Mediano Plazo) prepared by the National Institute of Agricultural Research (Instituto Nacional de Investigaciones Agropecuarias, or INIA). The plan analyzes trends and possible future scenarios for the agricultural, livestock, ranching, and forestry areas.
 - b. **Applied research projects** (US\$5.21 million). This component will contribute to financing adaptive research projects submitted directly by potential beneficiaries or through specialized organizations. Funds will be allocated on a competitive basis in response to demand by producers and pursuant to the program's operating regulations.
 - c. **Technology transfer** (US\$4.93 million). This component will reinforce mechanisms that articulate technology supply and demand. Funds will be allocated on a competitive basis, in response to direct demand from producers (an effort will be made to locate such demand), producer organizations, and agroindustrial companies. Three subcomponents will further the purpose: (i) technology testing; (ii) professional training; and (iii) dissemination of technologies.
2. Subprogram for animal health and food safety (US\$12.15 million)

This subprogram will reinforce the ability of the public and private sectors to ensure that animal foods and products comply, in terms of health and hygiene, with both regional standards (MERCOSUR) and international standards. The subprogram will fund the following activities:

- a. **Border protection and health barriers** (US\$860,000). This component will contribute to modernizing control systems to prevent exotic diseases that pose a threat to the country's livestock from entering the country.

- b. **Support laboratory** (US\$3.07 million). This component will make it possible for the government's laboratory to avail itself of new analytical techniques that are needed to meet the demands of the market.
 - c. **Hygiene/health controls on animal foods and products** (US\$1.55 million). This component will improve the sanitary and technical control and regulation of companies that process and market animal foods and products, and it will contribute to the gradual implementation of the HACCP (hazard analysis critical control points) system in the agroindustrial arena.
 - d. **Epidemiological surveillance of primary production, and response to exotic diseases** (US\$2.79 million). This component will support active epidemiological surveillance of the animal population so that Uruguay can attain recognition as a country free of the diseases on the A list of the Office international des épizooties (OIE), and control and eradication of diseases on the B list.
 - e. **Institutional development** (US\$3.88 million). This component will bolster the ability of the General Office of Livestock Services (Dirección General de Servicios Ganaderos, or DGSG) to respond to new animal health requirements in international markets, and to adapt food hygiene and health controls accordingly (using primarily the HACCP methodology).
3. Regional fund for agricultural technology (US\$4.5 million)

This subprogram funds the contribution Uruguay is committed to making to the Regional Fund for Agricultural Technology (FONTAGRO), which the Bank's member states created to provide support for the sector's technological development. The mechanism of contributing to the Fund through operations like this one was approved by the Bank's Board of Executive Directors on February 25, 1997 (document GN-1965, paragraph 4.3-iv).

**SOCIAL AND
ENVIRONMENTAL
REVIEW:**

The environmental review was approved by CESI. It found that the program offers good opportunities to improve the environment and preserve natural resources. The negative impact could be managed by introducing the mitigating measures and an environmental management and monitoring program. The technological packages promote conservation of natural resources, and environmental considerations will be taken into account when selecting projects in applied research and technology validation.

BENEFITS:

By supporting the agricultural sector's technological development, the program will significantly contribute to making the sector's main products more competitive. Thus it will help (i) to increase production and exports; (ii) to raise the income of agricultural producers and owners; (iii) to create jobs in the production, processing, and marketing links of the agricultural production chain; and (iv) to generate greater tax revenues and currency for the whole economy. Society at large will benefit, since the results of research are public goods and cannot be appropriated exclusively by any sector.

The main benefits of the proposed investments in animal health and food safety are: (i) maintaining Uruguay's meat exports to its principal foreign markets; (ii) reducing livestock losses due to parasites; (iii) reducing processing losses through improved health practices; (iv) improving the health standards of export products, with a consequent rise in prices; and (v) improving the hygiene/health standards of products for the domestic market.

RISKS:

1. Risks in the subprogram for technology development and transfer

The main risks here are related to: (i) insufficient demand for new technologies on the part of the agricultural and agroindustrial sector, and (ii) a lack of willingness to contribute to financing technology development and transfer. These risks are mitigated by the fact that the sector's producers and owners have shown strong interest in new technologies, which they hope will improve their efficiency and their ability to compete in MERCOSUR.

2. Risks in the subprogram for animal health and food safety

The main risk is that export firms will be slow to adopt the HACCP system or other proposed measures.

The economic importance of the country's meat exports and the interest people in the business have shown in implementing HACCP make this a minimal risk. (Five cold storage plants are already in operation).

3. Lack of inter-agency coordination

Various coordination problems could make it difficult to run the program efficiently. The proposed execution machinery and the inclusion of institutional strengthening seek to solve this problem by improving inter-agency coordination.

**ROLE OF THE
PROJECT IN THE
BANK'S COUNTRY AND
SECTOR STRATEGY:**

The proposed program is compatible with the strategic approaches which the Bank and the country have agreed on. It seeks to make the agricultural sector more competitive in a time of globalization of markets and growing liberalization of the Uruguayan economy. The program has been designed to respond to the opportunities and challenges that the sector faces in moving toward full participation in MERCOSUR.

**CRITERIA
RELATED TO
POVERTY REDUCTION
AND SOCIAL POLICY:**

Pursuant to the Eighth Replenishment document (AB-1704), it has been determined that the proposed program does not focus on poor sectors, either geographically or in terms of beneficiaries, and that it does not specifically address women's problems.

**EXCEPTIONS TO
BANK POLICY:**

No exceptions to Bank policy are involved.

**CONTRACTS FOR
CONSULTING
SERVICES, GOODS,
AND WORKS:**

The Bank's current policy will be followed for the procurement of good and services to be financed out of the program. Where Bank funds are used, international competitive bidding will be obligatory for procurement of US\$350,000 or more, and for consulting contracts of US\$200,000 or more. The Bank will do ex post supervision of consulting services that cost less than US\$20,000 (or the equivalent) for individual consultants or US\$50,000 (or the equivalent) for consulting firms.

**SPECIAL
CONTRACTUAL
CONDITIONS:**

1. **Preconditions for initial program disbursements:**
 - (a) evidence that the program's central coordinating unit has been set up and is functioning properly (paragraph 3.33), and
 - (b) provision of the annual operating plan (AOP) for the first year, plus an initial report on the monitoring indicators with an updating of the logical framework (Annex II-1, paragraph 3.34).

2. **Preconditions for disbursements related to the subprogram for technology development and transfer:** (c) agreement on subprogram's execution signed by MGAP and INIA (paragraph 3.35); (d) evidence that INIA's coordinating unit has been set up and is functioning properly (paragraph 3.36); and (e) subprogram's operating regulations in effect (paragraph 3.37).
3. **Preconditions for disbursements related to the subprogram for animal health and food protection:** (f) evidence that the DGSG's coordinating unit has been set up and is functioning properly (paragraph 3.38); (g) evidence that an international consulting firm has been chosen to study the institutional and financial impact of implementing the HACCP animal products inspection system (paragraph 3.39).
4. **Other contractual conditions:** (h) Ten months into the program, the second year's AOP should incorporate Bank-approved recommendations based on the above-mentioned study of the HACCP system's impact. Some disbursements related to the subprogram for animal health and food protection will be contingent on implementation of these recommendations (paragraph 3.40); (i) annual AOPs must be submitted (paragraph 3.41); (j) during the program's period of execution an annual report audited by an independent firm of public accountants and covering the performance of the applied research and technology transfer projects of the subprogram for technology development and transfer will be submitted (paragraph 3.42); and (k) also included in the loan contract will be provisions for an in-progress evaluation (paragraph 3.44), audit (paragraph 3.46), and recognition of expenditures (paragraph 3.49).

I. FRAME OF REFERENCE

A. Agricultural sector

- 1.1 With average annual economic growth of 5.2% in the 1991-1997 period – significantly better than the economy as a whole in the same period, which grew at a 4.3% annual rate – the agricultural sector is a cornerstone of Uruguay's economic growth. Besides employing around 16% of the economically active population and contributing close to 10% of the country's GDP, the sector accounts for approximately 80% of all exports of primary and processed goods.
- 1.2 As to the relative importance of subsectors, approximately 55% to 60% of sector GDP comes from livestock activity, and 40% to 45% from agriculture. Within the livestock category, the country's extensive meat and wool production are the largest contributors, amounting to almost 70% of production, while dairy products constitute 20%. On the agricultural side, cereals and oil crops represent almost 60% of the value of agricultural production, with fruit and vegetables contributing on the order of 30%. Of approximately 16 million hectares of land available for farming, 85% is used for meat and wool livestock and 5% for dairy, with the remaining 10% for agriculture, including ranching.
- 1.3 Changing growth has varied by subsector. While increased rates of investment in traditional products such as meat and wool have been associated with technical changes and improvements in productivity at the farm level, the greatest subsector growth has been in those activities where investments have promoted vertical integration at the primary, industrial, and marketing levels. This has been the case with rice, barley, dairy, and citrus, and it provides a development model which the country's current agricultural policy seeks to encourage.

B. Agricultural policy and recent performance of the sector

- 1.4 The country's process of economic liberalization and deregulation has deepened in the last five years, developing within a general framework of market globalization. Conditions have made sector policies increasingly subordinate to macroeconomic policy and, more recently, to the regional commitments Uruguay has acquired as a member of MERCOSUR.
- 1.5 The emphasis of macroeconomic and sector policy is to make primary production more competitive by means of tax measures intended to reduce the "Uruguay cost." In the agricultural sector, deregulation has continued, the State has reduced its presence and intervention in the sector, and there has been continued encouragement of private investment in technological and marketing

development to address the opportunities and challenges which globalization and MERCOSUR present.

- 1.6 In public agricultural-sector institutions, the focus is on making services that are offered for the public good more efficient. This includes international trade policy negotiations, health monitoring and protection, protecting the quality of agricultural food products for both international and domestic markets, protecting the environment and its renewable natural resources, and developing strategic technologies - areas not now addressed by the private sector.
- 1.7 Although there are perceptible changes in the composition of the crops being grown (mostly a move away from more traditional and less competitive crops), the agricultural sector is clearly reaching positively to the liberalization of markets. The lowering of tariff and non-tariff barriers, deregulation, and the liberalization of trade in agricultural products have had favorable affects on the utilization of the factors of production, shifting them into areas where foreign sales are the main target.
- 1.8 The sector's producers and owners have realized that they have to make changes in how they approach production if they are to survive today's competition and take advantage of the new opportunities and have made efforts to modernize and diversify, and to pursue greater integration of agroindustrial chains. This implies substituting the production of more differentiated goods for commodities production, with an emphasis on quality and an increasing use of modern technology, not only at the agricultural level, but also in processing and marketing (packaging, trademarks, and promotion).
- 1.9 In recent years, livestock has regained its importance as a source of exports. This has been seen as the best way of addressing growing production (10.2% growth for beef, 5.5% for mutton and lamb, and 6.6% for dairy products in the 1995-1997 period) and high per capita consumption (65 kg of meat and 250 liters of milk annually make Uruguay one of the world's largest national markets for these products). Investment in pasture and livestock health has increased over the last decade, resulting in productivity gains and reduced incidence of certain diseases. This in turn improved zootechnical indices of number of animals rounded up and the degree of rotation, as well as hygiene and health conditions as they relate to meat production.
- 1.10 The OIE's official recognition of Uruguay as a "country free of foot-and-mouth disease without vaccination" in May of 1996 has meant significant savings in production costs and has allowed the sector to sell its products to more demanding, higher quality markets that pay higher prices for these products. Mutton and lamb production has also become more profitable, resulting in better levels of extraction in commercial slaughterhouses, but affecting stock levels. This will call for new investment to bring the level

back up. Milk production has increased, as has vertical integration and export diversification.

- 1.11 Nevertheless, the sector still suffers from health, trade, institutional, and technological (primary and processing) limitations that keep it from being competitive in its production and make it hard for it to meet the stricter standards that today's international globalized markets demand. A failure to address these limitations would have a significant impact on the country's economy, which depends in great measure on satisfactory performance by the agricultural food sector. The rationale for the Bank's support for the operation proposed here is based on these factors.

