

MODERNIZATION OF AGRICULTURAL TECHNOLOGY SERVICES

(HO-0119)

EXECUTIVE SUMMARY

BORROWER AND GUARANTOR: Republic of Honduras

EXECUTING AGENCY: Dirección de Ciencia y Tecnología Agropecuaria
[Agricultural Science and Technology Directorate]
(DICTA)

AMOUNT AND SOURCE: IDB: US\$15 million (FSO)
Local counterpart funding: US\$ 2 million
Total: US\$17 million

FINANCIAL TERMS AND CONDITIONS: Amortization period: 40 years including a 10-year grace period
Disbursement period: 5 years
Interest rate: 1% during the grace period and 2% for 30 years
Inspection and supervision: 1%
Credit fee: 0.5%

OBJECTIVES: The project's objective is to develop the competitive potential of Honduran agricultural production by boosting the sector's productivity and improving the quality of its products. To attain this objective, the project proposes to build up the agricultural technology services market in response to demand by producers, and to promote the services offered by private entities.

The specific goals are to: (i) support the new institutional framework for the generation and transfer of technology; (ii) improve the efficiency, profitability, and competitiveness of farm production; (iii) promote diversification into nontraditional export crops; and (iv) increase the productivity of the staple grains subsector.

At the end of the project, a significant increase should be achieved in value added per hectare in "other crops", which include nontraditional farm exports, from 8% at present to over 10%. Increases in the current yield of staple grains on the order of over 50% are also expected. The specific goals appear in the logical framework (Annex II-1).

DESCRIPTION:

The project consists of two components:

Consolidation of the national system for agricultural research and technology transfer (SNITTA). This component supports the consolidation of the new institutional structure for agricultural technology generation and transfer (ATGT) and strengthens its management capacity. It will help to consolidate the functions of the Agricultural Science and Technology Directorate (DICTA) to enable it to support ATGT activities, under a structure in which such functions would consist of promotion, regulation, and supervision of the services market, while the operating and administrative functions and those involving technical project supervision will be performed by the private sector. This component is comprised of three subcomponents: (a) strengthening of DICTA; (b) information, dissemination, and promotion program; and (c) training for researchers and extension workers.

Competitive fund for financing agricultural technology generation and transfer projects (FUND) (US\$14.2 million). The FUND will be SNITTA's main financing mechanism, bringing together ATGT institutions and acting as a catalyst for public and private funding. It will be the instrument for establishing a system that responds to producers' demands through services delivered competitively by private agents. The resources of the FUND may be used to finance proposals in any of three subcomponents: (i) technology generation; (ii) technology transfers; and (iii) training for researchers and extension workers.

A board of directors, which will include members from the public and private sectors and be assisted by a support unit, will be responsible for the FUND's operation. A project administrative unit (PAU) will be responsible for the operational aspects of the FUND, and will be a specialized agency or nongovernmental enterprise contracted by DICTA through competitive bidding. The PAU will establish an account to administer the financial resources for this component, after receiving authorization from the board of directors of the FUND and the Bank. In the short to medium term, the FUND, with its board of directors and the PAU, may evolve institutionally into a nonprofit foundation with its own corporate identity, and with joint public and private participation.

**ENVIRONMENTAL
CLASSIFICATION:**

The Environment Committee, at its meeting of March 20, 1996, classified this as a Category III

operation. The environmental summary was approved on August 6, 1996.

BENEFITS:

The project proposes to transform the agricultural technology generation and transfer system, based on active participation by the private sector in defining and delivering related services. This process of change will make for the efficient reallocation of resources into products with greater comparative advantages, thereby supporting the positioning of Honduran farmers on international markets, which will raise their incomes. Consumers will also benefit from efficient production, particularly in staple grains and livestock, through lower prices. The environment will also benefit through better management of natural resources.

RISKS:

The main risk of the project lies in the weakness of the technology services market owing to the government tradition of offering services to farmers free of charge. To motivate farmers to participate in the new system, DICTA will conduct project promotion campaigns and farmers will participate in periodic reviews of the operations of the FUND. It has been established that potential service demand and supply are sufficient to launch the project.

Another risk is the possible impact of the recent temporary measures adopted by the government in the agricultural sector. These measures are characterized by modest government intervention in the marketing of corn and beans, and the creation of funds to support the financing by commercial banks of staple grain production and marketing. Until now, this government intervention has been on a very small scale. These activities are considered temporary and do not significantly affect the technology adoption process, the impact of which is medium- and long-term.

**THE BANK'S
COUNTRY AND
SECTOR STRATEGY:**

The operation will be carried out under the frame of the Agricultural Modernization and Development Act and the structural reforms carried out by the government since 1990. Dialogue with Honduran authorities has permitted continuous monitoring of the process of implementing the reforms. The Bank has supported consolidation of this process through two sector adjustment operations and the new State reform program.

The proposed project is consistent with the government's current strategy and policy for the agricultural sector, which place priority on increasing

production and productivity and diversifying and developing nontraditional agricultural exports. The project is also consistent with the Bank's country strategy to promote human capital development and increase the productivity of investments.

**POVERTY-TARGETED
INVESTMENT:**

Honduras is one of seven member countries of the Bank with a poverty rate of over 50%. Estimates of the family income of small and medium-sized farmers who could potentially benefit from the project suggest that at least 89% of the target population of 76,300 families lives below the poverty line. Accordingly, under the guidelines of the Bank's Eighth Replenishment, the project is focused on the low-income population.

**PROCUREMENT
CEILINGS:**

International competitive bidding will be required for procurements of goods and services of US\$250,000 and over.

**SPECIAL
CONTRACTUAL
CONDITIONS:**

The borrower, through DICTA, is required to present the following to the Bank's satisfaction:

As a condition precedent to the first disbursement of the loan, evidence that: (a) the board of directors of the FUND has been established and begun to operate (paragraph 3.24); (b) DICTA has contracted the PAU, following procedures agreed to in advance with the Bank (paragraph 3.23); (c) the FUND's board of directors has adopted and implemented the operating regulations (paragraph 3.27); and (d) an account has been opened in a commercial bank for project fund management (paragraph 3.26).

As a condition precedent to the first disbursement: (a) for the FUND component, DICTA has submitted, to the Bank's satisfaction, guidelines for project preparation, including environmental feasibility and the related monitoring system (paragraph 3.25); and (b) for the training and professional development subcomponent, evidence that: the regulations for the DICTA training program have been prepared and presented (paragraph 3.22).

Within six months after the operation has been declared eligible for disbursements, the following is to be presented to the Bank's satisfaction: the report by the consultant hired to update the national agricultural technology generation and transfer plan (paragraph 3.8).

During the project and prior to August 31 of each year, DICTA will be required to present to the Bank

the annual operating plan for the following year. Based on those plans, in the second and fourth years DICTA and the Bank will jointly evaluate the adjustments to be made in project execution (paragraph 3.20).

The loan contract will also include the Bank's standard clauses relating to auditing, progress reports, inspection, and procurement.

I. FRAME OF REFERENCE

A. The Honduran economy

- 1.1 Honduras has a predominantly agricultural economy. Farming accounted for 24% of GDP in 1995, with manufacturing, construction and mining accounting for 26%, and services (including the government) contributing the remaining 50%. Forty-five percent of the economically active population work in agriculture and 70% of the value of export goods comes from agriculture, particularly coffee and bananas. One of the most serious problems faced by the country's economy is widespread poverty, particularly in rural areas. Income is unequally distributed and per capita income in 1995 was just US\$596, which makes Honduras one of the poorest countries in Latin America.
- 1.2 In 1990 the Honduran government launched a macroeconomic adjustment program to speed up economic growth and make the economy more efficient. The aim of the program is to modernize the State by making structural reforms in the most important sectors and increasing private participation in activities previously led by the public sector. The program also seeks to reduce the fiscal imbalance, increase productivity, and diversify exports.
- 1.3 The stabilization and structural adjustment program made significant headway in economic growth and in reducing the fiscal deficit and inflation. This progress was made through deregulation of the exchange rate, tariff reform, tax reform, decontrol of the financial system, and lifting of the main controls and subsidies on farm prices.
- 1.4 In 1993 an increase in public spending in the period leading up to the elections reversed the gains made in rectifying the fiscal deficit during previous years. In 1994, compensatory fiscal measures were adopted that contributed to shrinkage of 1.4% in GDP. The structural reforms implemented and the recovery of confidence in the new government's program were mirrored in GDP growth of 3.5% in 1995.

B. The agricultural sector

- 1.5 The Honduran agricultural sector is dual in nature, with a modern subsector geared to exports which uses the best land and advanced technology, and a traditional subsector that produces food for domestic consumption grown on hillsides, using rudimentary technology, and obtaining low yields, with no real trend towards increasing productivity. Just six crops (bananas, coffee, plantains, corn, beans and sugarcane) account for 88% of agricultural GDP and occupy 27% of total cropland. The remainder ranges from minor crops for local consumption and small exports

(fresh fruit and vegetables) to some new crops that are very dynamic but whose volumes are still modest.

- 1.6 The sector is facing problems that adversely affect performance and the diversification of production. Exports of bananas, the country's main crop, have been dropping steadily over the last eight years; coffee has maintained modest growth; sugarcane has just recently climbed back to 1982 levels; and staple grain production has not kept pace with population growth, which means that the country has become a net importer of corn. Poor performance in the sector is the result of problems in competitiveness caused, *inter alia*, by low productivity. Crop yield in general is increasing very slowly. Livestock farming is of the extensive type and although it uses over 50% of the land resource it contributes less than 20% of GDP.
- 1.7 Owing to inappropriate land use, land with forestry potential or that could be used for perennial crops is becoming impoverished. The problem is exacerbated by rapid deforestation and by the production of staple grains on hillsides that should be used for forests. It is estimated that half of all grain farmers do not apply conservation practices, despite the fragility of hillside soil they cultivate.
- 1.8 Historically the government has intervened in the markets for products, inputs, and services, so that the private sector has had little incentive to develop them. The agricultural services traditionally provided by the public sector (technology generation and transfer, credit, animal and plant health, irrigation, marketing, and supplies of seeds and other inputs) have been marked by their poor quality and high subsidies.