C. The sector's constraints

- 1.12 If it wants to remain competitive in this era of market liberalization and globalization, the Uruguayan agricultural sector will have to deal with three main limitations: (i) technological limitations that result in (a) yields for various of the sector's products that are under their potential (by 40% to 60%) and (b) product quality that does not satisfy foreign market requirements; (ii) the problem of linking producer demand for technology and the supply offered by the technology development and transfer system; and (iii) new international requirements for animal health and food quality.

1. Technological limitations

- 1.13 The major technological factors limiting the sector production are related to: (i) productivity levels that are less than what they could be with more effective dissemination and transfer of technologies that already exist in the country or could easily be imported and adapted to local conditions; (ii) a cost structure that could be improved by gains in production efficiency if the factors of production were more efficiently combined; (iii) a need to differentiate products more and to improve quality in response to changing demand; and (iv) a need for agroindustrial development based on sustainable use of natural resources.
- 1.14 As for crops – grains such as rice, wheat, and barley are a good example – there is a growing need to (i) make genetic material meet the quality requirements of agroindustrial export (barley for malt; wheat for bread, crackers, and pasta; American and aromatic rices; etc.); (ii) bring down production costs by reducing routine manual labor and increasing the use of crop production in mixed agricultural-livestock systems; and (iii) encourage further research in plant protection and nutrient dynamics, aiming at a more sustainable use of natural resources.
- 1.15 In livestock, it is still possible to increase productivity and/or reduce production costs by developing and transferring technologies

that (i) improve animal diet and nutrition and (ii) improve genetic material and feed storage.

1.16 In forestry, validation of imported technologies in the country's different agro-ecological regions can raise productivity, reduce production costs, and create quality compatible with the demands of target markets. Such validation will of course require emphasizing conservation and preservation of natural resources, and working to mitigate possible adverse effects on soil acidification and the dynamics of water tables and aquifers.

1.17 In many cases, whether in the agriculture subsector, livestock, or forestry, the problem is not a lack of technology, but the difficulty of improving the nation's capacity (in both public and private sectors) to test, transfer, and publicize the technologies effectively. The crucial thing, in any case, is to achieve the right balance between the economic advantages of adopting these new technologies, and the need to achieve sustainable development based on production practices that (i) prevent further soil degradation, (ii) encourage recycling of nutrients, (iii) facilitate appropriate control and management of water and soil contamination due to agricultural chemicals, and (iv) facilitate appropriate management of agroindustrial effluents.

2. The problem of coordinating producers' demand for technology with the supply offered by the technology development and transfer system

1.18 Although important progress has been made in the last decade by institutionally strengthening public sector entities involved in agricultural technology development and transfer, thanks in large part to the Bank's support, there is still clearly a lack of effective linkage between producers' demand for better technology and the supply offered by research organizations. This is due in part to a lack of coordination between the efforts of all the various players who could contribute to the sector's technological development (universities, scientific institutes, producer associations, and other regional and international institutions).

1.19 At this time, the government funnels the country's agricultural research funds (around US\$10 million a year) through the National Institute of Agricultural Research (Instituto Nacional de Investigación Agropecuaria, or INIA), with 90% of the funds going to INIA's own budget for strategic research projects, and 10% to the Fund for the Promotion of Agricultural Technology (Fondo de Promoción de Tecnología Agropecuaria, or FPTA) for applied and adaptive research. This division is based on the legislation that created INIA, which sets 10% as a annual amount to be devoted to the FPTA. FPTA funds are also administered by INIA, which applies them mainly to complementing its research programs. INIA does not compete directly to run the projects financed by FPTA.

- 1.20 INIA's recent efforts have sought greater integration of players on the demand side of the technological equation in decision making processes. This is reflected in the **Medium-Term Indicative Plans** developed by INIA in consultation with producers, owners, and service providers. These plans come out of analysis of the requirements of foreign and domestic markets, in terms of characteristics and quality of products for which the sector has or can develop competitive advantages. The plans assign priority to strategic approaches which INIA will seek to put into operation in the next five years in order to address technology gaps in production and agribusiness that currently pose an obstacle to such advantages and diminish access to such markets.
- 1.21 Although these plans are a good starting point for assigning priorities in the agricultural technology development and transfer area, they need to involve other public and private players, both national and international, who can contribute to the technological transformation that the sector needs to achieve in this era of liberalization. Greater alliance between the public and private sectors is necessary, along with a focus on development as it relates not only to production, as in the past, but on integrated agroindustrial activity and organizations.
- 1.22 At an institutional level, mechanisms are needed that make the operation of the national system of agricultural technology development and transfer stronger and more efficient so that it can better respond to the challenges and opportunities. New efforts should not focus so much on strengthening public institutions involved with agricultural technology development and transfer, as has been the case, but on solidifying a more diversified and competitive system of technological innovation that can better meet demands for technology by producers and other participants in the agroindustrial chain and is guided by the signals from the markets. As for traditional technical programs, more work needs to be done in areas such as integrated crop management and genetic improvement, using modern tools and processes such as information technology and biotechnology. Other areas that need attention are agro-biotechnology, the quality of products produced and marketed by integrated agroindustrial companies, and sustainable management of soil and water resources.

3. New international animal health and food quality requirements

- 1.23 New food quality and health requirements in regional (MERCOSUR) and international markets in the wake of the Uruguay round of the GATT mean that Uruguay will have to review and adapt traditional practices in these areas if its agricultural products are to maintain or increase their competitiveness.
- 1.24 In the area of quality and health standards, we lack a preventive model that uses modern technologies in the herding process and

allows the private sector to participate in health and quality control and inspection of animal. A lack of effective mechanisms for controlling quality and health factors often means lost production at the slaughterhouse. For example, in the case of cattle, such losses occurred due to confiscation of organs for 50% to 70% of animals slaughtered between 1994 and 1997.

- 1.25 New World Trade Organization regulations to control health and food quality of agricultural products require, in addition to the current process of inspection by public sector agencies, private-sector monitoring of critical junctures in the production process. In this new framework, the private sector becomes responsible for controlling health quality, while the role of the public sector is limited to collaborating in training the private sector for these new functions and doing the necessary audits to make sure that standards are met. Also, with the public sector heavily involved in quality control for large cold storage plants used for export products, it is also expected to begin doing the same with the generally smaller cold storage facilities used for the domestic market.
- 1.26 An example of the new process will be when Uruguay implements hazard analysis critical control points methodology (HACCP), which is now a precondition for access to the most demanding foreign markets. In this methodology, certain crucial stages of the production process are subject to monitoring, and if parasites, bacterial disease, or changes affecting a product's quality in terms of health criteria are detected, the product may be declared a potential danger to public health, and therefore unacceptable for export to these markets. Such a system makes it possible to identify the stage of the process where contamination or loss in quality has occurred. Uruguay will be able to take advantage of this in order to apply preventive or mitigating measures.
- 1.27 The new technology will have a significant impact on the finances of businesses, and when health problems are detected, it will also significantly affect the country's meat exports. International implementation of the technology in accordance with regulations governing major international markets has already begun. Starting in December 1997, the United States began to require that all plants exporting meat products to the US use HACCP.

D. The country's strategy for dealing with problems that are detected

- 1.28 To overcome the above-mentioned limitations, the government, in cooperation with producers and businessmen in the sector, and public and private institutions, has developed this program, which includes measures to (i) expand scientific knowledge so as to generate new technologies adapted to market demands and to the country's agroecological conditions; (ii) transfer and validate these technologies at the farm level and with agroindustrial companies; (iii) streamline and strengthen a decentralized system

for agricultural technology development and transfer; and (iv) implement new policies on animal health monitoring, covering both the primary and processing stages, and responding to the demands of foreign markets as well as domestic consumers.

E. The Bank's strategy and experience in the sector

- 1.29 The Bank's strategy in Uruguay supports (i) further **structural reforms**, especially in the public sector; (ii) measures aimed at improving the **climate for private investment**; and (iii) improved **coverage and quality of social services**, making them more focused and efficient, so as to consolidate the country's achievements and maintain the human capital needed for sustainable growth.
- 1.30 The Bank's strategy is compatible with the **Uruguayan government's strategy for the 1998-1999 period**, which seeks to persevere in efforts to reach an over-all macroeconomic balance, while continuing a long-term program to **make the economy more competitive**.
- 1.31 Altogether, the Bank Group has supplied the country with about US\$250 million. This has been used to cofinance almost US\$400 million of MIF and IIC investments as well as small projects and operations in the agricultural sector. Most of these programs have already been executed. The only ongoing programs are the infrastructure program for dairy operations (914/OC-UR) approved in 1996; the farm conversion and development program (1063/OC-UR) approved in 1997; four small projects; two MIF operations; and the IIC operations. The Bank's operations in the sector have supported the development of agroindustrial production chains for goods such as rice, dairy products, and fruit and vegetable produce, which have contributed to diversifying the Uruguayan economy, increasing exports, and increasing employment and income in the country's rural areas.
- 1.32 The year 1996 saw the end of execution, and evaluations were done on the impact of the program for agricultural technology development and transfer (524/OC-UR) and of the animal health program (518/OC-UR, 811/SF-UR). With the former, the Bank helped lay the foundations for INIA's development. With the second, the Bank worked with the country to eradicate foot-and-mouth disease. The results have significantly opened up foreign markets to Uruguayan meat. The proposed investments in this program seek to capitalize on the achievements of these two operations, while supporting the sector as it faces the new challenges and opportunities of this era of liberalization.
- 1.33 Despite the achievements of the Bank's operations in the country, there have been execution problems in the sector which have often slowed down execution of various projects, including those mentioned in the preceding paragraph. The problems include

institutional and financial weakness among various executing entities. The lessons learned from such experience have been taken into account in devising the institutional structure of this program. There has been an attempt to provide a flexible mechanism for execution, and institutional strengthening measures have been included to combat the problems seen in the past.

F. The concept of the program

- 1.34 The proposed program fits in with the country's and the Bank's strategic guidelines, in that it includes measures to make this key sector of the economy – the agricultural sector – more competitive, encouraging both public efforts and private investment in the sector to become more efficient in the new environment of worldwide liberalization. In particular, the program has been designed to help the sector meet its international commitments in the areas of animal health and food safety, and to promote technological and marketing development in the sector so that it can effectively respond to the opportunities and challenges it faces with integration in MERCOSUR and globalized markets.

II. THE PROGRAM

A. Objectives

- 2.1 The purpose of the Agricultural Services Program is, in the context of the opportunities and challenges presented by the increasing openness of the country's economy, to boost production efficiency in the agricultural and agroindustry through investments that will strengthen technical services for agricultural producers and agroindustrial companies.
- 2.2 The program's specific objectives are: (i) to increase the productivity of the factors of production on farms and in agroindustrial companies; (ii) to raise the net income of agroindustry and small and medium-sized rural producers; (iii) to meet marketing standards (health and quality standards) required for foreign markets which demand higher standards for animal products; and (iv) to increase access to new markets by emphasizing products that have a larger value-added component.

B. Program structure

- 2.3 The proposed program has been organized with the following subprograms: (i) technology development and transfer, (ii) animal health and food safety. The program also features a contribution from the borrower to the Regional Fund for Agricultural Technology [Fondo Regional de Tecnología Agropecuaria] (FONTAGRO).

1. Technology development and transfer (US\$22.00 million)

- 2.4 In order to create technological change that is harmonious with the country's agroecological conditions, while meeting market demands, the subprogram includes financing for the following components:

a. Strategic projects (US\$11.85 million)

- 2.5 This component will fund technology development projects that have been given priority based on the strategic areas identified in INIA's Medium-term Indicative Plan (see paragraph 1.20). In preparing the plan, consideration was given to trends and possible future scenarios for the differing areas of agriculture, livestock, ranching, and forestry, with a focus on constraints such as: (i) needs created by the demands of foreign markets that are highly insistent on quality with respect to the main Uruguayan products (meat, wool, grains, etc.); (ii) the supply of technology for problem areas (basalt region); (iii) small family-run, vegetable and fruit producing operations that are export-oriented; and (iv) improved sustainability and efficiency in the use of natural resources, including irrigation water.

- 2.6 For each of the four areas (agriculture, livestock, ranching, and forestry), a strategic analysis has been done to determine trends and possible future scenarios, including the stages of production, processing, and consumption, and their implications for INIA research in each area. In defining the projects, a point-based system has been used to arrive at priorities using the following criteria weightings were applied: (i) economic importance, (ii) social importance, (iii) environmental significance, (iv) probability of research success, and (v) probability of successful adoption. Members of the regional advisory councils (producer associations) and guest experts participated in this process.
- 2.7 Eleven strategic projects were selected for the program (Table 2.1). These projects would be executed by INIA mainly through strategic alliances with other specialized public and private sector organizations, especially with internationally recognized research centers.
- 2.8 The projects were submitted to peer groups for review. The technical experts consulted were selected by INIA's area supervisors and the national office. For each project, an international expert and two Uruguayan experts were chosen. All have established themselves with proven track record in their areas of expertise, and the profiles were corrected and refined before being submitted to the Bank for approval. The review process incorporated the following guidelines: (i) relevance of the principal proposed area at the national, regional (MERCOSUR), and international levels; (ii) the current and future demand in the country for the technology to be developed by the proposed project; (iii) current availability of the technology to be developed, and advances in existing knowledge at the national, regional (MERCOSUR), and international level; (iv) development of the profile: clarity in the description of the problem to be solved, specificity of the objectives and methodology proposed to achieve them (technical proposal), identification of activities, and allocation of the funds to carry them out; and (v) strategic alliances: relevance of the proposed alliances (national and international) to encouraging the development of the technology in question.
- 2.9 The goals of this component are to increase and diversify the technologies available for producing goods in demand on international markets; to develop new technologies for those areas with specific needs (the basalt region, small family operations and fruit and vegetable producing, export-oriented businesses); and to adapt production methods for sustainable and efficient use of natural resources.

Table 2.1 STRATEGIC PROJECTS		
	Projects	Activities
1	Quality meat production for export markets	Analyze the production process (up through the marketing stage), identify constraints, identify markets, genetically improve sheep and cattle, improve production systems.
2	Quality crops adapted to industrial requirements	Genetic improvement, nutritional management, bread baking laboratory, environmental evaluation laboratory.
3	Sustainable technological development of the basalt region	Research/implement sustainable technologies adapted to particular types of soils and production systems in order to mitigate the kind of damage to the environment that is occurring today.
4	Maintenance of genetic resources	System for conservation of germ plasm, national collection, creation of new improved populations by recombinant DNA technology, quarantine unit.
5	Development of productive capacity with agro-biotechnologies	Biological safety program, potato and fodder legumes, phyto-genetic engineering, methods of varietal identification, resistant genes (rice, sheep) and pathogens (rice, citrus), automation of micro-propagated plant production.
6	Low-risk sustainable production technologies	Determination of crops' water requirements, technological and economic constraints, development of technological practices and packages to optimize water use, experiments to evaluate environmental impacts.
7	Fruit and vegetable producing export operations	Technological production package, product transformation, acquisition of good seed stock, quality-evaluation protocols, bio-ecological study of pests and diseases, evaluation of techniques for integrated pest management, evaluation of green-fertilizer-based and chemical-fertilizer-based soil management, etc.
8	Sustainable production of quality milk	Technological validation of animal nutrition and reproduction; training; identification and publicizing of strategies for resource utilization; monitoring of milk contaminants; management of animal wastes; evaluation of the environmental impact of dairy operations.
9	Development of technologies to be applied at strategic points of the wood production process	Appropriate technology packages for small producers, data collection for implementing sustainable management criteria, network to carry out environmental tests and monitoring.
10	Technologies for small family operations	Identification of technological constraints on family-run operations; design, evaluation, and testing of alternatives.
11	Institutional strategic management	Strategic administration, management, training, and information systems.

b. Applied research projects (US\$5.2 million)

- 2.10 This component gives priority to applied and adaptive research projects that are not within INIA's current program guidelines, and to the areas of strategic research laid out in this program. This is significantly different from the FPTA, which was set up to support INIA's research plans (see paragraph 1.19). The initial percentage of available funds assigned for research (strategic and applied) is 30%. This may be increased based on the in-progress evaluation if demand so indicates. Funds from the 'no specific allocation' budget entry may not be used before the results of the evaluation come in, since they are reserved for possible incremental demand. The cofinancing funds will be allocated competitively, in accordance with demand from producers and pursuant to the program's operational regulations. The process of analysis described briefly in paragraph 3.28 also includes peer group review, as in the strategic projects component.
- 2.11 This component aims to increase the competitiveness of agricultural research and to increase the participation of the beneficiaries. The following mechanisms are designed to serve that purpose: (i) a maximum of 50% of the funds will be allocated for matters that have been identified in advance during the preparation of the subprogram (Appendix I of the Operating Regulations), and a minimum of 50% of the funds will be allocated for new matters that come up during the execution of the program; (ii) 30% of the total funds will go to projects submitted directly by the end beneficiaries; (iii) in the selection process, more weight will be given to adaptive research projects submitted by specialized entities when they are supported by the potential beneficiaries; (iv) there will be at least ten (10) competitive calls to submit bids on projects; (v) projects will be executed through at least ten (10) different beneficiary institutions, of which five (50%) will be private sector institutions; and (vi) at least five projects will be executed by specialized international institutions.
- 2.12 The goal of the component is to fund a total of 30 applied or adaptive research projects executed by public and private institutions (national or international) selected on a competitive basis.
- 2.13 The financing structure that now relies on funding that directly or indirectly comes from the government needs to be changed and the resources put toward strengthening the system of technological innovation increased. Estimates are that during the life of the program, INIA could substantially increase funds from the private sector - which now account for 10% - through sales of services, products, patents and technology in general. The follow-up on the use of funds assigned for research (see paragraph 2.10) should indicate what the proper amount of funds would be to channel to the FPTA once the operation is completed.

c. Technology transfer (US\$4.93 million)

- 2.14 Mechanisms for articulating technology supply and demand will be strengthened, based on identifying and responding to direct demand from producer, producer groups, and agribusiness. Three subcomponents will address this purpose: (i) validation of technologies; (ii) professional training; and (iii) dissemination of technologies. Funds will be assigned on a competitive basis, in accordance with demand from producers and pursuant to the program's Operating Regulations. The competitive process, which includes calls for projects, submission, and evaluation (described briefly in paragraph 3.30) takes into consideration technical, environmental, economic/financial, and institutional viability.
- 2.15 This component will fund up to 60% of the cost of technology testing and dissemination projects. Maximum amounts will be US\$20,000 for testing of specific technologies, and US\$100,000 for pilot demonstration farms. Training projects will be funded 70% by the component and 30% by the selected lender. This ratio will change during the execution period and will be the reverse by the project's end (year 5). There will also be limits per beneficiary. The Operating Regulations will stipulate what the financing matrix and limits will be.
- 2.16 The goals of the component are to carry out 120 experiments in the testing of established technologies, to train 400 professionals (40,000 person-days), to set up eight pilot demonstration farms for disseminating technology in the country's main agroecological regions, and to execute 25 dissemination projects to inform and motivate 2,500 producers and technical people to apply technologies.
- 2.17 In both components - *applied research projects and technology transfer projects* - funds will be granted on a non-reimbursable basis. Calls for proposals (see paragraphs 2.11 and 2.14) are to be well publicized in the national media, and the results of the selection process, including the list of accepted projects, are to receive equal publicity.
- 2.18 Information and results coming out of the projects funded by the subprogram will be in the public domain, and any patents coming out of the projects will be registered by the government through INIA or MGAP.

2. Animal health and food safety (US\$12.15 million)

- 2.19 This subprogram will enhance the ability of both the public and private sector to ensure that animal foods and other animal products meet regional (MERCOSUR) and international hygiene/health requirements. The subprogram is to include funding for the following activities:

- a. Border protection and health barriers (US\$860,000)
- 2.20 The country's control systems will be modernized by computerization and new detection techniques to prevent transmitters of exotic diseases that could affect the health of Uruguay's livestock from entering the country.
- b. Laboratory support services (US\$3.07 million)
- 2.21 The government laboratory's capacity will be upgraded to include the new analytical techniques needed to meet the requirements of export markets, and the epidemiological surveillance and food safety system will be bolstered.
- c. Hygiene/health controls for animal products and foods (US\$1.55 million)
- 2.22 Regulation, hygiene/health controls, and monitoring of technology used in slaughterhouses and animal products processing plants will be strengthened, and gradual implementation of the HACCP (hazard analysis critical control points) system in the agroindustrial arena will be facilitated.
- d. Epidemiological surveillance of primary production, and response to exotic diseases (US\$2.78 million)
- 2.23 Active epidemiological surveillance and monitoring of the animal population on individual farms will be fostered, leading to Uruguay's being recognized as a country free of the diseases on the A list 1/ of the OIE Animal Health Code. Efforts to control and eradicate those of the Animal Health Code's B-list diseases 2/ that are most important for public health will be stepped up; and research and epidemiological analysis to address threats to primary production will be promoted.
- e. Institutional development (US\$3.88 million)
- 2.24 The DGSG's institutional capacity for implementing measures to satisfy new international market requirements on animal health and food-product hygiene/health (primarily HACCP methodology) will be fortified.

1/ The A list includes diseases that have been eradicated in Uruguay (such as hoof-and-mouth disease, classic swine fever, and Newcastle disease), diseases that do present a regional risk (such as bluetongue), and others that have not yet been observed on the continent (such as contagious bovine pleuropneumonia and bovine fever.)

2/ Includes diseases that affect animal health, public health, and international trade, such as porcine brucellosis, leptopirosis, salmonellosis, bovine leucosis, and bore worm myasis.

- 2.25 The goals of the subprogram are to modernize the system for monitoring and controlling the health conditions of and documentation on live animals, foods, products, and subproducts that enter the country; to adapt laboratory procedures and equipment to the new analytical techniques needed to process samples and materials; to carry out HACCP-system audits in slaughterhouses and plants that process meat and animal products for both export and domestic markets; to have ongoing monitoring, evaluation, and updating of the epidemiological status and risk factors in entities involved in agricultural production, and to do the same for places where animals are rounded up, marketed, slaughtered, and processed; to respond to suspected exotic diseases within 12 hours of their being reported, with international standards applied, and differential diagnosis carried out; to strengthen means of meeting emergencies anywhere in the country; and to develop public awareness programs.

3. Regional Fund for Agricultural Technology [Fondo Regional de Tecnología Agropecuaria] (FONTAGRO) (US\$4.5 million)

- 2.26 This component includes funding for the contribution that the Uruguayan government is committed to making to FONTAGRO, which was set up by the Bank's member countries to support technological development in the agricultural sector. The practice of making contributions to FONTAGRO through operations such as this one was approved by the Bank's Board of Executive Directors on February 25, 1997 (document GN-1965, paragraph 4.3-iv).

C. Costs and funding

- 2.27 The estimated total cost of the program is US\$50.3 million. An amount equivalent to US\$32.4 million (64.4% of the total) will be funded by the Bank in US dollars out of the ordinary capital single-currency facility. The local counterpart contribution will be US\$17.9 million (35.6% of the total). Table 2.2 shows the proposed cofinancing structure.