C. Agricultural policies

- 1.9 As part of the stabilization and structural adjustment program, in 1992 an Agricultural Modernization and Development Act was passed to change the scope of public intervention in the sector. An agricultural development plan (PROAGRO) was prepared to regulate the act and present the guidelines for public sector action over the period 1995-1998. PROAGRO was prepared with active private sector participation.
- 1.10 Since the sector is not living up to its potential and the best strategy for efficient operation is to foster competition, PROAGRO takes the approach that the government should regulate economic activities, ensure the equitable distribution of the benefits of development, and safeguard the sustainability of production systems. The private sector is called upon to execute the agricultural development policy.
- 1.11 The new agrarian policy has achieved significant results by reducing public intervention in the marketing of cereals, which is

now limited to administering the price range and managing a strategic reserve of staple grains. Mechanisms used to control trade in farm products and price distortions have been removed by opening up the domestic market to external competition. The main government agencies, including the Ministry of Natural Resources (SRN) have also been restructured.

- 1.12 Other significant areas that have been reformed under the new agrarian policy include land tenure, which is the responsibility of the Instituto Nacional Agrario [National Agrarian Authority] (INA), where the government has reduced its direct influence by loosening restrictions on the use of land subject to the agrarian reform, exempting the coffee plantations, and streamlining the coinvestment scheme whereby new owners can put up their farms as capital for agricultural marketing companies. In the forestry sector, the operating activities of the Corporación Hondureña de Desarrollo Forestal [Honduran Forest Development Corporation] (COHDEFOR) have been privatized and an auction system has been established for allocating logging concessions on government-owned forests. In the official rural financial system, the government has agreed with the Banco Nacional de Desarrollo Agrícola [National Agricultural Development Bank] (BANADESA) to set a cap on the amount of each loan in order to redirect funding and focus on small and medium-sized producers.
- 1.13 During the second half of 1996, the government took a series of steps to address the temporary shortfalls in staple grains. These steps include the establishment of two trust funds, one to provide partial guarantees of loans obtained for the production and marketing of those products, through commercial banks, and the other to grant a subsidy on the interest rate of as much as 8 percentage points below the market rate. In addition, the government imported beans and marketed these imports through government agencies. The government also announced that it would be acquiring beans to establish a strategic reserve and would allocate resources to establish a financial strategic reserve for corn.
- 1.14 The government is aware that agricultural policies geared to liberalization of the market are a necessary step in modernizing the sector. To enable agriculture to respond to the challenge of competition it will be essential to steer the production structure into more valuable crops and raise the productivity of traditional crops through new technologies. The above-mentioned episodes of government intervention have been on a very modest scale and have had a stabilizing impact on the grain market. The importation of beans by the government represents just 1% of national production and the trust funds have barely been touched. The short-term measures adopted would be temporary and aimed at offsetting the disproportionate impact on production of external sector liberalization measures and the complete elimination of controls on Honduran agricultural markets. In the medium term, the productive

sector will adjust to the new market conditions, thereby eliminating the need for special measures.

- 1.15 Compensatory government intervention activities have been characteristic in countries that have adopted economic openness policies, which in the short term generate serious problems for domestic agricultural production. The temporary measures adopted in Honduras are therefore not going to have a significant impact on the adoption of technology, whose results are felt over the medium and long terms.

D. Agricultural technology generation and transfer services

- 1.16 Since 1975 the SRN has been responsible for agricultural technology generation and transfer (ATGT), directly employing 3,800 people in its most active year, including over 1,000 staff members involved in ATGT activities. ATGT activities have been subject to large budget fluctuations and specific projects with limited durations financed by external funds have proliferated, which now face serious difficulties with sustainability owing to restrictions in budget allocations.
- 1.17 The public ATGT system has not responded to the needs of producers. Its services are inadequate, costly, and depend on public budgets and external donors, which has not provided an incentive for private providers to participate. The market for ATGT services has not operated efficiently and there is no national plan for allocating resources or coordinating the activities of the public sector. Continuing with this public system is contradictory to the policy set forth in PROAGRO, which provides for reducing direct government intervention.
- 1.18 The private ATGT system has mainly focused on bananas and plantains, and to a lesser extent coffee and other export crops. In general the service is linked to crop production and marketing. According to the 1993 agricultural census, just 7% of all farms received technical assistance, and of these, just 1% paid for the services. Only 5% of farms under five hectares used technical assistance and less than 1% paid for it. Of farms with over 1,000 hectares, 36% used technical assistance, mainly veterinary services.
- 1.19 The ATGT system was radically reformed in 1994, first with the creation of the Agricultural Research and Technology Directorate (DICTA) as a decentralized agency of the SRN, with the mandate of privatizing technology generation and transfer services and regulating the market for them. Second, a national system for agricultural research and technology transfer (SNITTA) has been established as the institutional framework for organizing and promoting the privatization of ATGT activities. SNITTA has been designed to coordinate public and private actions for the provision of agricultural and forestry technology generation and transfer

services, which will allow the private sector and farmers to play a larger role, under a market-driven approach. Third, the SRN's national agricultural and livestock offices that operated ATGT services have been eliminated.

- 1.20 SNITTA, as a coordinating mechanism, consists of the National Agricultural Science and Technology Council (CONACTA), a body with public and private membership which has been established to advise the government and for which regulations have been devised; DICTA, which is in the consolidation process; the competitive fund for financing agricultural technology generation and transfer projects (FUND) to be established as the financial arm of SNITTA; and agencies providing ATGT services, which have formally organized into a federation, with DICTA acting as the Executive Secretariat.
- 1.21 As a result of the change in the system, and to fill the gap left by the withdrawal of the public sector, an ATGT system has been developed in which over 80 private institutions, including 60 nongovernmental organizations, cooperatives, trade associations, academic institutions, and specific projects are participating as contractors or beneficiaries of programs, projects, and transfers. Most of these institutions receive financing from external sources under conditions defined by the donor agencies, and offer highly-subsidized or free services, chiefly targeted to subsistence farmers. Coordination among these projects has been poor owing to the absence of a national research system that efficiently allocates resources to ensure the continuity of medium- and long-term policies.
- 1.22 Some top notch agencies with experience and technical capacity are among the institutions that have joined SNITTA to offer agricultural services. They include the Fundación Hondureña de Investigación Agropecuaria [Honduran Agricultural Research Foundation] (FHIA), which was established in 1984 with a grant and is supported by the Honduran government and the United States Agency for International Development (USAID). Banana producers provided installations and equipment to set up this not-for-profit private agency which specializes in research under contract with the producers. The FHIA, which is headquartered in La Lima, has obtained significant results in the development of genetic materials for pest- and disease-resistant strains of bananas, plantains, cacao, and palmetto. Another outstanding institution is the Pan-American Agricultural School, located in El Zamorano, which was established in 1942 as a major regional training center. Other institutions include the Consejo Universitario Regional del Litoral Atlántico [Atlantic Coast Regional University Council] (CURLA), the Universidad Nacional Autónoma de Honduras [National Autonomous University of Honduras] (UNAH) and the Instituto Nacional del Café [National Coffee Authority] (IHCAFE).
- 1.23 ATGT activities are currently in a state of transition. With the formal withdrawal of the public sector, financing has been reduced

and the market for the services is not yet in full operation. A new institutional structure for the public sector has been established, but some of its basic functions require consolidation and strengthening. Although some research activities that are linked to specific projects with external funding have continued, no permanent financing mechanism is available.

E. Design of the project

- 1.24 Project design is based on the recognition that the agricultural sector has real potential to contribute to economic growth. This potential includes the availability of natural resources and labor and the capacity to diversify into nontraditional exports and improve the competitiveness of crops, particularly staple grains and livestock. The project is also intended to support the policy and institutional changes already under way in the structure of ATGT, as defined in the Agricultural Modernization and Development Act and by PROAGRO, aimed at modernizing ATGT services and replacing traditional public services with a competitive system in which the private sector participates. The cost will be transferred gradually and progressively to the beneficiaries. The new system promotes attention to the specific requirements of small and medium-sized producers with potential to raise their productivity, and the importance of improving land use and protecting natural resources.
- 1.25 The project originated in consultations with the Honduran government and producers through participative workshops to support sector reforms, held in cooperation with the World Bank. One of the priority issues identified during those discussions was the need to promote an efficient system for technology generation and transfer. Support for the reform of the national ATGT system was also included as one of the conditions precedent for the public sector reform program loan (967/SF-HO), whereby the government agreed with the IDB and the World Bank to privatize ATGT services. 1/
- 1.26 The project to be financed by the IDB will support ATGT activities for small and medium-sized entrepreneurial producers with commercial potential, with between 2.5 and 50 hectares of land, and who earn less than 20% of their income off the farm. These farmers have diversified production but frequently specialize in one commercial crop, they depend mainly on middlemen to sell their produce, and hire labor for planting and harvesting. According to the 1993 agricultural census, the target population is an estimated

1/ Under a parallel program, the World Bank will finance activities related to land management, natural resource management, and forestry technology. The beneficiaries of this program will be farmers who work land on hillsides with grades of over 30% and obtain 90% of their family income from staple grains.

48,500 families of small producers and 27,800 families of medium-sized producers, for a total of 76,300 farm families that work 24% of all farms and occupy 53% of the farmland in Honduras. These small and medium-sized commercial producers have good potential for grasping the opportunities offered by agricultural markets.

- 1.27 Large producers (with farms that are generally over 50 hectares) will not be served by the proposed project. They engage in livestock farming and grow modern export crops. These operations are managed by individual entrepreneurs or companies with proven capacity to contract technology services directly from private providers.