Table 2.2 TOTAL COST AND FUNDING PLAN (in thousands of US\$)					
	IDB	MGAP	INIA	Total	%
I. Administration and supervision	1,530	520	60	2,110	4.2
II. Programs	29,460	5,510	4,060	39,030	77.6
A. Technology development and transfer	15,470	2,470	4,060	22,000	43.7
A1. Strategic research	9,010		2,850	11,860	23.6
Construction			610	610	
Equipment	3,020		15	3,035	
Agreements and alliances	1,650			1,650	
Training	2,780			2,780	
Consulting	1,560			1,560	
Recurrent costs			2,225	2,225	
A2. Applied research	4,000		1,210	5,210	10.4
Projects	4,000		1,000	5,000	
Equipment			5	5	
Dissemination			90	90	
Consulting			90	90	
Recurrent costs			25	25	
A3. Technology transfer	2,460	2,470		4,930	9.8
Projects	2,460	2,280		4,740	
Dissemination		90		90	
Consulting		70		70	
Recurrent costs		30		30	
B. Animal health/food safety	9,110	3,040		12,150	24.2
Equipment	3,515	700		4,215	
Dissemination/extension	750	850		1,600	
Training	1,825	130		1,955	
Consulting	1,520			1,520	
Recurrent costs	1,500	1,360		2,860	
C. Contribution to FONTAGRO	4,500			4,500	8.9
D. Other program costs	320			320	0.6
D1. PPF	120			120	
D2. Outside audits	200			200	
III. No specific allocation	1,146	190	180	1,516	3.0
SUBTOTAL	32,076	6,220	4,300	42,596	84.7
IV. Financial costs	324	7,380		7,704	15.3
A. Interest		6,920		6,920	
B. Credit fee		460		460	
C. Inspection and supervision	324			324	
Total program cost	32,400	13,600	4,300	50,300	100
Cofinancing matrix	64.4%	27%	8.5%	100%	

III. THE EXECUTING AGENCY AND PROGRAM EXECUTION

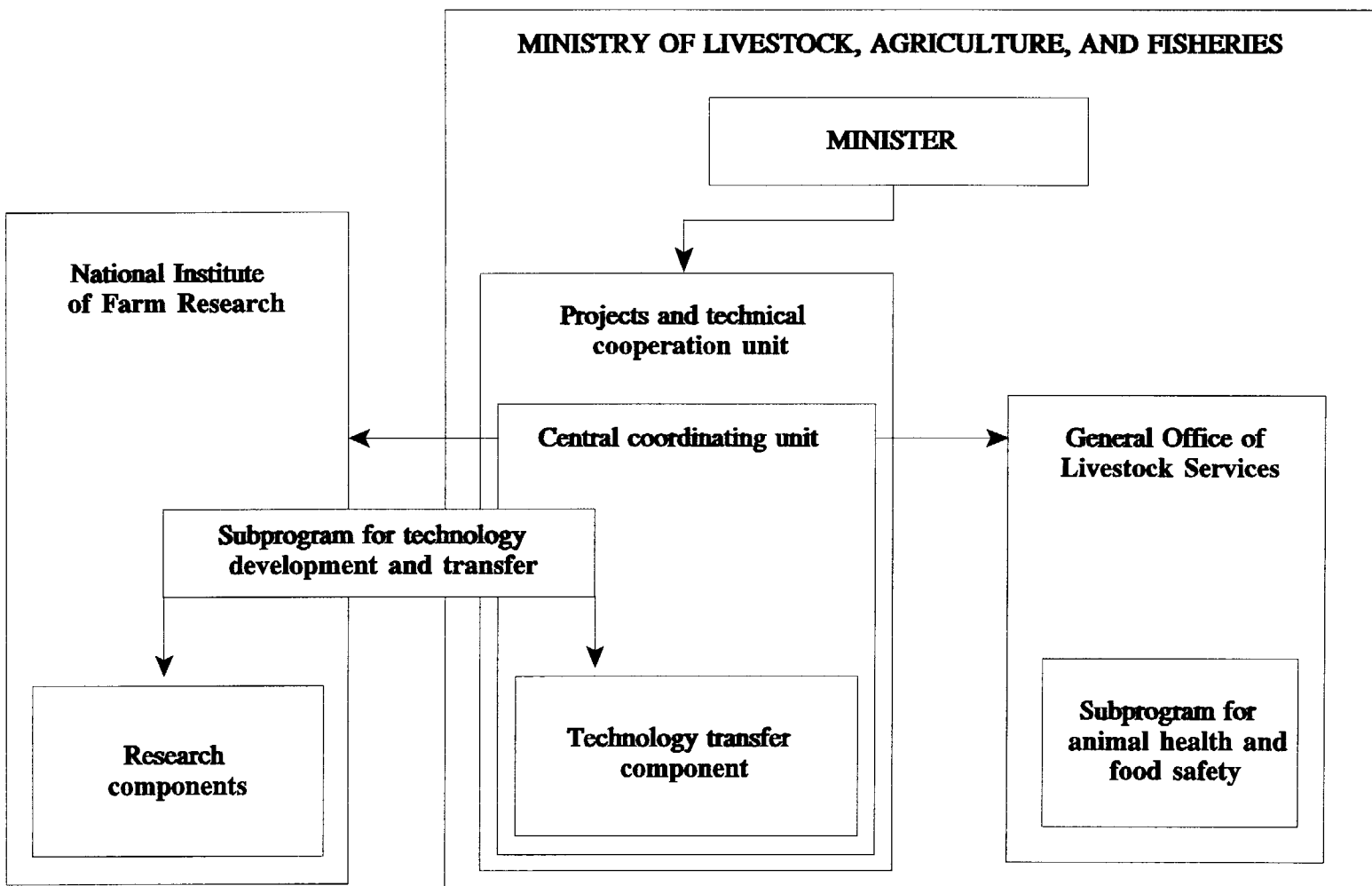
A. The executing agency

- 3.1 The program will be executed by the MGAP by way of the unit for central coordination (CCU) connected to the MGAP's Unidad de Proyectos y Cooperación Técnica [Unit for Projects and Technical Cooperation] (UPCT).
- 3.2 In carrying out the program, the CCU will have the support of Instituto Nacional de Investigaciones Agrícolas [National Institute of Agricultural Research], which will oversee the strategic and applied research activities under the subprogram for technology development and transfer. The CCU will directly supervise that subprogram's technology transfer component. The MGAP's Dirección General de Servicios Ganaderos [General Office of Livestock Services] will supervise the activities carried out under the subprogram for animal health and food safety.

1. Unit for projects and technical cooperation (Unidad de Proyectos y Cooperación Técnica (UPCT))

- 3.3 The UPCT, created by Decree 24,998 of January 28, 1998, is a ministerial advisory unit, with responsibility for supporting and coordinating design, execution, monitoring, and evaluation of MGAP projects. One of its jobs is to manage support to the ministry under international cooperation agreements. Recently, the UPCT acquired the additional responsibility of supporting the ministry in promoting and selecting technology transfer projects to be executed through private and public entities. Figure III-1 illustrates the conceptual scheme of the program.
- 3.4 The CCU will be set up by government decree and will comprise: the program's national director; a technology transfer coordinator supported by an assistant who is a training specialist; an administration and finance manager supported by an accountant and a procurement specialist; a monitoring and evaluation specialist; and an environmental specialist with support staff. The CCU staff will have direct links with the units for coordinating execution (UCEs) in INIA and DGSG.
- 3.5 The CCU will represent the government in dealings with the Bank relating to both the program's technical and financial aspects. The CCU will be responsible for preparing the annual operating plan (AOP) for the program and the two subprograms, and for preparing technical and financial progress reports, incorporating information received from DGSG and INIA. The CCU will also be responsible for the program's integrated accounting in order to facilitate disbursement requests, rendering of accounts, and submission of progress reports.

**FIGURE III
AGRICULTURAL SERVICES PROGRAM
PLAN OF EXECUTION**



2. General Office of Livestock Services (Dirección General de Servicios Ganaderos, or DGSG)

- 3.6 The DGSG is one of the four general offices of the MGAP. Its objectives are to promote animal health and ensure the hygiene/health quality of animal foods and products. For this purpose the DGSG is divided into four divisions: the Division of Animal Health (División de Sanidad Animal, or DSA), the Division of Animal Industries (División de Industria Animal, or DIA), the Division for Control of Livestock (División de Control de Semovientes, or DICOSE), and the Miguel C. Rubino Veterinary Laboratories (Laboratorios Veterinarios Miguel C. Rubin, or DILAVE).
- 3.7 DGSG will be responsible for executing the subprogram for animal health and food safety. To supervise technical execution, DGSG will set up a unit to coordinate execution (UCE) with a technical coordinator and a secretary. The UCE will process procurement, administration, and finances and accounting for the subprogram. The subprogram's technical activities will be carried out by personnel from the four divisions of DGSG. DIA (the Division of Animal Industries) will be responsible for controls and health inspection in relation to the meat and animal products industry.
- 3.8 The animal health subprogram will support the DIA as it implements the HACCP system, which governs inspection and health controls from the production end all the way to the consumer. The HACCP is now required for inspection and quality control of animal products for some of the most demanding export markets. It requires private industry to carry out health inspections and controls at critical points in the production process within plants, while government is responsible for certifying that the control process is functioning duly. Currently, HACCP is operating in 5 of the 26 firms that export to countries with demanding standards.
- 3.9 Two independent studies financed by MGAP and the Bank on the challenges facing the DGSG were reviewed in connection with the possible restructuring of the DGSG upon implementation of the HACCP. One of these evaluations found that DGSG has an excess of administrative personnel, with various overlapping of functions. It noted that the agency could improve its administrative efficiency by consolidating its functions.
- 3.10 The other evaluation looked at the institutional impact of implementing HACCP. It observed that when HACCP is established in export firms, DGSG could reduce the number of inspectors currently assigned to their plants. Still, given that DGSG lacks inspectors for companies and products aimed at the local market, the consultants recommended that inspectors be reassigned to other industries. The study observed that current breakdown showed an average of 6.8 inspectors and/or assistants for each exporting company and less than one to each firm serving the domestic market.

- 3.11 The conclusion of the two studies is that DGSB could make internal institutional modifications to improve its administrative efficiency, and could reassign professional staff (veterinarians, inspectors, and assistants) to establishments that now lack adequate inspection.
- 3.12 The current inspection process indirectly generates extra-budgetary revenue for DGSB from two taxes on animal products: a tax on the value of animal products sold, and an additional tax on exports. The proceeds of these tax revenues are earmarked in their entirety for DGSB as a way of financing inspections. DGSB received US\$11.5 million from this source in 1997.
- 3.13 The transition from traditional inspection and controls to HACCP could have effects on the ministry's extra-budgetary revenue as well as on the operational cost of inspection. Fees for inspections may need to be changed so that the private sector does not pay twice: for direct inspection costs (as a result of implementing HACCP) and via the taxes related to the cost incurred by the government in the existing inspection system. Operational costs will also be affected, because inspection functions may change, which would change staff profiles and personnel expenses. These financial impacts will be analyzed along with institutional impacts during the first year of the program.
- 3.14 Though the above-mentioned studies suggest possible areas for change, the analysis done by the team indicates that present international trade standards are too fluid and changing for the country to make all the suggested changes without further study. The European Union has not accepted HACCP as a replacement for the existing inspection system, and has been suggesting a so-called tracking system, which would mean significantly higher costs for the companies and the inspection agency. In the United States, the HACCP is not universally considered as a replacement for the traditional model either, for some people regard it simply as supplementary. Considering the importance of this subject for public health, it was agreed that more study would have to be devoted to the issues. It was also agreed to introduce a contractual conditionality linking certain investments to an agreement between MGAP and the Bank as to which of the above-mentioned study's recommendations will need to be implemented starting in the second year's annual operating plan.

3. National Institute of Agricultural Research (INIA)

- 3.15 INIA was created in 1989 by Law 16,065. It is a public agency incorporated under private law. INIA's functions are to investigate and test farm technologies, and to articulate the transfer and dissemination system. INIA is directed by a board of directors with public and private representation. The members of the board of directors include two representatives of the executive branch appointed by the Minister of Livestock, Agriculture, and

Fisheries (MGAP), one of whom is chairman of the board. There are also two private sector representatives. One of these is appointed by the Asociación Rural del Uruguay (Rural Association of Uruguay) or by the Federación Rural (Rural Federation), and the other by the Cooperativas Agrarias Federadas (Federated Agricultural Cooperatives), the Comisión Nacional de Fomento Rural (National Development Commission), or the Federación Uruguaya de Centros Regionales de Experimentación Agrícola (Uruguayan Federation of Regional Centers for Experimentation). Headquartered in Montevideo, INIA does research at five regional experimental stations and four experimental growing sites.