F. Experiences applicable to project design

1. Bank participation in the agricultural sector

- 1.28 The Bank has approved 21 agricultural projects in Honduras for a total of US\$244.8 million. Most involved credit, rural development, and sector adjustment programs. Under loans 310/SF-HO and 555/SF-HO, approved in 1971 and 1978 for US\$14.3 million, the Bank supported technology development activities. These two loans financed the installation of the research infrastructure operated by the SRN and now run by DICTA. The lessons that can be drawn from this experience are limited, since the projects were designed and executed in an inappropriate framework of research policies and priorities. The Multilateral Investment Fund recently approved an operation to support the Pan-American Agricultural School (ATN/MH-5128-HO) to train organized groups of microentrepreneurs and provide management support for young people in three rural zones.
- 1.29 Since the agricultural sector was not living up to its export potential owing to interventionist and restrictive policies, in 1990 the IDB, in cooperation with the World Bank, shifted its focus from specific loans to sector adjustment programs to permit the government to reshape policies and institutional structures that would be geared to a market-driven system. The main reforms introduced under structural adjustment operations 607/OC-HO and 847/SF-HO included: (a) the removal of price controls on retail foods and of the government monopoly on trade in grains; (b) privatization of the warehouses of the Instituto Hondureño de Mercadeo Agrícola [Honduran Agricultural Marketing Authority] (IHMA); and (c) removal of the surcharge on imports of processed food products. These operations were fully disbursed.
- 1.30 In 1992 the government signed a second sector operation with the IDB (737/OC-HO) and the World Bank (2540-HO) with a view to continuing the institutional and policy reforms. The main results of this sector operation in the institutional area include: (a) restructuring of the INA with a 50% cut in staff; (b) restructuring of COHDEFOR, with a 25% cut in staff; (c) streamlining of

the staff and regional agencies of BANADESA; and (c) significant progress in defining work programs, budget planning for public sector institutions, and the action of the SRN's planning unit. This was an ordinary capital loan and the Honduran government requested a change to FSO currency and an extension of the term of execution. Since the Bank was unable to agree to the request, the government asked to have the balance of the loan canceled. However, the conditionalities of the operation continue in effect with the World Bank.

- 1.31 The reforms introduced under these sector loans have improved the regulatory context, reduced government intervention in marketing cereals, eliminated price distortions, and modernized the main public agencies in the sector. With respect to the project proposed here, the sector loans have made it possible to eliminate the public agencies responsible for direct intervention in the generation and transfer of technology, because of their inefficiency and fiscal impact.

2. Actions of other international agencies

- 1.32 Various projects financed with grants and loans from bilateral and multilateral agencies are currently under way. Many of them are small projects in specific geographical areas or activities related to hillside farming to introduce soil protection and agroforestry systems. They include projects financed by USAID, the Canadian International Development Agency (CIDA), the German Technical Cooperation Agency (GTZ), and the Taipei, China, mission.
- 1.33 As mentioned in the preceding section, the World Bank has channeled funds into the sector, chiefly through structural adjustment lending (SAL) programs, in coordination with the IDB. Parallel to the proposed project, the World Bank is preparing an investment program for US\$30 million, containing three components: (i) land management; (ii) natural resource management; and (iii) agroforestry technology for hillside farmers. The two operations have been prepared in parallel so that their execution will be coordinated. The projects are complementary since security in land tenancy facilitates access to credit, which in turn permits producers to adopt new technologies to modernize their activities. Funds to finance ATGT services will be channeled using the same institutional structure (the FUND) established as part of the IDB's project. The World Bank will finance its project with funds from the International Development Association.

G. Consistency with Bank and country strategy

- 1.34 The operation will be carried out under the Agricultural Modernization and Development Act and the structural reforms made by the country since 1990. The Bank is supporting consolidation of this process through two sector adjustment operations and the new State reform program. Dialogue with the Honduran authorities has

permitted ongoing monitoring of the process of implementing the reforms.

- 1.35 The design of the proposed project is consistent with the country's agricultural strategy and policy, which attach priority to boosting production and productivity, crop diversification, and an increase in exports of nontraditional farm products. The project is also consistent with the Bank's country strategy since it promotes human capital development and an increase in the productivity of investments.

II. THE PROJECT, ITS COST, AND FINANCING

A. Objectives and goals

- 2.1 The project's objective is to develop the competitive potential of Honduran agricultural production by boosting the sector's productivity and improving the quality of its products. To attain this objective, the project proposes to build up the agricultural technology services market in response to demand by producers, and to promote the services offered by private entities.
- 2.2 The specific goals are to: (i) support a new institutional framework for technology generation and transfer; (ii) improve the efficiency, profitability, and competitiveness of farm production; (iii) promote diversification into nontraditional export crops; and (iv) increase the productivity of the staple grains subsector.
- 2.3 At the end of the project, a significant increase should be achieved in net income per hectare for "other crops", which include nontraditional farm exports, increasing their contribution to agricultural value added from 8% at present to more than 10%. The specific goals appear in the logical framework (Annex II-1).

B. Components and description

- 2.4 The project consists of two components: (1) consolidation of the national system for agricultural research and technology transfer (SNITTA); and (2) the competitive fund for financing agricultural technology generation and transfer projects (FUND).

1. Consolidation of SNITTA (US\$2 million)

- 2.5 This component supports consolidation of the new institutional structure for ATGT and strengthens its management capacity. It will help to consolidate the functions of the Agricultural Science and Technology Directorate (DICTA) to enable it to support ATGT activities, with such functions consisting of the promotion, regulation, and supervision of the services market, while the operating and administrative functions and those involving technical supervision of projects will be performed by the private sector. This component has three subcomponents: (a) strengthening of DICTA; (b) an information, dissemination, and promotion program; and (c) a training and professional development program.

a. Strengthening for DICTA (US\$743,000)

2.6 This subcomponent includes the following activities:

(i) Administrative systems (US\$177,900)

2.7 DICTA is consolidating its structure as a deconcentrated agency under the new institutional plan, and requires a review of its administrative procedures to streamline its operations and make its management more efficient. Consultants specializing in management systems will be hired to look at current administrative processes, design the necessary reforms, and prepare the documents related to implementing them.

(ii) Strengthening of regulatory activities (US\$36,000)

2.8 Reform of the ATGT system requires DICTA to boost its capacity to regulate the agricultural services market, which has been traditionally dominated by the public sector as direct provider. The funds allocated for this activity will be used to hire the consulting services of an attorney, advised by an agricultural specialist and an economist, to make adjustments to current rules and regulations to enable public agencies to regulate and coordinate ATGT activities in the country. The consultants will stress the new context of a service market in which providers and users will participate on a competitive basis. They will also define the ways in which the quality of ATGT services will be controlled. Their recommendations will be implemented during year one of the project.

(iii) Support for the National Agricultural Research Center (US\$177,000)

2.9 The center is located in Comayagua Valley and develops technologies for small farmers in the areas of soil improvement, plant and animal health protection, and post-harvest techniques, among others. Support under the program will boost the center's capacity to conduct research in the public domain. It will be provided with the necessary agricultural and computer equipment. Some of its installations may be used by service providers, particularly those who are working with small farmers and do not have installations of their own.

b. Information, dissemination and promotion (US\$557,000)

2.10 This subcomponent includes the following activities:

(i) Technological information system (US\$186,000)

2.11 The purpose of this activity is to design and start up a basic information system in DICTA to provide institutions in SNITTA with access to useful technical information. Priority will be given to

obtaining information to update the inventory of technologies so that it can be linked to international agricultural technology information systems. The project monitoring and evaluation subsystem and the register of companies and entities supplying ATGT services will form part of this system. A consultant will be hired under this activity to design the system, identify the equipment requirements, procurement, setup, and maintenance. In addition, staff will be trained in system management.

(ii) Dissemination and promotion program (US\$371,000)

- 2.12 This activity is designed to obtain maximum participation by farmers, the private sector, and SNITTA institutions in the processes of technology generation and transfer. It will inform users regarding the new institutional system and how to gain access to the FUND's resources. It includes the contracting of consulting services to prepare courses, seminars, and workshops on model technology transfer systems developed by DICTA and other agencies. The courses will cover aspects related to project-formulation methods and techniques and the preparation of applications for financing.

c. Training and professional development (US\$700,000)

- 2.13 The purpose of this subcomponent is to strengthen ATGT activities in a system that is in transition and requires training and development for professionals on different levels in priority areas. The training will be targeted to officials from SNITTA institutions and will focus chiefly on short-term specialization in specific areas. The program includes special courses for professionals in universities or specialized institutions and traineeships at national, regional, and international research institutes.

2. Competitive fund for financing ATGT projects (US\$14.2 million)

- 2.14 The new FUND will be SNITTA's key instrument and will act as a catalyst for public and private resources to develop a system that responds to the demands of producers through services provided by public or private individuals or legal entities that compete for funding. The resources of the FUND will be used in accordance with the criteria established in the operating regulations (Annex II-2). The component's budget includes the cost of the support unit (US\$362,000), the PAU (US\$1,455,000), and contingencies (US\$183,000).
- 2.15 The FUND seeks to integrate the scant local and foreign resources available for agricultural technology innovation in the country, paving the way for financial sustainability. The proposed FUND responds to the sector's medium- and long-term needs and not to short-term emergencies or political decisions. The creation of new units, incremental staff, and paperwork will be kept to a minimum

and participation by the private sector in activities that can be contracted out will be maximized. The FUND promotes effective participation by all representatives of the agricultural sector and effective coordination between the public sector, represented by DICTA, and the nonpublic agricultural sector, represented by CONACTA.

2.16 The FUND will have a core staff to administer project resources. Its board of directors, drawn from the public and private sectors, will be responsible for its functioning. Operations will be the responsibility of a project administrative unit (PAU) that will be contracted by DICTA as a private operator. In the short to medium terms, the FUND, with its board of directors and the PAU, could evolve institutionally into a nonprofit foundation with its own corporate identity, and with joint public and private participation.

2.17 This component is comprised of the following three subcomponents: (a) technology generation; (b) technology transfers; and (c) training for researchers and extension workers.

a. Technology generation (US\$3 million)

2.18 This subcomponent relates to the improvement of one or more of the production factors (land, capital, labor, management), or the effective combination of inputs to boost the competitiveness of production. Proposals will be financed for work on aspects such as development of improved varieties, design of better farming and pasture practices, use of new equipment, proper use of fertilizers, recommendations for technical improvements, and weed and pest control methods.

2.19 Projects in the following subsectors will be eligible for financing from the FUND: crop farming, livestock farming, aquaculture, poultry farming, and beekeeping, based on national priorities. The FUND will finance professional fees, the salaries of support staff, per diem allowances, transportation, materials for demonstration purposes (seeds, agricultural chemicals), equipment (cost of use), laboratory services, and other items for exclusive use by the project. The FUND will not finance investments at the farm level, the purchase or leasing of land, or the purchase of vehicles. The plots to be used for demonstration or experimental purposes will be provided by the beneficiaries.

2.20 The FUND will finance proposals for technology generation that are competitive based on the technical, economic, environmental, and institutional criteria established in the operating regulations. Stress will be placed on validation and adaptation activities that bring results on the farm level, preferably in the short to medium terms. Applicants will be public and private institutions specializing in technology generation, and individual researchers supported by a research institution.

- 2.21 To obtain significant financial participation by users, the FUND will finance project operating costs of up to 70% of the total cost of proposals and a maximum of US\$100,000. For scaling purposes, the average cost per proposal has been estimated at US\$40,000. The maximum duration of a project will be three years. Disbursements will depend on compliance with annual goals. The FUND's board of directors, in consultation with the Bank, may modify the cofinancing rules depending on the results of the annual review and shifts in demand.

b. Technology transfers (US\$7.98 million)

- 2.22 This subcomponent includes activities that will permit farmers, with support from service providers, to obtain the know-how and capacity to use available technologies and improve their production efficiency or to introduce new crops. It includes the transfer of business and marketing skills and practices.
- 2.23 This subcomponent will replace the traditional system of technology transfers centralized in the SRN and carried out by public employees with a technology transfer market financed jointly by the government and the beneficiaries, in which private companies compete to provide services. The costs will gradually be transferred to the beneficiaries, who will be required to pay a larger share of the financing. The service providers will be producers' organizations, NGOs, foundations, and private technical-assistance companies, selected on a competitive basis.
- 2.24 The project proposes to make transfers of technology to organized groups of producers. The groups will be organized by agroecological zones, where the board of directors, through the PAU, and with input from the beneficiaries, will contract the different service providers. A typical group would have an average of 20 producers, and a minimum of 15. The lessons learned from other projects financed by the Bank show that groups composed of between 15 and 20 producers facilitate group dynamics while reducing the cost of assistance. Under this approach, one professional can serve up to 80 farmers in four groups.
- 2.25 To encourage the development of a market for technology transfers, up to a maximum of 90% of the cost of each proposal will be financed in the first year for small farmers and up to 80% for medium-sized farmers. The financing will gradually be reduced to a maximum of 50% for small farmers and will be eliminated for medium-sized farmers in the fifth year of execution. The board of directors, in consultation with the Bank, may change these percentages depending on the annual results, compliance with the FUND's objectives, and resource availability. Each proposal may be for a maximum of US\$100,000.
- 2.26 The technical assistance will respond to demands of producers interested in modernizing their operations, who are organized and

located in regions with the best production potential and market access. The methodological approach proposes to make small and medium-sized producers more efficient through the use of available technologies. Proposals will be presented in accordance with the guidelines set by the FUND. Each proposal will contain quantifiable and verifiable goals, compliance with which will be a condition for annual renewal of the financing for up to five years, depending on the results obtained.

- 2.27 The subcomponent will operate through two types of group action: the comprehensive technical assistance system (SATI) to assist small farmers, and entrepreneurial technical assistance systems (SETs) to assist medium-sized producers.

(i) Comprehensive technical assistance system (SATI)

- 2.28 The SATI will be organized around production systems and will provide comprehensive technical assistance to groups of small farmers who are economically viable, through individual professionals or service companies. The project proposes that producers gradually contribute a larger share to cover the cost of technical assistance, with a minimum goal of 50% by the end of the fifth year after they enter the system. The maximum contribution by small farmers will be an estimated US\$94 a year.

- 2.29 After participating in the SATI, the producers will move on to the SET for their technical assistance needs or will contract services directly. On the basis of the budget available, it is expected that direct assistance will have been provided under the SATI for 16,800 small producers organized into 840 groups with 20 members each by the fifth year of the project. The SATI groups will be organized by predetermined agroecological zones where the PAU, with input from the beneficiaries, will select, contract, and supervise the individual professionals or companies offering services.

(ii) Entrepreneurial technical assistance systems (SETs)

- 2.30 The beneficiaries of this activity will be medium-sized farmers organized by production specialty, who will cofinance the cost of services on a gradually rising scale to the point where they will cover the total cost by the fifth year. The groups will be organized in the country's different departments around the most economically important crops.
- 2.31 To scale the project, it was assumed that the SETs will assist a total of 2,800 producers organized into 140 groups, served by about 35 specialists. The groups will form gradually during the five-year life of the project, as a result of dissemination and promotion activities. The maximum contribution per producer to finance the cost of these services will be US\$188 a year.

- 2.32 The SATI and SETs together will serve a total of 19,600 producers. Assuming an indirect dissemination rate for both programs of one per producer directly served, the total population benefitting from the technology transfer subcomponent directly or indirectly over the five years of the project will be 39,200 producers, or 51% of the target population, who work 54% of the country's farmland.

c. Training for researchers and extension workers
(US\$1.2 million)

- 2.33 This subcomponent promotes training for researchers and extension workers in the SNITTA to fill in gaps in current ATGT activities. Courses, seminars and events for researchers and extension workers will be financed to transfer or update know-how in specific areas. The training will respond to actual technology generation and transfer requirements. A training program will be offered to researchers on the latest techniques, and to extension workers on topics related to farm administration and management. Financing for these training projects may be requested by groups of farmers or by ATGT service providers.
- 2.34 In scaling this subcomponent, a cost of US\$60 a day for 20 days' training per specialist per year was used. Training will be provided for a total of up to 300 researchers and extension workers over the five years of the project.
- 2.35 The FUND will finance up to 70% of the cost of each training activity in the first year, with the remaining 30% to be covered by the training institutions, the researchers or extension workers, or their sponsors. Due to the need to create competition among service agencies, the FUND will reduce its financing to 60% in year two, 50% in year three, and 40% thereafter. The FUND's board of directors, in consultation with the Bank, may change these parameters depending on the demand for resources.

C. Cost

- 2.36 The total cost of the project in June 1996 prices is an estimated US\$17 million. Table 2.1 shows the investment categories for each of the components and indicates the sources of financing.

Table 2.1 Project costs (US\$ thousands)				
Investment category	Bank	Borrower <u>a/</u>	Total	Percentage
I. Administration	1,551	0	1,551	9
1.1 Consulting support	96	0	96	
1.2 FUND administration	1,455	0	1,455	
II. Direct costs	12,607	1,221	13,828	81
2.1 Strengthening for DICTA	1,265	0	1,265	
2.2 Technology generation	2,700	300	3,000	
2.3 Technology transfer	7,182	798	7,980	
2.4 Training for specialists	1,080	120	1,200	
2.5 Equipment	380	3	383	
III. Associated costs	0	362	362	2
3.1 FUND support unit	0	362	362	
IV. Unallocated	220	267	487	3
4.1 Contingencies	220	220	440	
4.2 Escalation	0	47	47	
V. Financial costs	622	150	772	5
5.1 Interest	345	150	495	
5.2 Credit fee	127	0	127	
5.3 I&S	150	0	150	
TOTAL	15,000	2,000	17,000	100
<u>a/</u> An additional contribution of US\$6.25 million is estimated from the beneficiaries of the technology generation, transfer, and training subcomponents.				

D. Financing

- 2.37 The project will be financed with a US\$2 million contribution from the Government of Honduras and a Bank loan for US\$15 million. The loan will have the following terms and conditions:

Source:	FSO
Amortization period:	40 years
Disbursement period:	5 years
Grace period:	10 years
Interest rate:	1% during the grace period and 2% for 30 years
Inspection and supervision:	1%
Credit fee:	0.5% on the undisbursed balance

III. THE BORROWER, THE EXECUTING AGENCY, AND PROJECT EXECUTION

A. The borrower and the executing agency

- 3.1 The borrower will be the Republic of Honduras, and the executing agency will be the Dirección de Ciencia y Tecnología Agropecuaria [Agricultural Science and Technology Directorate] (DICTA) which reports to the Ministry of Natural Resources (SRN). The component to consolidate the national system for agricultural research and technology transfer (SNITTA) will be executed by DICTA. The competitive fund for financing agricultural technology generation and transfer projects (FUND) component will be executed by a project administration unit (PAU) contracted by DICTA, under the supervision of the FUND's board of directors whose members will be drawn from the public and private sectors.