- 3.16 INIA will supervise the strategic research and applied research components of the technology development and transfer subprogram. In so doing, INIA will set up a unit to coordinate execution (UCE) within its administration and finance unit. The UCE will include a technical coordinator responsible for the components that INIA executes. The technical coordinator will be supported by a coordinator from the applied research component, an accounting/finance expert, and a secretary. INIA executed IDB loan 524/OC-UR, so it already has staff familiar with the Bank's requirements on procurement, hiring, and financial controls.
- 3.17 There has been a detailed analysis of INIA's balance sheet and financial figures for the last four years. Total income increased from US\$16.9 million in 1994 to US\$18.1 million in 1997, a 7.1% improvement. In 1994, 47% of income was from the IDB project. In 1997, the make-up of income showed that INIA was moving toward greater sustainability, with 64% coming from the income categories mentioned in Law 16,065 (a tax on transactions involving agricultural products, plus a matching amount from the public budget) and 13% from the sale of products, consulting services, and royalties/licenses. **INIA has established a program to work toward obtaining a significantly higher share of income from the private sector through sales, services, royalties and technology in general.**
- 3.18 INIA's budget for expenditures increased from US\$11.1 million in 1994 to almost US\$14.3 in 1997. The main item of operating costs is personnel expenses, which includes payroll taxes. Personnel costs rose from US\$4.8 million in 1994 to US\$6.6 million in 1997. Though personnel costs increased by 37% from 1994 to 1997, they were relatively stable as a percentage of total outlays: 43% in 1994 and 46% in 1997. Operating costs increased primarily because of statutory salary increases and higher operating costs related to sales of products and services.
- 3.19 During these four years, INIA has had an operating surplus every year. The surpluses were US\$5.8 million in 1994, US\$2.6 million in 1995, US\$0.5 million in 1996, and US\$3.2 million in 1997.

- 3.20 Because INIA is a non-state public body, the surpluses or deficits it generates during the fiscal year constitute its net worth. In recent years, INIA has built up financial resources. Because of the surpluses and the funds generated by depreciation, these resources now total US\$8.7 million, which is earmarked for: (i) a reserve large enough to finance three months of INIA's operating costs (currently US\$3.6 million) and (ii) financing other projects, such as those of the Fund for the Promotion of Agricultural Technology (FPTA) (US\$2.8 million), not included in this program. This leaves US\$2.3 million available to finance short-term debts (US\$1.3 million) and new activities, such as this operation's counterpart contribution.
- 3.21 INIA has developed an accounting like the ones used in the private sector, including a subsystem of costing by activity and/or by project. Financial statements are audited yearly by private outside auditors, who have certified that the financial statements properly reflect the Institute's financial situation without reservation.
- 3.22 Currently, INIA is using FPTA to finance farm research projects not provided for in the INIA plan. The projects financed by the Fund have been executed mostly by public entities (universities and MGAP units), and to a lesser extent by private enterprise. From 1991 to 1996 the Fund financed 95 projects for a total of US\$2.8 million. As indicated above, INIA has accumulated and set aside US\$2.8 million to be used for financing projects already planned.

B. Mechanism for execution, by subprogram

1. Subprogram for technology development and transfer

- 3.23 The subprogram for technology development and transfer includes the following components: (i) strategic projects; (ii) applied research projects, and (iii) technology transfer. INIA will be responsible for executing the first two components, and the unit for central coordination (CCU) for the third.
- a. Strategic projects
- 3.24 The eleven selected priority projects (paragraph 2.7) will be executed by INIA's experimental stations in collaboration with other international research institutions. For some of these projects, INIA will hire temporary staff to supplement its permanent staff.
- 3.25 INIA will set up a list of research organizations that will be updated annually. The short list for each project will be agreed on with the Bank. Competitive selection procedures will be used, pursuant to the Bank's procedures for hiring consulting firms.

b. Applied research projects

- 3.26 The projects in this component will seek to solve specific, well-defined obstacles to the technological development of the farm sector. The applied research funds (US\$5.2 million) will be allocated for activities not anticipated in INIA's plans. They will be executed by universities and by private, public, and quasi-governmental organizations in which the potential beneficiaries of the technologies being developed have a strong participatory presence. Funds from this component will be transferred to the executing agencies for these research projects on a non-reimbursable basis. Hence the results will be public property.
- 3.27 The funds will be used in accordance with pertinent Operating Regulations (in the technical archive). Requests for applied research projects will be submitted to INIA's project unit, which will be responsible for initiating and completing the evaluation process, and for submitting recommendations to its board of directors.
- 3.28 Project proposals will be subject to a two-part analysis: (i) evaluation in terms of prerequisites specified in the Operating Regulations (eligibility), and (ii) evaluation of technical quality, anticipated impact, level of cofinancing, and the capacity of the executing agency (ranking assessed). Eligibility based on prerequisites defined in the Operating Regulations will be assessed by INIA's coordinating unit. Evaluation of impact and technical quality will be done by independent outside consultants selected by the technical committee. In analyzing the project proposals, a score of 1 to 10 will be assigned for each of the criteria so that all proposals deemed eligible can be ranked according to the weight established for each criterion.

c. Technology transfer

- 3.29 The technology transfer component will be executed by the CCU. Funds (US\$4.9 million) will help strengthen the country's technological innovation system through activities that have been evaluated and selected on a competitive basis according to eligibility and quality criteria defined in the Operating Regulations. Funds from this component will be transferred to the executing agencies on a non-reimbursable basis.
- 3.30 The evaluation will be performed by an ad hoc committee of at least three independent experts. Projects will undergo a two-part analysis: (i) evaluation of the proposals in terms of prerequisites established in the Operating Regulations (eligibility), and (ii) evaluation of technical quality, anticipated impact, level of cofinancing, and the capacity of the executing organization (scores assigned). Calls for bids will be published, and at least ten (10) proposals must be available for consideration. Execution of the technology-transfer projects will

be through private enterprise, NGOs, private-sector technical experts, and public agencies, based on needs for technological improvement identified by producers and owners.

2. Subprogram for animal health and food safety

- 3.31 The activities of the subprogram for animal health and food safety will be executed by DGSG. They will increase the country's ability to maintain animal health and ensure the safety of the food supply, guaranteeing that animal products are marketed in accordance with Uruguay's international commitments.
- 3.32 Subprogram execution will be carried out through consulting firms that specialize in the specific activities involved. Execution includes consulting as well as procurement of computer and lab equipment. Bank procedures will be followed in procurement.

C. General conditions applicable to the program

1. Preconditions for the first disbursement

- 3.33 MGAP must demonstrate to the Bank that the unit for central coordination has been legally established and is functioning with key personnel assigned to their jobs and with financial/accounting systems in place.
- 3.34 The executing agency must submit the annual operating plan for the first year of the program and the two subprograms, including an initial report on monitoring indicators, updating the indicators in the logical framework (Annex II-1). The operating plans need to be agreed on with the Bank.

2. Preconditions for first disbursement of the subprogram for technology development and transfer

- 3.35 The executing agency shall demonstrate to the Bank that an agreement has been signed with INIA detailing INIA's technical and financial responsibilities in executing the subprogram for technology development and transfer.
- 3.36 The executing agency will submit evidence that INIA's unit for coordinating unit has been legally established and is functioning with key personnel assigned, and financial control systems in place.
- 3.37 The executing agency will submit to the Bank evidence that the Operating Regulations for the applied research and technology transfer and dissemination components agreed on with the Bank have been legally approved and put into effect.

3. Preconditions for the first disbursement of the subprogram for animal health and food safety

- 3.38 The executing agency will submit evidence that the DSGG coordinating unit has been legally established and is functioning with key personnel assigned to their functions.
- 3.39 Evidence will be provided that an international consulting firm has been selected to perform a study of the institutional and financial impact of implementing HACCP for the animal products inspections.

4. Conditions during program execution

- 3.40 In month 10 of the project, the executing agency will submit the study of the institutional and financial impact of implementing HACCP for animal products inspection procedures. The results of the study will be incorporated in the subprogram for animal health and food safety. The subprogram's investments related to training, and laboratory and computer systems will be contingent on the government's and the Bank's receiving and accepting a plan to incorporate the results of the consulting. The results will be incorporated into the program's AOPs.
- 3.41 The executing agency will, by October 31 of each year, provide the Bank with the AOP for the next year of the program and the two subprograms. These AOPs will include a description of what has been achieved in terms of the previous year's AOP.
- 3.42 Within two months after the end of each calendar year, the executing agency will provide the Bank with a report on the performance of the applied research and technology transfer and dissemination activities. The reports will be based on an independent evaluation of both components, with a focus on the number and value of approved projects, the amount of disbursements, the classification of entities responsible for execution, approach and goals, and the results of the projects.

D. Reports and monitoring

- 3.43 Control and monitoring of program execution will be done through the Bank's Country Office in Uruguay. The executing agency, through the CCU, beginning in the first year of execution, will provide the Bank with semi-annual consolidated reports on program execution.
- 3.44 At month 24 of the program (counting from the effective date of the loan agreement) or when 50% of funds have been committed, whichever comes first, the Bank and the government will do a mid-term evaluation of the program. The indicators to be used in that evaluation appear in the program's logical framework. If significant deficiencies are found, the Bank will not authorize new commitments until the MGAP has made the necessary changes.

- 3.45 For two years after completion of the program, the executing agency, through the CCU, will keep a database on the program to facilitate evaluation of the extent to which goals defined in the logical framework have been met.

E. Outside audits

- 3.46 The program's and INIA's financial statements will be examined by an independent firm of auditors acceptable to the Bank. Financial statements must be submitted within 120 days after the close of the government's fiscal year (December 31) for the duration of program execution.

F. Schedule of disbursements

- 3.47 The program disbursements will cover a five-year period. The schedule is shown in Table III-1.

Table III-1 Disbursement schedule (in thousands of US dollars)				
Year	IDB/CO	Local	Total	%
1	8,840	3,100	11,940	23.7
2	10,560	3,110	13,670	27.2
3	6,250	3,790	10,040	20.0
4	3,860	3,980	7,780	15.5
5	2,890	3,980	6,870	13.6
Total	32,400	17,900	50,300	
	64.4%	35.6%	100%	

G. Revolving fund

- 3.48 An advance of 5% of the total funding will be put into a revolving fund, following Bank procedures.

H. Retroactive recognition of expenditures and financing

- 3.49 The executing agency has incurred costs in starting up the program. They include consultants' fees, the costs of the bidding process, procurement, and initial training activities. The program will recognize costs incurred since January 6, 1998, in an estimated amount of US\$530,000, which may be financed from the loan funds, and US\$155,000, which may be recognized as program counterpart costs. The executing agency will be expected to submit to the Bank evidence that these costs were incurred on terms substantially the same as those governing the program loan agreement.

- 3.50 To facilitate developing this program, the Bank advanced US\$246,000 to the executing agency from the project preparation facility (PPF) (operation 1020/OC-UR). Of this amount, approximately US\$120,000 has been used and will be reimbursed to the PPF from the first disbursement of program funds.

I. Procurement: construction works, goods, and services 3/

- 3.51 **Goods.** Pursuant to Bank policy covering the use of Bank financing in foreign exchange, international competitive bidding will be used for the procurement of equipment and other goods valued at more than US\$350,000 (Annex B to the loan contract). Procurement below this threshold will be handled according to national legislation.
- 3.52 **Consulting services.** Pursuant to Bank policy, international competitive bidding will be used only when contracts are for more than US\$200,000 (Annex C to the loan contract). The requirement for the Bank's prior nonobjection will apply when contracts with consulting firms exceed US\$50,000 and when contracts with individual consultants exceed US\$20,000. In other cases, the Bank's representatives will review contracts on an ex post, sample basis. The Bank reserves the right not to use loan funds to finance procurement not made pursuant to procedures acceptable to the Bank.