B. Ministry of Natural Resources

- 3.2 The SRN is responsible for agricultural policy, research, extension, animal and plant health, and integrated rural development. It coordinates with specialized autonomous agencies such as COHDEFOR (forestry), IHMA (marketing and prices), BANADESA (credit), IHCAFE (coffee), and INA (land reform).
- 3.3 The Deputy Ministers of Agriculture and Livestock and Natural Resources, and the Regional Coordinators report to the Minister of Natural Resources. The Directorates General of Animal and Plant Health and Rural Development and DICTA report to the Deputy Minister of Agriculture and Livestock. The Directorates General of Fisheries, Water Resources, and Fossil Fuels report to the Deputy Minister of Natural Resources. The SRN has a planning, evaluation, and management unit with technical responsibility for planning and supporting the design of sector policies. The Regional Coordination Offices are responsible for coordinating the execution of the SRN's policies, strategies, programs, and projects in the country's seven planning regions.
- 3.4 The SRN has undergone considerable restructuring under the stabilization and structural adjustment program. Still in the process of consolidation, the restructuring redirected the ministry's functions into policy formulation, program coordination, and sector regulation, while reducing its operational activities. Another of the key reforms in the SRN has been to privatize research and technology transfer activities through establishment of DICTA and SNITTA, with the latter acting as a mechanism for coordination with the private sector. As a result of these reforms, the SRN does not carry out technology generation and transfer activities directly, and will therefore have no direct role in project execution. However, it will have a presence since the minister will sit on DICTA's board of directors.

- 3.5 The SRN's budget for 1996 is 450.6 million lempiras, equivalent to US\$40 million dollars or 4.6% of the national budget. The construction of irrigation works will take up 236 million lempiras and the ministry will spend 10% of its total budget on personnel. The budget for project counterpart resources will be prepared by DICTA and presented together with the SRN's budget to the Ministry of Finance.

C. Agricultural Science and Technology Directorate (DICTA)

1. Institutional aspects

- 3.6 DICTA was established under the Agriculture Modernization and Development Act in 1992 as a technically, financially, and administratively deconcentrated unit of the SRN. It operates relatively independently of the ministry, with the rank of a directorate, according to its regulations, although it still remains a part of the ministry's organizational structure. It has taken over responsibilities for technology generation from the SRN, which has transferred personnel, equipment and installations to it. At present there is no public technology transfer service. DICTA's main functions are to rationalize the supply of ATGT services in cooperation with specialized institutions and to promote private technical-assistance services.
- 3.7 DICTA is in the process of consolidation. The project administrative unit (PAU) will be responsible for executing the FUND component. DICTA, through the manager of the FUND, will supervise the activities of the PAU. To do so, a small support unit will be established in DICTA, which will coordinate with the PAU and offer it technical support.
- 3.8 DICTA is hiring the services of a consulting firm to review the national ATGT plan. The plan will update the criteria for allocating public resources, including DICTA's personnel costs, and adjust annual project execution. DICTA will present the national ATGT plan to the Bank's satisfaction within the first six months after the operation is declared eligible for disbursement.

2. Structure

- 3.9 DICTA is headed by an executive director to whom the Technology Generation Section and Technology Transfer Section report. These two sections will coordinate the project. It also has four support units: administration and finance, human resources, data processing, and planning and budgeting. The Office of the Executive Director acts as the Secretariat of CONACTA and the Executive Secretariat of SNITTA, which points to its importance as coordinator of ATGT activities in the country.
- 3.10 The Agricultural Technology Development Section has three units: agricultural research, technical unit, and technical services. The

Agricultural Technology Transfer Section has five units: training, technical assistance and rural development, agricultural technical assistance, support programs, and special projects. The process of consolidating this section is being carried out as established in the law creating DICTA, which assigns it the function of supporting the organization of small companies to provide services that were previously delivered by the government. The component to consolidate SNITTA includes activities to strengthen this institutional structure, in order to promote private sector initiative and allow the market to operate without unnecessary government intervention.

3. Functions

- 3.11 The regulatory decree under the Agricultural Modernization and Development Act assigns DICTA the following functions: (1) to design, direct, execute, and coordinate national ATGT programs; (2) to supervise and monitor the execution of ATGT services delivered to producers by private technical-assistance companies; (3) to encourage and support the private sector in establishing companies to provide ATGT services; (4) to certify, through tests or examinations, agricultural professionals interested in offering private technical services to producers under the plan to privatize agricultural technical assistance; (5) to keep a current inventory of the ATGT services offered by authorized private companies and individuals and monitor such services; (6) to design and operate a financial mechanism to give small producers access to private technical-assistance services, under the plan to privatize technical agricultural assistance; (7) to enter into agreements and contracts with the private sector, universities, agriculture schools, and national and international agencies for the execution of ATGT programs and projects; (8) to conduct regional studies on the demand for private technical assistance in order to facilitate the delivery of services by, and contracting of, private technical-assistance companies and professionals; (9) to regulate the quality of ATGT services; and (10) to conduct studies and analyses of regions of the country with potential for agricultural development, in order to promote private sector action.
- 3.12 These functions are quite broad despite the fact that the restructuring of ATGT services is based on privatization and that private sector participation is stressed. This suggests that DICTA will have considerable flexibility in steering its mission, which must still focus on coordinating and regulating the operation of SNITTA. DICTA will have to strike a good balance between its operating, regulatory, and promotional functions.

4. Personnel

- 3.13 In May 1996, DICTA had 142 employees, 93 of whom are professionals, including nine with graduate degrees. It pays average annual salaries of 60,000 lempiras, which is somewhat higher than the

average salaries of 45,000 lempiras elsewhere in the SRN. Current salary levels are not an obstacle to hiring staff with acceptable credentials who are qualified to perform their functions. To achieve its full capacity, DICTA expects to increase its staff to 350 in light of its new role as coordinator, supervisor, and regulator. The new structure requires more professional and less administrative staff. The national ATGT plan mentioned earlier will conduct a review of the salary structure, since DICTA as a deconcentrated agency will have greater flexibility in hiring qualified employees.

5. Financial and budget aspects

- 3.14 DICTA's first budget for 1996 is 19 million lempiras (US\$1.6 million), with 50% going to personnel costs. The remainder is distributed among nonpersonal services (26%), materials and supplies (12%), machinery and equipment (6%), and transfers (6%). This budget accounts for 4.2% of the SRN's budget and 0.2% of sector GDP. Total public spending on ATGT activities is an estimated 150 million lempiras, or 1.5% of the national budget and 0.6% of agricultural GDP. These levels are relatively low, considering the size of the agricultural sector and its strategic importance as an earner of foreign exchange in Honduras.

D. National research and agricultural technology transfer system (SNITTA)

- 3.15 SNITTA has been designed as an institutional framework to organize and promote the privatization of ATGT activities and coordinate the actions of the public and private sectors. The success of the new institutional arrangement largely depends on the capacity of public and private institutions to respond to the technology requirements of the agricultural sector.
- 3.16 The institutions in SNITTA have proven capacity and experience in research, training, and application of technology. Some of them, such as the Honduran Agricultural Research Foundation (FHIA) and the Pan-American Agricultural School are internationally recognized. Taken together, they have a total of 71 experimental stations and fields, ranging in size from two hectares to 1,600 hectares. Of the 910 professionals employed, 51 have doctorates in agricultural sciences. These institutions have a total of 66 laboratories, 14 workshops, 9 libraries, 15 nurseries, 74 classrooms, and 6 germplasm banks, among other facilities. Table 3.1 presents the main institutions in SNITTA, with a description of their characteristics.

Table 3.1 Main institutions in SNITTA providing ATGT services				
Institution	Personnel		Experimental stations	Work areas***
	Total	Professional		
Atlantic Coast Regional University Council	468	273	7	G T C
Pan-American Agricultural School (Zamorano)	879	265	6	G C
National Agricultural School	92	37	6	G T C
National Forestry Sciences School	232	34	3	G C
FHIA	327	79	5	G
IHCAFE	131	56	5	G T
Land Use and Productivity Enhancement Program (LUPE)	128	112	37*	T
Standard Fruit Company	84	38	1**	G C
Tela Railroad Company	34	16	1	G
TOTAL	2,345	910	71	-
* Agencies; ** Uses the company's plantations; *** G = generation, T = transfer, C = training. Source: SNITTA				

3.17 Apart from these institutions, the National Autonomous University of Honduras and the private University of San Pedro Sula, and some associations, such as the National Federation of Crop and Livestock Farmers of Honduras, also carry out ATGT activities. In addition, there is potential for some of the many NGOs active in the sector to become providers of services to be financed with project proceeds.

E. Organization of project execution

1. Coordination and supervision

3.18 The SRN will appoint a coordinator, reporting to the executive director of DICTA, who will coordinate all aspects of project execution that require decisions or actions by DICTA with the Technology Generation and Technology Transfer Sections. The coordinator will act as liaison with the PAU, the FUND and the Bank.

2. Incremental staff

3.19 DICTA will require a coordinator and five professionals for the FUND support unit as incremental staff. One will be a professional with experience in environmental issues. The others will be

employees of the private company hired to operate the PAU and a consultant to support the SNITTA consolidation component.

F. Project execution

1. Annual operating plans

- 3.20 By August 31 of each year, DICTA will present the annual operating plan (AOP) for the allocation of project funds, broken down into the activities for each of the two components. The PAU will present its annual budget, to be included in the AOP, showing FUND spending by quarter, type of financing, and budget item. The budget will include the FUND's operating expenses and the cost of project evaluations and financing. During the second and fourth years of execution, based on the annual operating plans, DICTA and the Bank will evaluate the project and jointly decide on any adjustments to be made.

2. Consolidation of SNITTA

- 3.21 DICTA will be responsible for executing the SNITTA institutional-strengthening component, with assistance from individual consultants in different fields. Execution will last for approximately two years, except for the program for SNITTA's training and professional development, which may last for up to five years.
- 3.22 The training subcomponent will be executed in accordance with DICTA's training program regulations, in consultation with the member institutions of SNITTA. DICTA will prepare the regulations and courses to be included in the program. It will take account of priority areas and training requirements. Presentation of this document, to the Bank's satisfaction, will be a condition precedent to the first disbursement of the funds for this subcomponent. The regulations will establish conditions to guarantee that the beneficiaries will repay the system with an appropriate period of service.

3. Competitive fund for financing ATGT projects (FUND)

- 3.23 This component will be executed by the FUND's board of directors, through the PAU, which will be a unit operated by a national or international nongovernmental enterprise (or consortium) or specialized agency to be contracted by DICTA. As a condition precedent to the first disbursement, DICTA will present evidence that it has contracted the PAU in accordance with procedures agreed upon with the Bank. DICTA, through the manager of the FUND, will supervise the manner in which the PAU operates the FUND. The PAU, in turn, will coordinate its activities with the FUND's support unit. The PAU's functions will be to: (1) sign service contracts with providers, with the approval of the beneficiaries; (2) evaluate, following the rules and criteria established in the

- operating regulations, applications for financing for ATGT projects to make the corresponding recommendations to the board of directors; (3) supervise the execution of ATGT projects approved by the board of directors; (4) prepare quarterly management reports based on the instructions of the board or directors; and (5) open an account for the funds for this component, with the authorization of the FUND's board of directors and the Bank. Annex III-1 presents the proposed plan for financing the system, including the FUND.
- 3.24 The FUND will be governed by a board of directors comprising seven members: the executive director of DICTA, who will chair it; a representative of the Ministry of Finance; a representative of COHDEFOR; a representative of the Professional Colleges of Agriculture; a representative of service providers; and two producers' representatives appointed by CONACTA. The board of directors will meet once a month, and its functions will be to: (1) approve the operating regulations of the FUND and monitor compliance with them by the PAU and the other parties involved; (2) approve applications for project financing; (3) maintain and replenish the resources of the FUND in keeping with the need for financing of ATGT activities; and (4) authorize the PAU to establish and maintain an account to administer the proceeds for this component and the conditions for their use, subject to the Bank's nonobjection. As a condition precedent to the first disbursement, evidence must be submitted that the FUND's board of directors has been established and is operating.
- 3.25 The PAU will be responsible for managing the operations of the FUND approved by the board of directors, and will be supervised by DICTA through the manager of the FUND. The manager will be selected by the board of directors and hired by the executive director of DICTA and will be responsible for supervising the FUND's support unit and acting as secretary of the board. The manager will report directly to the chairman of the board. His/her functions will be to: (1) supervise, in accordance with the rules and procedures established in the operating regulations and the guidelines of the board of directors, the administration of FUND resources; (2) supervise the activities of the PAU; (3) carry out the instructions of the board of directors; (4) maintain up-to-date manuals of functions, policies, and procedures for the FUND and guidelines for project preparation; and (5) prepare the agendas for the monthly meetings of the board of directors. The first disbursement of financing for the FUND component will be subject to submission by DICTA, to the Bank's satisfaction, of the guidelines for project preparation, including environmental feasibility and the corresponding monitoring system. The regional environmental advisor will be responsible for approving the environmental aspects of the guidelines.
- 3.26 The PAU will establish and maintain an account in a commercial bank for the funds allocated by the government, proceeds from the Bank loan, and counterpart resources. These funds will be used exclusively to finance ATGT projects approved by the board of

directors, the operating costs of the FUND, and the evaluation activities carried out by the PAU. Each year the PAU will prepare an itemized budget for these three items. The cost of project supervision will be charged to the financing for each project. As a condition precedent to the first disbursement, evidence is to be submitted that an account has been opened in a commercial bank for the administration of FUND resources.

- 3.27 Financing for ATGT projects will be governed by the FUND's operating regulations, which will establish criteria for eligibility, evaluation, and selection of applications. The criteria will be reviewed each year, based on the lessons learned and results of the projects executed, by the PAU in cooperation with the FUND's support unit and manager, and the results will be presented to the board of directors for consideration. Changes to the operating regulations will be approved by the board of directors, with the consent of the Bank and the other entities financing the FUND. As a condition precedent to the first disbursement of the loan, DICTA will submit evidence that the board of directors has adopted and implemented the operating regulations for the FUND, in accordance with a text agreed upon in advance with the Bank.

G. External auditing

- 3.28 Each year the FUND will hire a qualified firm of auditors, to the Bank's satisfaction, to audit its operations.

H. Procurement and contracting

- 3.29 Procurements of goods and contracts for services will be carried out in accordance with the procedures established in Annex B of the loan contract. International competitive bidding will be compulsory for procurements of goods and services over US\$250,000. This ceiling is justified since foreign firms have bid on similar projects in Honduras over this limit. Procurements for lesser amounts will be made in accordance with domestic legislation.

I. Income from services

- 3.30 The projects financed by the FUND will be cofinanced by the beneficiaries. The FUND has been designed so that its beneficiaries will gradually shoulder the cost of the services. Some services to be provided by DICTA, such as access to the technology information system, will charge users to recover the costs. Charges for using the system will be established during project execution.

J. Environmental considerations

- 3.31 The projects presented to the FUND for financing should identify potential environmental impacts and propose methods and practices

to deal with them adequately. Soil conservation and the use of biological controls and organic farming practices are some of the criteria that will score points in applications. The system for regulating ATGT activities, supervised by DICTA, will incorporate specific environmental standards that promote the use of favorable environmental practices in project design and execution.

K. Disbursement schedule

- 3.32 Table 3.2 shows the disbursements scheduled during the five-year life of the project.

Table 3.2 Disbursement schedule (US\$ thousands)				
Year	Honduran government	IDB loan	Total	Annual Percentage
1	415	3,596	4,011	24
2	462	4,091	4,553	27
3	442	3,038	3,480	20
4	401	2,694	3,095	18
5	280	1,581	1,861	11
Total	2,000	15,000	17,000	100

L. Monitoring

- 3.33 A subsystem for FUND project monitoring will be designed as part of the technology information system. DICTA will be responsible for operating the system, on the basis of the quarterly supervisory reports by the PAU, to verify the results of project execution and fulfillment of the proposed objectives. The results of this exercise will be used to revise the criteria for allocating FUND proceeds, when necessary.

IV. FEASIBILITY AND RISKS

A. Technical feasibility

- 4.1 The program's technical feasibility is based on the existing supply of technology available in the country to carry out ATGT projects and on the criteria and guidelines established in the operating regulations which will ensure the technical quality of every proposal. Feasibility will also depend on whether the proposals to be financed respond to national priorities. Technical capacity includes over 70 private entities with demonstrated experience in technology generation and transfer. This capacity is the result of many projects financed by the public sector and by external sources, including the Bank. It consists of private institutions with good technical reputations, such as the Honduran Agricultural Research Foundation and the Pan-American Agricultural School, which work with groups of small and medium-sized farmers, and others such as the SRN's experimental stations now operated by DICTA, universities, many NGOs that need to boost their capacity, and a number of providers of technical-assistance services.
- 4.2 The technical feasibility of the proposals to be financed by the FUND will be ensured by: the guidelines established in the instructions for the preparation of ATGT projects; the results of the courses and seminars on ATGT project formulation and preparation offered as part of DICTA's dissemination and promotion program; the detailed technical evaluation of the proposals and technical capacity of applicants to be performed by the PAU; the register of service providers with their respective classifications based on experience and technical capacity, to be kept by DICTA; the PAU's technical supervision of each proposal with respect to fulfillment of the objectives; and, as part of project supervision, monitoring of all the proposals financed by the FUND with respect to fulfillment of the objectives using indicators of change identified in the design stage.

B. Institutional and financial feasibility

- 4.3 The institutional feasibility of the project is based on the new plan for providing technology generation and transfer services, which shifts responsibility to non-government providers (private providers, NGOs and autonomous entities). The institutional model for project execution is viable in the context of the modernization process that has established DICTA with a mandate to regulate, operate, and administer ATGT activities in a competitive and efficient fashion. Participation by ATGT service providers and by farmers has recently been legalized and organized, and will be coordinated with the public sector through the institutional context of SNITTA. The new structure establishes suitable mechanisms for channeling this participation, particularly that of

small farmers. Under the new system, development of the services market will be promoted, which will operate efficiently owing to a simple and responsive structure.

- 4.4 The project does not place a heavy financial burden on the government. The counterpart is approximately US\$400,000 a year over the five-year life of the project. By way of comparison, the SRN's budget in 1996 is US\$40 million and the annual counterpart represents just 1% of that sum. The beneficiaries will contribute gradually and progressively to cofinancing the costs of operating SNITTA, through direct contributions. It is estimated that over five years, these contributions will amount to US\$6.2 million, or 37% of the total cost of the project of approximately US\$17 million. Moreover, the FUND mechanism will help to attract additional domestic and external resources for the generation and transfer of agricultural technology.
- 4.5 The cost of operating the FUND is an estimated US\$1.8 million, to manage US\$14.1 million in project financing, or approximately 13%. This initial cost is high, owing to the additional efforts needed to establish the ATGT system and the control mechanism to ensure the quality of the proposals approved. In subsequent years, the cost of managing a project of this size will fall substantially and will not place a heavy burden in extra costs on the central government.
- 4.6 The project will be executed in five years and, upon its completion, the initial resources of the FUND will have been used up, since it provides cofinancing and not credit. This is justified since it has been designed to provide initial support for establishing an ATGT services market and because technology generation and transfer gives rise to externalities that are recovered in the long term and are good for the economy in general. Establishment of the FUND and the lessons learned during the five years will serve to attract other resources that are normally channeled independently through scores of different programs. It is expected that prior to completion of the proposed project, the FUND will have obtained additional resources from abroad or from the public sector to continue with ATGT activities. Specifically, the World Bank program has been designed to channel some US\$7 million through the FUND. The contribution by farmers, once the ATGT market becomes more dynamic, will mean that fewer resources will be required to continue promoting these activities.

C. Economic feasibility

- 4.7 The analysis of the sector and of ATGT activities suggests that many of the problems related to the transition to a competitive and modern sector are linked to the weakness of the agricultural services market. The proposed project, therefore, should be evaluated on the basis of the attainment of one of the key objectives, which is to develop an agricultural services market as

the basic mechanism for the efficient allocation of resources. Public sector involvement is justified owing to its contribution to the efficient operation of the market through its regulatory function and the public nature of the dissemination process. Given the characteristics of the beneficiaries - producers with commercial potential - the project will not directly generate other public benefits such as erosion control, as would be the case if it were working with hillside farmers. The project will provide an initial stimulus for the market (farmers and service providers) and will gradually transfer the costs to the beneficiaries by requiring them to pay higher percentages of cofinancing.