J. Environmental considerations

- 3.53 In response to a CESI recommendation, at a meeting on November 21, 1997, an environmental and social impact report (ESIR) was prepared for the program. The ESIR was made public on June 10, 1998. MGAP received no adverse comment. An environmental summary was also prepared, and approved by CESI on August 7, 1998. Copies of the ESIR and environmental summary were sent to the Public Information Center on August 11, 1998.
- 3.54 The mitigation measures and environmental and social controls recommended in the ESIR include: (i) incorporating in the technology packages technologies that promote conservation of natural resources, rational use of agro-chemicals, control of effluents and other waste, and development of technology for small producers; (ii) practices that preserve native and crossed varieties; (iii) environmental training; (iv) special environmental studies; and (v) establishment of environmental criteria to evaluate and select projects for funding.
- 3.55 To guarantee that environmental criteria and mitigation measures are applied under the program, the CCU will have an environmental

3/ Annex III-2 shows the procurement schedule for the program.

expert to review the environmental aspects of the program and two subprograms.

K. Ex post evaluation

- 3.56 Pursuant to Bank policy, the executing agency has decided not to include an ex post evaluation as part of the program activities. Nevertheless, MGAP will have information on the subsector, the performance of program projects, and the relevant economic parameters in case it should become necessary to evaluate the economic impact of the program following its execution.

IV. VIABILITY AND RISKS

- 4.1 The objectives of the subprogram for farm technology development and transfer were set through a consultative prioritization process involving the relevant sectors and beneficiaries, who expressed their interest in participating in and sharing responsibility for execution and cofinancing. In the case of the subprogram for animal health and food safety, there were visits and working sessions with companies and producers to determine the main aspects of the design. Participants in these meetings expressed support, and indicated interest in making the proposed investments.

A. Technical viability

- 4.2 The subprogram for farm technology development and transfer will concentrate on executing technology development projects that address limitations affecting areas and activities that are of major economic importance for the agrofood sector. INIA and MGAP have the physical infrastructure and personnel needed for the subprogram. Also, existing multi-institutional professional capacity is sufficient to immediately set in motion research and technology dissemination and transfer projects. All of this – along with the criteria and approaches established in the course of prioritizing and in the Operating Regulations that are to govern the selection of proposals – will facilitate speeding up the process of technological change in the sector, guaranteeing the technical quality of proposals, and ensuring that they are consistent with national priorities and the needs of producers.

- 4.3 The animal health and food safety subprogram will focus on producers' and owners' interests in keeping Uruguayan products in foreign markets. Strengthening the public sector in this area, while giving the private sector responsibility for specific actions in the food safety chain, will provide the country with a system that can meet the demands of the principal importing countries. Uruguay has professional expertise that will make it possible for the private sector to incorporate HACCP activities in the agrofood chain. In the case of MGAP, the DGSG has the basic infrastructure and personnel required for the subprograms.

B. Environmental viability

- 4.4 The program's potential social and environmental impacts were identified in an ESIR. The report concludes that the program offers good opportunities to improve the environment and conserve natural resources, and that its possible indirect negative effects can be managed by implementing mitigating measures and putting an environmental management and monitoring program in place. The program is considered environmentally viable, given that its technological packages incorporate environmental factors that

promote conservation of natural resources. Furthermore, environmental criteria will be developed for selecting projects to be funded under those components that are managed as competitive funds, as specified in the program's Operating Regulations.

- 4.5 From a social point of view, impact on public health and producers' revenues will be positive. In addition, the program includes a strategic project to study and promote technology for small family-run operations, which will help increase their sustainability and overcome limitations of scale.

C. Institutional viability

- 4.6 The organizational structure of the program's central coordinating unit (CCU), its proposed technical staff, and the fact that it is located within MGAP/PTCU (Project and Technical Cooperation Unit) give it the capacity and skills to carry out the program's coordinating functions satisfactorily. Profiles of proposed staff for the CCU have been reviewed, and the permanent staff will clearly be adequate for efficient coordination and supervision of the program. The establishment of the CCU and appointment of key staff are a condition precedent to the first disbursement (paragraph 3.33).
- 4.7 For the subprogram for agricultural technology development and transfer, INIA already has the staff and administrative and financial systems needed to execute the subprogram in accordance with Bank procedures, due to the experience it has had executing IDB project 524/OC-UR. For the animal health subprogram, profiles of proposed UCE staff were reviewed, and the unit will have the capabilities needed to coordinate and supervise subprogram execution in accordance with Bank procedures. All the subprogram's administrative and financial activities, including procurement, will be handled by the CCU, leaving the coordinating unit responsible only for technical execution. Setting up the coordinating unit and naming additional staff are a condition precedent to the first disbursement (paragraph 3.36).
- 4.8 The program's financial transactions will be facilitated by the CCU's establishing and running a financial and accounting system that records and monitors the use of program funds, incorporating information from the two units responsible for executing the subprograms (INIA and DGSG). Before the first disbursement, the CCU will set up the financial system for these activities (paragraph 3.33). DGSG, as an office within the same ministry, will keep financial records in a form compatible with the CCU's system. INIA's financial systems allow for proper financial control of the subprogram and for providing the financial information required by the Bank.

D. Financial viability

- 4.9 The program's viability depends on the capacity for counterpart funding. The entire program will be US\$50.3 million, and the counterpart contribution will be US\$17.9 million, with MGAP being responsible for the technology transfer component, the animal health and food safety subprogram, and the CCU. INIA is responsible for providing the counterpart funding for the strategic research and applied research projects.
- 4.10 It is estimated that the counterpart funding that INIA will have to provide during the five years of execution amounts to US\$4.3 million, while the MGAP amount is US\$13.6 million. The maximum annual counterpart funding during the years of execution will be US\$1 million from INIA in the first year and US\$3.2 million from MGAP in the fourth and fifth years.
- 4.11 INIA's annual statement, shows that it posted a US\$0.5 million surplus in 1996 and a US\$3.2 million surplus in 1997. The average yearly surplus over the last four years was US\$2.1 million. A conservative estimate was made of INIA's income and expenditures - this project included - from 1999 to 2003. The analysis found that each year's income would cover the expenditures for that year. For the first two years, income and expenditures would balance each other out; starting the third year, income would exceed expenditures. As stated in paragraph 3.20, INIA also has a reserve of US\$1 million accumulated, which could go toward new projects, if necessary. Based on this analysis, the conclusion is that INIA would have the funds needed to cover its local counterpart.
- 4.12 The Uruguayan government's financial system is based on five-year budgets, and the current budget covers the period 1996-2000. This national budget includes provisions for MGAP to execute six projects with external funding, including the agricultural services program. A review of the annual amendments to the MGAP budget, to the year 2000, shows that amounts budgeted for the agricultural services program are sufficient to finance counterpart contributions during these years, and that US\$2.5 million had been included for 1997, and US\$2.7 million for 1998 as counterpart expenditures which are being applied to items that may be recognized as prior costs.
- 4.13 The first year of program execution will be 1999. Uruguayan government counterpart expenditures are US\$2.1 million for 1999, and US\$2.2 million for 2000. The budget approved for these years already includes US\$2.7 million for each year. The amounts budgeted for external funds going to this program are adequate for the scheduled flow of funds. Based on this analysis, it was concluded that INIA and MGAP will have sufficient resources to make the counterpart contributions required, and the program can be considered financially viable.

E. Socio-economic viability

- 4.14 The socio-economic evaluation of the program was done based on each of the two subprograms and in relation to the over-all anticipated impact on the value of the farm sector's production and exports. Cost-benefit analysis of the two subprograms was based on comparing the economic benefits and/or costs (efficiency prices, foreign exchange) of the situation "with" and "without" the project.

1. Subprogram for technology development and transfer

a. Technical strategic research projects

- 4.15 The economic evaluation of this component was based on estimating the most likely economic impacts of various types of research. Ten of the eleven strategic research projects assigned high priority by INIA were evaluated. Because they are driven by producer and owner demand, there will be socioeconomic analysis of the projects funded under the subprogram's applied research component during execution of the subprogram, using criteria and methodologies similar to those used for the strategic research projects.
- 4.16 Because of the uncertainty associated with the socioeconomic impacts under study, probability distributions were developed. They define the probability that the technologies developed by the strategic research will have an economically favorable impact (a positive net present value) on the production units adopting them. The distributions for six types of research that were relatively easier to quantify took into account (i) probability of success (estimated on the basis of technical consultation with INIA researchers and potential beneficiaries of the technology); (ii) anticipated extent to which the technologies will be adopted; (iii) business management factors needed for successful application of the research; and (iv) the effect of changes in the markets.
- 4.17 As shown in Table IV-1, all the probability distributions converge in positive net present values. In other words, the strategic research projects to be funded by the subprogram have a high probability of producing technologies that will have a favorable impact on the net economic return figures of producers or owners who adopt them.

Table IV-1 Results of the probability-based evaluation of selected strategic research projects (Average of the net present values estimated in US dollars)			
Projects	Net present value	Present value — Benefits	Present value— Costs
Meat livestock	3,436.3	5,214.4	1,778.2
American-type rice	3,592.3	4,744.6	1,152.3
Rice-irrigation technology	1,200.1	2,003.5	803.4
Forestry	5,463.8	7,248.0	1,807.0
Citrus	129.0	1,327.7	1,198.7
Potato	134.4	694.7	560.4

Present value = mean value of the probability distribution.

b. Analysis based on figures aggregated by production area

- 4.18 The results of aggregate cost-benefit analysis for meat livestock, dairy livestock, agricultural crops and vegetable and fruit operations are summarized in Table IV-2. The indicators shows that the proposed investments in these areas would have a favorable economic impact, both on the growth of production in the sector as a whole and on the net incomes of the producers. These results are stable with respect to possible variations in the most significant factors that affect their costs and benefits.

Table IV-2 Results of cost-benefit analysis and analysis of sensitivity of selected strategic research projects ^{1/}			
Category	Net present value — US\$ million	IERR%	IERR sensitivity%
Meat and wool livestock	39.13	35.9	25.7
Dairy livestock	4.66	26.5	17.3
Agricultural crops	27.07	31.1	20.6
Fruit and vegetables	9.87	27.2	18.1

Net present value = net present value discounted at 12%/year.

IERR = Internal economic rate of return

^{1/} Estimated sensitivity assuming simultaneous cost increase/benefit reduction of 25%.

c. Testing and dissemination of technologies

- 4.19 Surveys taken among producers who would be beneficiaries of disseminated technology (at conferences and field trips, courses, talks) by MGAP and the Instituto Plan Agropecuario (Agricultural Planning Institute, or IPA) during 1997 and 1998 indicate that 97% of participants described them as useful for their production activities, and 93% thought that the disseminated technologies were

applicable on their farms. This shows the high degree of receptivity to this sort of activity among producers.

2. Subprogram for animal health and food protection

- 4.20 The main economic benefits taken into consideration in evaluating this subprogram were: (i) maintenance of Uruguay's meat exports to its main foreign markets; (ii) reduction of losses in livestock production due to parasites such as ticks, mange, and lice by means of better hygiene/health practices; (iii) reduction of industrial losses by improved health practices; (iv) improved quality of export products in terms of health criteria, leading to better prices; and (v) impact on public health as products for the domestic market are influenced by food safety activities.
- 4.21 Uruguayan meat exports in the 1995-1997 period (including refrigerated, frozen, processed, and salted products) averaged close to 207,000 tons (carcass-weight equivalent), which produced annual revenues of US\$307 million. In 1997, 33.6% of the export volume in carcass weight (267,562 tons) went to MERCOSUR countries, 22.4% to European Union countries, 20% to other countries in the hemisphere, 18.3% to Asian countries, 4.5% to east European countries, and the remaining 1.2% to African countries.
- 4.22 Despite this record, access to markets in the European Union, the United States, Canada, Israel, and Japan is threatened for Uruguay and other meat-exporting countries, as the importing countries begin to require HACCP procedures, traceability, and other similar hygiene/health measures at all meat processing plants that export to them.
- 4.23 As to efficiency of livestock production, zootechnical herd indicators can be improved if the country also manages to reduce losses and production costs caused by ecto-parasites such as ticks, mange, and lice which still have foci of infection in certain parts of the country. It is estimated that by simply applying better health practices, annual expenditures such as those incurred by sanitary baths could be reduced by US\$500,000 to US\$1 million.
- 4.24 The food safety measures proposed in this program will help control and reduce the incidence of pathogens such as salmonella, Escherichia coli, listeria, and other bacterial agents that can seriously affect public health in Uruguay, given the country's high per capita consumption of animal products.
- 4.25 The economic impact of a possible partial loss of markets which failure to execute this program would imply (only loss of the US market was simulated), along with a conservative estimate of the possible benefits of controlling ecto-parasites and increasing food safety, lead to the conclusion that the proposed investments would generate a net present value of US\$9.5 million and an IERR of 25%, which confirms the program's economic utility. Even if the costs

to business of implementing new international health standards reached 30%, the net present value would be US\$3.4 million, with an IERR of 18%.

3. Aggregate economic analysis of the program

- 4.26 On an aggregated basis, it is estimated that the program's investments will result, by the year 2008, in an increase of US\$86 million in the gross value of the sector's production, and a net value of US\$36 million. Considering that about 60% of this would be exports, program investments are expected to result in an increase of approximately US\$45 million for the sector during the period in question.

F. Program benefits

- 4.27 The main beneficiaries of the program will be producers, owners, and paid workers directly associated with farming activity. Nevertheless, since the program will have an affect on all phases of the agroindustrial chain, the different interventions are also expected to benefit agroindustrial entrepreneurs, export agents, and other agents involved in the agroindustrial chain. Also, new hygiene/health monitoring and control systems for food will directly benefit the country's consumers.
- 4.28 In general, given its impact on increasing the sector's production, improving production efficiency, and contributing to generating foreign exchange and providing employment in rural areas where farming is present as an economic activity, the program will significantly benefit the national economy as a whole.

G. Risks of the operation

1. Risks of the subprogram for technology development and transfer

- 4.29 The main risks associated with the subprogram's objectives are related to: (i) insufficient demand for new technologies on the part of the farm and agroindustrial sector, and (ii) lack of willingness to contribute to cofinancing technology development and transfer (research, validation, training, and dissemination). Surveys of producers and owners in the sector have indicated that producers and owners are pushing for new technologies and are disposed to adopt them to improve production efficiency and maximize their chances of participating competitively in MERCOSUR and other international markets.

2. Risks of the animal health and food safety subprogram

- 4.30 The main risk of this subprogram has to do with how late adoption of the HACCP system and other hygiene/health measures by private export firms would affect its chances of success. The economic importance of meat exports for Uruguay and the interest that the

sector's business people have in implementing HACCP and other hygiene/health measures as quickly as possible minimize this risk.

3. Lack of inter-agency coordination

- 4.31 Though most of the entities and units involved in the program are connected with or part of MGAP, their lack of effective coordination could make efficient execution difficult. However, the proposed mechanics of the execution process will seek to prevent this risk from materializing. Also, the program's institutional strengthening elements will seek to overcome institutional deficiencies identified in the preparatory phase.

URUGUAY
AGRICULTURAL SERVICES PROGRAM (UR-0116)
LOGICAL FRAMEWORK

OBJECTIVES	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
Efficiency and competitiveness of the agricultural sector in the context of opportunities and challenges created by economic openness of markets.	<ul style="list-style-type: none"> - The agricultural sector's annual growth rate for the period 2003-2008 will be equal to the average of the 1995-97 period (3.3% annual on a cumulative basis). 	<ul style="list-style-type: none"> - Annual statistics from the Uruguayan Central Bank (BCU) and MGAP through the year 2008. 	<ul style="list-style-type: none"> - The government maintains a policy of economic openness and regional integration (MERCOSUR). - Producers continue responding positively to these policies. - The economic situation for farmers in regional and international markets remains stable or improves.
Returns for agricultural and agro-industrial producers, and increased exports, facilitated by investment services for farm producers.	<p>By the year 2008:</p> <ul style="list-style-type: none"> - Farm producers' gross revenues up 4.7% compared to the situation without the project (from US\$1.831 billion to US\$1.917 billion a year). - Producers' net profits up 5.4% compared to the situation without the project (from US\$666 million to US\$702 million a year). 	<ul style="list-style-type: none"> - Annual statistics from the Uruguayan Central Bank (BCU) through the year 2008. - Information on cost structure, broken down by production systems and product categories, from the Office of Agricultural Programs and Policy (Oficina de Programación y Política Agropecuaria, or OPYPA) and from MGAP. - Semi-annual follow-up reports and a final evaluation report. 	<ul style="list-style-type: none"> - The economic situation for agricultural products on regional and international markets remains stable or improves. - The relative price structure for products and inputs does not change, and the production structure also remains the same.

SUBPROGRAM FOR TECHNOLOGY DEVELOPMENT AND TRANSFER

OBJECTIVES	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
<p>returns for agricultural and rural producers, and increased exports, facilitated by investment in services for farm producers.</p>	<p>By the year 2008:</p> <ul style="list-style-type: none"> - Agricultural producers' gross earnings up 4.7% compared to the situation without the project (from US\$1.831 billion to US\$1.917 billion a year). - Producers' net profits up 5.4% compared to the situation without the project (from US\$666 million to US\$702 million a year). 	<ul style="list-style-type: none"> - Annual statistics from the Uruguayan Central Bank (BCU) through the year 2008. - Information on cost structure, broken down by production systems and product categories, from the Office of Agricultural Programs and Policy (Oficina de Programación y Política Agropecuaria, or OPYPA) and from the MGAP. - Semi-annual follow-up reports and a final evaluation report on subprogram. 	<ul style="list-style-type: none"> - The economic situation for agricultural products on regional and international markets remains stable or improves. - The relative price structure for agricultural products and inputs does not change, and the production structure also remains the same.
<p>system of agricultural technology development and transfer more integrated, more competitive, and efficient, placing emphasis on needs of producers and other stakeholders in agroindustrial chains in defining and carrying out research and development mechanisms to mobilize public and private resources toward these ends.</p>	<p>By the year 2008:</p> <ul style="list-style-type: none"> - Meat and wool livestock productivity increases 10% compared to the situation without the project, in addition to quality improvement. - Dairy livestock productivity increases 13% (measured in liters of milk per hectare) and 12% (amount of meat per hectare) compared to the situation without the project, and product quality improves. - Mean yields in the main extensive agriculture categories up between 6% and 8% compared to the situation without the project, and product quality improves. - Mean yields of the 12 main types of produce up between 11% and 50% compared to the situation without the project, and product quality improves. 	<ul style="list-style-type: none"> - INIA's annual reports through 2008. - Semi-annual follow-up reports and a final evaluation report on subprogram. 	<ul style="list-style-type: none"> - Supply of applied and adaptive research services is adequate. - The government maintains (and, when necessary) the structure of sector organizations making up the country's system of agricultural technology development and transfer, and allocates the counterpart resources needed to execute the project. - The government maintains a policy of encouraging greater private-sector involvement in the country's agricultural technology development and transfer.

OBJECTIVES	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
<p><u>S</u></p> <p><u>research</u></p>	<p>By the year 2003:</p> <ul style="list-style-type: none"> - Eleven medium-term strategic research projects executed by INIA on meat production, grains and industrial crops, feed and wool, fruits and vegetables, dairy products, wood, access to phytogenetic resources, agro-biotechnologies, irrigation, family-run production operations, and institutional management. 	<ul style="list-style-type: none"> - INIA annual reports. - Semi-annual follow-up reports and final evaluation report on the component. 	<ul style="list-style-type: none"> - INIA receives counterpart funds in proper form and handles agreements and strategic alliances required for proper program management without problems.
<p><u>research</u></p>	<p>By the year 2003:</p> <ul style="list-style-type: none"> - Total of 30 applied and adaptive research projects submitted in response to competitive calls to submit proposals, ranked and selected on a competitive basis. - A minimum of 30% of funds earmarked for research go to applied and adaptive research projects. 	<ul style="list-style-type: none"> - INIA budget executions and annual reports. - Semi-annual follow-up reports and final evaluation report of the component. - INIA's contracts for services and authorizations of disbursements. - Final reports on execution of projects, as required by INIA. - Records and annual reports of executing agencies or agencies associated with the project. 	<ul style="list-style-type: none"> - Active participation by interested parties in response to calls for proposals. - Proposals meet requirements for contracts for services in accordance with required procedure. - Producers and other links in agroindustrial chains demand technologies to solve specific problems. - Agencies providing applied and adaptive research services are interested in participating in the proposed process. - Beneficiaries provide agreed-upon funds in timely and proper form.

OBJECTIVES	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
<u>agricultural technology</u>	<p>By the year 2003:</p> <ul style="list-style-type: none"> - The program has funded at least 250 projects and activities for validating and disseminating technologies and for training technical people. - 8 pilot demonstration farms for disseminating technology set up in the country's principal agro-ecological regions. - 120 technology-testing experiments set up (24 a year for the 5 years of execution). - 40,000 person-days of training activities for 400 professionals. - With execution of at least 25 technology-dissemination projects, 2,500 producers and technical experts have been given knowledge and motivated to apply new technologies that have been developed and validated. 	<ul style="list-style-type: none"> - Semi-annual follow-up reports and final evaluation report on the component by CCU. - Semi-annual follow-up reports and final evaluation report on the component by CCU. - CCU's contracts for services and authorizations of disbursements. - Final reports on project execution, as required by CCU. - Records and annual reports of executing agencies or agencies associated with the projects. - MGAP budget executions and annual reports. 	<ul style="list-style-type: none"> - Active participation by interested agencies in response to calls for proposals. - Proposals meet requirements. - Program receives the national counterpart funds in timely and proper form. - Producers and other links in agroindustrial chains demand adaptation and testing of technologies. - Beneficiaries provide agreed counterpart funds in timely and proper form.

SUBPROGRAM FOR ANIMAL HEALTH AND FOOD SAFETY

OBJECTIVES	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
<p>returns for agricultural and animal producers, and increased exports, facilitated by investment services for agricultural</p>	<p>By the year 2008:</p> <ul style="list-style-type: none"> - Agricultural producers' gross earnings up 4.7% compared to the situation without the project (from US\$1.831 billion to US\$1.917 billion a year). - Producers' net profits up 5.4% compared to the situation without the project (from US\$666 million to US\$702 million a year). 	<ul style="list-style-type: none"> - Annual statistics from the Uruguayan Central Bank (BCU) through the year 2008. - Information on cost structure, broken down by production systems and product categories, from the Office of Agricultural Programs and Policy (Oficina de Programación y Política Agropecuaria, or OPYPA) and from MGAP. - Semi-annual follow-up reports and a final evaluation report on the subprogram. 	<ul style="list-style-type: none"> - The economic situation for agricultural products in regional and international markets remains stable or improves. - The relative price structure for agricultural products and inputs remains unchanged, and the production structure as well.
<p>improved animal health situation on a national scale, and technological and health control system for food products adapted to international required practices.</p>	<p>By the year 2003:</p> <ul style="list-style-type: none"> - Bovine brucellosis and tuberculosis eradicated. - OEI declares Uruguay free of porcine brucellosis, classic swine fever, Newcastle disease, infectious equine anemia, and Aujeszky's disease. - Access to most important markets remains open, especially for frozen meats, preventing loss of income to the livestock subsector. - Annual cost of controlling animal-borne diseases reduced by approximately US\$1 million. 	<ul style="list-style-type: none"> - Semi-annual follow-up reports and a final evaluation of the subprogram. - Reporting protocols on the country's health situation with respect to bovine brucellosis and tuberculosis supplied in timely fashion by MGAP's DGSG to international organizations. - OIE formally declares Uruguay free of diseases. - Annual statistics on meat and meat products exports from the National Meat Institute [Instituto Nacional de Carnes] (INAC). 	<ul style="list-style-type: none"> - Agricultural producers are aware of the health condition of the country and of the need to maintain animal health to ensure the sector's development. - The agroindustrial food and agricultural products export sector is aware of the need to meet more stringent international requirements if it is to remain competitive. - The primary and processing sectors of the agroindustry support changes in health and food safety systems, and understand that the public and private sectors must work together if the system is to be effective.