- 4.8 To estimate the aggregate impact of the ATGT activities to be financed, sector development has been projected over the next 10 years, based on area under cultivation, production, yield, total and per hectare value added, for individual crops and activities. The assumptions used in this projection are presented in Table 4.1.

Table 4.1 Assumptions used in the economic projection	
Crop or activity	Assumptions
Traditional export crops (bananas, coffee and sugar)	Maintain the share in the international market, with 2% growth in total value added for coffee and bananas and 1% for sugar.
Staple grains (corn, beans, sorghum, rice)	Maintain annual growth in production of 3.5%, with a reduction in the area cultivated and an increase in yield. Growth in rice will depend on the competitive incorporation of irrigation.
Plantains	Continue annual growth in production of 3.5%.
Other foods (potatoes, yucca, and others)	Maintain a supply for the local market at competitive prices.
Other crops (fruit and vegetables, nontraditional exports)	Explore new export markets, introduce high-value crops, continue to identify crops with export potential as initiated by the FHIA, increase the area under cultivation by 2% a year and the value added by 1% thanks to significant improvements in productivity and cost reduction.
Livestock	Improve land use management to reduce livestock farming on arable land, increase the value added from 3% to 8% a year in the next 10 years, and reduce the hectare/animal ratio.

- 4.9 The assumptions are justified on the basis of: (1) the rate of growth in traditional export crops, which is very modest and acceptable when compared to other exporting countries; (2) the indexes on changes in major crops for domestic consumption, justified by trends in technology generation and the results available thus far; (3) the rise in the yield of staple grains that can be obtained by introducing improved seed and better farming practices; (4) the increase in the added value of livestock owing to intensification of land use; (5) diversification into "other crops", which will be the project's most significant impact, brought about by the rise in value added per hectare by planting

valuable crops such as pineapples, melons, and other fruits and vegetables, and better competitive capacity on external markets.

- 4.10 The viability of the diversification process which will lead to a significant increase in "other crops" is based on a study by Tabora, Dannmiller and Tablada (1995) which evaluated 25 crops in that category. The study confirms the export opportunities for small farmers and discusses marketing aspects. The study identifies ginger, plantains, asparagus, okra, sweet onions, snow peas and oriental vegetables as top priorities, followed by raspberries/blackberries, squash, rambutan, taro, and mushrooms. This demonstrates the feasibility of the strategy to diversify into crops that fetch higher prices on foreign markets.
- 4.11 Under these assumptions, an aggregate increase owing to the impact of ATGT has been projected, using a moderate annual growth rate of 2.8% in 1997 to 3.8% by 2005. The same production volume can be obtained in a smaller area, and it is therefore estimated that the area under cultivation would be equal to the area suitable for farming. The reduction would mainly come from extensive livestock farming. The per capita income of the farming population would grow between 2.2% and 2.8% a year, for a major reversal of the stagnation in recent years. This demonstrates that considerable improvements in land use are viable while simultaneously contributing to a significant increase in the incomes of the rural population, through a moderate change in production structure. The change in the sector's structure during the project's period of influence is shown in Table 4.2.

Table 4.2. Projected impact of ATGT activities on the structure of the Honduran agricultural sector in 1995, 2000, and 2005 (%)

Crop or activity	Area			Value added		
	1995	2000	2005	1995	2000	2005
Coffee	6.42	7.44	8.64	37.88	35.74	31.95
Bananas	0.78	0.94	1.08	6.35	5.99	5.35
Sugarcane	1.48	1.68	1.83	2.34	2.10	1.79
Corn	13.64	10.24	10.66	7.39	7.50	7.21
Beans	4.10	4.40	5.12	2.27	2.31	2.22
Plantains	0.41	0.50	0.64	2.97	3.02	2.90
Other crops	3.57	4.33	5.92	8.22	10.99	17.89
Other activities	3.43	3.78	4.14	6.74	5.76	4.66
Forestry	12.64	13.96	15.29	5.94	6.48	6.70
Livestock	53.52	52.72	46.68	19.91	20.11	19.33
Total (%)	100.00	100.00	100.00	100.00	100.00	100.00

- 4.12 The increases in the value added of the crops and activities with the greatest likelihood of being influenced by the project (staple grains, plantains, "other crops", and livestock) in the 10 years considered have a present net value, discounted at 12%, of 3.067 billion lempiras in constant 1995 prices. If it is conservatively assumed that just 10% of this increase is due to ATGT activities, and the rest to primary factors (land, capital, and labor), the proposed project would have net benefits of 337 million lempiras. The total cost of the project has a present value of 114 million lempiras, and therefore the benefit associated with ATGT activities has a present value of 223 million lempiras, which is equal to an internal rate of return of 40%. Information on this simulation can be consulted in the files of Regional Operations Department 2.
- 4.13 The technological recommendations available confirm that farmers can obtain higher net incomes. The recommendations involve staple grains and nontraditional export crops and are the result of several years of work by the country's technology generation institutions. In the case of corn, by changing from traditional technology (1,300 kg/ha) to advanced technology (3,200 kg/ha), net income increases from US\$3.60/ha to about US\$100/ha. A shift from beans grown under traditional methods (600 kg/ha) to advanced technology (870 kg/ha) raises net incremental income from US\$220/ha to US\$386/ha. Net income from nontraditional crops improves substantially, for example eggplant would bring in net income of

US\$1,500/ha, sweet onions US\$3,600/ha, and Chinese okra up to US\$3,800/ha. Information on these three last crops is based on exports made by Honduran companies in 1996.

D. Environmental aspects

- 4.14 The project includes actions that will generate environmentally favorable or neutral effects. Increases in agricultural productivity thanks to the development and generation of technology in sustainable production systems means there is less need to expand the agricultural frontier, less pressure on fragile land, slower rates of deforestation, and more efficient use of water and land resources. However, there are potential risks of land and water pollution with chemical residues resulting from the intensification of production technology. The project has included precautions to forestall these risks in the FUND's operating regulations, in the guidelines for project preparation, and in the standards to be established by DICTA. Each proposal will have to show that environmental aspects have been considered in its design, which have been included as a viability criterion. Environmental factors will score points when proposals for financing are examined.

E. Participation by women

- 4.15 The project has considered different mechanisms for including a gender approach. First, NGOs specializing in work with rural women have been invited to participative workshops to present their specific requirements. Second, the operating regulations include conditions to permit direct participation by women in technology generation and transfer activities, owing to the high proportion of women involved in farming. As a result, Honduran rural women will share actively in the direct benefits of the project, particularly through the participation of female extension workers in technology transfers. The development of new export crops provides excellent employment opportunities for women in the agroindustrial tasks of selecting and cleaning fresh produce. Their manual dexterity and greater skills in selecting and packing perishable produce will also lead to more employment for rural women.

F. Risks

- 4.16 The main risk of the project lies in the weakness of the technology services market resulting from the government tradition of offering services to farmers free of charge. To motivate farmers to participate in the new system, DICTA will conduct project promotion campaigns and farmers will participate in periodic reviews of the operations of the FUND. It has been established that potential service demand and supply are sufficient to launch the project.
- 4.17 Another risk is the possible impact of the recent temporary measures adopted by the government in the agricultural sector.

These measures are characterized by modest government intervention in the marketing of corn and beans, and the creation of funds to support the financing by commercial banks of staple grain production and marketing. Until now, this government intervention has been on a very small scale. These activities are considered temporary and do not significantly affect the technology adoption process, the impact of which is medium- and long-term.

G. Project preparation status

- 4.18 The terms of reference for the consulting services for the subcomponent to strengthen DICTA have been prepared in cooperation with DICTA authorities. A detailed proposal for operating regulations for the FUND component is also ready.

HONDURAS
PROJECT TO MODERNIZE AGRICULTURAL TECHNOLOGY SERVICES (HO-0119)
LOGICAL FRAMEWORK

Objectives	Indicators	Means of verification	Assumptions
<p><u>Goal</u></p> <p>An increase in the competitive potential of Honduran agricultural production and in the income of the small and medium-sized farmers participating directly and indirectly in the project</p>	<p>The value added for the production of "other crops", the main target of ATGT activities, increases from 8% to 10% from 1995 to 2000, the surface area under cultivation increases from 102,000 ha to 113,000 ha and the average value per hectare rises from US\$4,900 to US\$6,800.</p>	<p>Central Bank annual reports on national accounts from 1995 to 2005; foreign trade accounts adjusted to compare with data for the base year 1995, published by the SRN</p>	<p>Honduran agriculture becomes competitive and nontraditional export crops have competitive advantages on the new markets.</p>
<p><u>Purpose</u></p> <p>Modernized ATGT services being provided to small and medium-sized farmers</p>	<p>By the end of the project, (i) 16,800 small farmers organized into 840 groups and 2,800 medium-sized farmers receive private technical assistance through 150 "service providers"; (ii) 15 "private agencies" participate in technology generation; and (iii) the State only performs regulatory functions.</p>	<p>FUND annual reports; annual reports by DICTA on ATGT proposal follow-up; reports by participating groups</p>	<p>The Honduran government maintains an economic policy consistent with liberalization and the FUND is strengthened with contributions by other agencies, including the World Bank project on hillside farming.</p>
<p><u>Components</u></p> <p>1. National technology generation and transfer system (SNITTA) consolidated</p>	<p>DICTA starts up the activities of the PAU in 1998 once it is strengthened institutionally (in 1998 it has regulations and procedures for administering SNITTA, with operating, administrative, procedural, and functional manuals accepted); it reincorporates personnel trained during the five years of the project (SNITTA experts with 5 MAs and 10 specialized courses) for proper coordination of ATGT activities with at least 70 public and private institutions. By 1999 the National Research Center is rehabilitated and equipped and the technology information system (inventories, courses and workshops, register of service providers) is operating in each department and for 50 research centers and 20 crops; the dissemination and promotion program is organized and operating.</p>	<p>SNITTA annual evaluation report Approval by the Bank of SNITTA regulations and procedures Certificates of receipt of works and equipment</p>	<p>The government maintains the structure and technical and operational independence of DICTA, SNITTA, and the FUND, and allocates the counterpart resources needed for efficient operation of the market for ATGT services; SNITTA is strengthened by trained professionals who honor their employment contracts and develop new technologies; DICTA's administrative efficiency is improved.</p>