OBJECTIVES	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
<p>S</p> <p><u>controls and health checkpoints</u></p>	<p>By the year 2003:</p> <ul style="list-style-type: none"> - Number of live animals inspected/number of live animals brought into the country. (1997: 50,000 = 100%; annual increase: 10%; 2003: 75,000). - Number of inspected units of animal products and sub-products coming into the country/total number of units coming into the country. (1997: 11 million kg = 100%; annual increase: 10%; 2003: 16.5 million kg). - Number of visitors and vehicles coming into the country checked/total number of visitors and vehicles coming into the country. (1997: 1.3 million passengers through Montevideo and Colonia ports and Carrasco and Laguna del Sauce airports, plus 300,000 vehicles by road at remaining points of entry = 100%; annual increase: 10%; 2003: 1.9 million passengers and 450,000 vehicles). 	<ul style="list-style-type: none"> - Semi-annual follow-up reports and final subprogram evaluation report. - Weekly and monthly reports on border inspections, and reports from health checkpoints and quarantine stations. - Annual reports from DGSG. 	<ul style="list-style-type: none"> - DGSG conscientiously carry out controls on all vehicles that may introduce exotic diseases. - Private importers and carriers are aware of the importance of preventing the introduction of exotic diseases into the country.
<p><u>support services</u></p>	<p>By the year 2003:</p> <ul style="list-style-type: none"> - Number of samples and materials processed to be checked for suspected diseases/Number of samples and materials processed to be checked for suspected disease that are actually sent out for analysis. (1997: 20,203 samples and materials = 100%; annual increase: 20%; 2003: 40,000). - Number of samples and materials processed for surveillance and epidemiological studies/Number of samples and materials referred for surveillance and epidemiological studies. (1997: 11,257 samples and materials = 100%; annual increase: 40%; 2003: 33,000). - Number of materials processed to support food safety/Number of materials referred to support food safety (the volume of material will increase from 10,036 in 1997 to 30,000 in 2001). 	<ul style="list-style-type: none"> - Semi-annual follow-up reports, and final subprogram evaluation report. - Entry forms and results of lab analysis. - DGSG annual reports. 	<ul style="list-style-type: none"> - Materials are sent in proper condition for processing.

OBJECTIVES	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
<p>Health controls on animal foods products</p>	<p>By the year 2001:</p> <ul style="list-style-type: none"> - Establishments equipped to slaughter animals and process meat and meat products under the HACCP system for export to demanding markets and third countries/All establishments able to slaughter animals and process meat and meat products for export to demanding markets and all third countries. (1998: 5 of the 53 establishments inspected. Goal is to inspect 100%). - Establishments equipped to export dairy products produced and processed under the HACCP system to the EU and Mexico/All establishments able to export dairy products to the EU and Mexico. (1998: none of the 16 equipped plants is being inspected; goal is to inspect 100%). <p>By the year 2003:</p> <ul style="list-style-type: none"> - Establishments equipped to slaughter animals and process meat and meat products under the HACCP system for the domestic market/Total establishments equipped to slaughter and process meat and meat products for the domestic market. (1998: none of the 146 equipped establishments has been inspected. Goal is to inspect 100%). - Establishments equipped to export and supply the domestic market with dairy products produced and processed under the HACCP system/All establishments equipped to export and supply the domestic market with dairy products. (1998: none of the equipped plants has been inspected. Goal is to inspect 100%). 	<ul style="list-style-type: none"> - Semi-annual follow-up reports and final subprogram evaluation report. - Summary of the HACCP inspections of slaughterhouses and processing plants. Prepared by DGSG. - Monthly summary of DGSG inspection forms of slaughterhouses and dairy processing plants. - DGSG annual reports. 	<ul style="list-style-type: none"> - The meat and dairy export industry recognizes the importance of new systems of hygiene/health for animal foods and products and adopts them. - The domestic-market industry recognizes the importance improving its practices in hygiene/health and technology and also adopts new systems of control.

OBJECTIVES	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
<u>logical surveillance of primary</u> <u>and response to exotic</u>	<p>By the year 2003:</p> <ul style="list-style-type: none"> - Number of farms with up-to-date health conditions and evaluation of epidemiological risk/Total number of farms. (1997: 10,000 official visits to the 50,600 farms for a field presence of 20%; annual increase of 20%; year 2003: 20,000 farms visited, for a field presence of 40%). - Number of roundups, marketing, slaughter, and processing of livestock and livestock products with up-to-date sanitary conditions and evaluation of epidemiological risk/Total number of roundups, slaughter, and processing of livestock and livestock products. (1997: 274 local fairs, 12 roundups, 86 on-site slaughtering operations, plus 30 animal shows with official veterinary inspection = 100%. Goal is to inspect 100%). - Number of suspected cases of exotic diseases responded to within 12 hours of report, with differential diagnosis done in accordance with international standards/Total number of suspected cases of exotic diseases responded to within 12 hours of report, with differential diagnosis done in accordance with international standards. (1997: 13 suspected cases of exotic diseases on the OEI list = 100%. Goal is to continue responding to 100%). 	<ul style="list-style-type: none"> - Semi-annual follow-up reports and final subprogram evaluation report. - Veterinary complaint and inspection forms from the DGSG. - Epidemiological reports and DGSG forms reporting suspected cases. - Results of lab analysis of materials relating to suspected cases of exotic diseases. <p>Annual reports of the DGSG and its divisions, considering: epidemiological reports; results of lab analysis; surveillance reports and reports on slaughter of cattle with brucellosis and tuberculosis; reports on results of pork samples taken at slaughter operations; and reports on slaughter of diseased hogs, any contact, and sanitized farms.</p>	<ul style="list-style-type: none"> - Veterinary doctors report epid risks in timely and proper form - Veterinary doctors report prim possible epizootic epidemics properly. - The private sector participates and works with the public sec
<u>development</u>	<p>By the year 2003:</p> <ul style="list-style-type: none"> - DGSG's management system adequate to new market demands, with up-to-date computer, communications, and field equipment, trained personnel, and with the importance of its activities publicized. 	<ul style="list-style-type: none"> - Semi-annual follow-up reports and final subprogram evaluation report. - Annual reports from DGSG. 	

GENERAL TABLE OF PROCUREMENT AND TENDERING

Services Program (UR-0116)
FOR TECHNOLOGY DEVELOPMENT AND TRANSFER

MODIFIED PROCUREMENT	VALUE OF PROCUREMENT	FUNDING SOURCE		PROCUREMENT TYPE	PROCUREMENT PROCEDURE	QUARTER COMPETITIVE
		IDB	LOCAL			
WORKS	606,700	-	606,700			
Construction	606,700	-	606,700	Construction	ICB/LCB	III 1999, II 2000, II 2001
EQUIPMENT	3,033,607	3,018,197	15,410			
Equipment		-	-			
	1,233,280	1,233,280	-	Goods	ICB/LCB	II 1999, II 2000
	42,000	42,000	-	Goods	LCB	II 2001, II 2002, II 2003
Equipment						
	286,200	286,200	-	Goods	ICB/LCB	II 1999
	127,600	127,600	-	Goods	LCB	II 2000 to 2003
Computations equipment						
	111,110	111,110	-	Goods	LCB	III 1999
	15,200	15,200	-	Goods	LCB	III 2000, III 2001
Instrument and experimental equipment						
	1,160,777	1,160,777	-	Goods	ICB/LCB	III 1999, III 2000
	42,030	42,030	-	Goods	LCB	III 2001, III 2002, III 2003
Equipment						
	15,410	-	15,410	Goods	LCB	III 1999 to 2003
CONTRACTS AND ALLIANCES	1,648,400	1,648,400	-			
Contracts and alliances	1,648,400	1,648,400	-	Services	ICB/LCB	I 1999 to IV 2003
TRAINING	2,780,500	2,780,500	-			
Training (26)	1,710,900	1,710,900	-	Services	ICB/LCB	I 1999 to IV 2003
Training (137)	1,069,600	1,069,600	-	Services	ICB/LCB	I 1999 to IV 2003

SOME OF THE MOST COMMON TYPES OF PROCUREMENT	VALUE OF PROCUREMENT	FUNDING SOURCE		PROCUREMENT TYPE	PROCUREMENT PROCEDURE	QUARTERLY COMPETITIVE BIDDING
		IDB	LOCAL			
ING	1,555,700	1,555,700				
	377,500	377,500		Services	ICB/LCB	I 1999 to IV 2003
al (81)	1,178,200	1,178,200		Services	ICB/LCB	I 1999 to IV 2003
	9,624,907	9,002,797	622,110			

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GENERAL TABLE OF PROCUREMENT AND TENDERING

Services Program (UR-0116)
FOR ANIMAL HEALTH AND FOOD SAFETY

D PROCUREMENT	VALUE OF PROCUREMENT	FUNDING SOURCE		PROCUREMENT TYPE	PROCUREMENT PROCEDURE	QUARTER COMPETITIVE B
		IDB	LOCAL			
ARKS						
construction						
NT	4,214,490	3,514,090	700,400			
equipment	2,600	2,600		Goods	LCB	I 1999
	1,420,800	1,420,800		Goods	ICB/LCB	I 2000
equipment	642,680	642,680		Goods	ICB/LCB	I 2000
	675,510	675,510		Goods	ICB/LCB	II 2000
ations equipment	10,400		10,400	Goods	LCB	I 1999
oment and experimental	690,000		690,000	Goods	ICB/LCB	I 1999
	140,000	140,000		Goods	LCB	I 1999
	400,000	400,000		Goods	ICB/LCB	I 1999
	65,000	65,000		Goods	LCB	I 1999
	167,500	167,500		Goods	LCB	
ipment						
Y AND DISSEMINATION	1,600,000	750,000	850,000			
2000-2003)	850,000		850,000	Services	LCB	I 2000, I 2001, I 2002, I
tion (2000-2003)	750,000	750,000		Services	LCB	I 2000, I 2001, I 2002, I

D PROCUREMENT	VALUE OF PROCUREMENT	FUNDING SOURCE		PROCUREMENT TYPE	PROCUREMENT PROCEDURE	QUARTER COMPETITIVE B
		IDB	LOCAL			
	1,949,870	1,823,870	126,000			
training						
training						
	1,023,870	1,023,870		Services	ICB/LCB	III 2000, II 2001, II 2002
	540,000	540,000		Services	ICB/LCB	III 2000, II 2001, II 2002
	260,000	260,000		Services	ICB/LCB	I 2000, I 2001, I 2002, I
	126,000		126,000	Services	LCB	III 2000, II 2001, II 2002
ING	1,524,800	1,524,800				
firms						
	920,000	920,000		Services	ICB	I 1999
	250,000	250,000		Services	ICB/LCB	III 1999
	180,000	180,000		Services	ICB/LCB	I 2000
	174,800	174,800		Services	ICB/LCB	I 2000
	9,289,160	7,612,760	1,676,400			

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PROPOSED RESOLUTION

**URUGUAY. LOAN ____/OC-UR TO THE REPUBLICA ORIENTAL DEL URUGUAY
(Agricultural Services 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 República Oriental del Uruguay, as Borrower, for the purpose of granting it a financing to cooperate in the execution of an Agricultural Services Program. Such financing will be for the amount of up to thirty two million four thousand dollars of the United States of America (US\$32,400,000) from the Single Currency Facility of the Ordinary Capital resources of the Bank, and will be subject to the "Special Contractual Conditions" and the "Terms and Financial Conditions" of the Executive Summary of the Loan Proposal.