competitive fund for financing ATGT projects (FUND) in operation	Prior to the first disbursement: (i) the FUND's board of directors is established and operating; (ii) the operating regulations are in effect; (iii) the bank account has been opened. Between 1998 and 2005, 75 proposals for applied research were processed (10, 25, 20, 15, and 5 in years 1, 2, 3, 4, and 5, respectively); 980 technology transfer proposals (SETs: 50, 55, 55, 20, and 0 in years 1, 2, 3, 4, and 5, respectively; and SATI: 100, 200, 230, 170, and 0 in years 1, 2, 3, 4, and 5, respectively); and 300 extension workers and researchers were trained (60, 150, 50, and 40 in years 1, 2, 3, and 4, respectively).	Documents approved by the Bank as conditions precedent to the first disbursement DICTA annual monitoring reports on the proposals financed and the auditors' reports	Farmers back the demand for with contributions to the the proposals; there is a supply of service provider participate in the project indirect beneficiaries assess the new technologies.
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Objectives	Indicators	Means of verification	Assumptions
Activities Consolidation of SNITTA The administrative systems of DICTA and the entities participating in SNITTA strengthened	DICTA contracts consulting services and administers the ATGT national system effectively, with a budget of US\$177,900.	Annual budget prepared by DICTA	The consultants comply with the regulations of reference on time and SNITTA carries out the training recommendations.
Regulations and procedures for administering SNITTA prepared. Monitoring system with means of identifying progress in ATGT proposals in use	DICTA contracts consulting services, procures the necessary equipment, and administers the monitoring system efficiently, with a budget of US\$36,000.	Approval by Congress of the loan contract, the operating regulations, and the institutional modality required Annual budget prepared by DICTA	The approval of regulations is given on a timely basis, strengthened institution leads ATGT agencies.
National Agricultural Research Center strengthened	Agricultural, computer, laboratory, and fumigation equipment are procured and rehabilitation of the Playitas Experimental Station is completed, for an investment of US\$177,000.	Annual budget prepared by DICTA	Procurements proceed normally, organizations of small farmers cooperate with the center to apply technology.
Inventory of technology available; technology information systems designed and installed; and the register of ATGT service providers completed	DICTA contracts consulting services and procures computer equipment for a total of US\$186,000.	Annual budget prepared by DICTA	Information technology is used appropriately.
Dissemination and promotion program for users implemented	Appropriate dissemination methods are designed, informational materials are purchased, and promotional workshops held, for US\$371,000.	Annual budget prepared by DICTA	The proposals presented by private service providers to the FUNDECOR meet the requisites.
Training and professional development program executed	Beneficiaries are identified at the end of year two of the project, procedures are complied with, and US\$700,000 is invested.	Annual budget prepared by DICTA	The candidates fulfill the requirements of the grant regulations and the study centers.

ND activities			
Public and private agricultural technology generation institutions have access to FUND resources	The FUND processes a total of US\$3 million to finance technology generation.	Annual execution of the FUND's budget	The research conditions are
Organizations of small and medium-sized farmers financed with FUND resources for technology transfer projects	The PAU signs contracts with beneficiaries and service providers to finance technology transfers during the five years of the project, for a total of US\$7.98 million.	Annual execution of the FUND's budget	The climate conditions are not the farmers adapt the recommended technology.
Extension workers and researchers from participating organizations trained with FUND resources	Training courses are provided during the five years of the project for a total of US\$1.2 million.	Annual execution of the FUND's budget	There are extension workers researchers interested in retraining.

REPUBLIC OF HONDURAS

Ministry of Natural Resources
Agricultural Science and Technology Directorate
National Agricultural Science and Technology Council

Competitive fund for financing agricultural
technology generation and transfer projects

OPERATING REGULATIONS

I. OBJECTIVES OF THE FUND

- 1.1 The objective of the fund for financing agricultural technology generation and transfer projects (FUND) is to support the research activities, technology transfer and training of specialists in the agriculture sector by stimulating the development of the technical services market supporting the sector in order to improve productivity of the production factors, make domestic agricultural products more competitive, and protect natural resources.
- 1.2 The FUND will finance projects in the five following strategic areas: promotion of nontraditional agricultural exports; improvement of staple grain productivity; diversification towards high-value crops; improvement of soil use; and soil and natural resource protection.

II. DEFINITIONS

- 2.1 **Agricultural technology generation projects** refer to a series of ways to combine factors (land, labor, water, capital) and inputs (seeds, agrochemicals) to produce goods more efficiently. This would include improving the properties of any of the factors or inputs that would lead to making production more efficient.
- 2.2 **Technology transfer projects** refer to activities in which farmers with support from service providers gain know-how and the ability to use available technologies to make their production more efficient or to introduce new crops. Such activities include the transfer of know-how related to better business and marketing practices.
- 2.3 **Technical training projects** are courses, seminars, and events the purpose of which is to transfer or update applicable knowledge on specific issues to researchers or extension workers, to be used in their work in the sector. This training should reflect the specific needs of the transfer activities.

- 2.4 For the purposes of these operating regulations, agricultural activities are defined as activities strictly involving agricultural production, livestock and poultry raising, beekeeping, aquaculture, and other activities related to the management and exploitation of renewable natural resources.

III. ELIGIBLE ACTIVITIES AND PRIORITIES

- 3.1 Agricultural technology generation and transfer (ATGT) projects will be eligible for financing with resources from the FUND, according to the strategic areas mentioned in the national ATGT plan as follows: (1) generation of technology, with emphasis on validation and indigenization; (2) transfer of technology to small and medium-sized producers organized into groups; and (3) training of specialists in specific areas required by research and technology transfer activities.
- 3.2 Projects in the following subsectors will be eligible for financing with FUND resources: agriculture, livestock raising, aquaculture, poultry raising and beekeeping, according to the priorities established in each area.
- 3.3 Priorities. The technology generation projects to be financed by the FUND should focus on items of national priority, which may be changed in accordance with the results of the national ATGT plan review. The technology transfer projects will be aimed at groups of small and medium-sized farmers with commercial potential and financially viable operations. The specialist training projects will be aimed primarily at the areas required by the ATGT projects.
- 3.4 The FUND will finance: professionals' fees, salaries of support staff, per diem, transportation services, materials for demonstration use (seeds, agrochemicals), equipment (cost of use), laboratory services, and other items for the exclusive use of the project.
- 3.5 The FUND will not finance: investments at the farm level; purchase or leasing of land; purchase of vehicles. Any plots required for demonstrations or experimental use will have to be provided by the beneficiaries (individuals or institutions).

IV. BENEFICIARIES

- 4.1 The beneficiaries of the FUND's resources will be natural or juridical persons, service providers, organized groups of farmers, trade associations, or public institutions.
- 4.2 For technology generation projects, the beneficiaries will be institutions or researchers duly registered with DICTA's ATGT Service Providers' Register. However, each generation project must

demonstrate that it has viable short- and medium-term potential benefits for the beneficiaries referred to in paragraph 4.3.

- 4.3 The beneficiaries of the FUND's resources for financing technology transfer projects will be farmers, organized in groups, who demonstrate they have the potential to absorb proposed technological changes and improve their market share. In particular, beneficiary farmers will:

1. be producers with potential to increase their market-bound production significantly;
2. have land suitable for farming that is either owned by them, leased, borrowed, or held in any other way, provided its appropriate use is guaranteed; individual farmers who benefit under the project will have a maximum of 50 hectares of arable land;
3. work in agriculture on a full-time basis;
4. demonstrate interest in introducing new technologies, new crops, or improved agricultural practices, for which purpose they will enter into a contract with service providers and with the FUND as a condition of the financing;
5. be small or medium-sized farmers with farms of at least 2.5 hectares.

Applications for technology transfer project financing will include a description of the beneficiaries reflecting the above criteria.

- 4.4 The direct beneficiaries of specialist training projects will be trained experts closely involved in technology generation or transfer tasks or technical assistance. The training agency, as part of the application, will list the selection criteria of the participants in accordance with the guidelines issued by the FUND.

V. SERVICE PROVIDERS

- 5.1 ATGT service providers will be natural or juridical persons, acting individually or jointly, meeting the following criteria:

1. have demonstrated technical capacity to deliver the service for which financing is requested;
2. have logistical capacity (transportation, equipment, support staff) to efficiently carry out the actions required under the project;
3. have the financial capacity to be able to function independently of FUND disbursements. For this purpose, will demonstrate cash flow sufficient to cover three months of the project's operations;
4. be listed and duly registered in DICTA's ATGT Service Providers' Register;

5. have entered into an agreement with the beneficiaries, in the case of technology transfer projects, stipulating the responsibilities of each party during project execution;
6. for research and training projects, the individual provider will be duly supported by a recognized institution with the necessary technical infrastructure to execute the project and with administrative and accounting support services to facilitate fulfillment of the contractual obligations vis-à-vis the FUND.

VI. COFINANCING TERMS AND CONDITIONS

- 6.1 One of the FUND's main objectives is the development of an agricultural services market, which requires effective participation by beneficiaries in the financing of projects, in accordance with the rules set forth in this chapter. These rules may be amended by the board of directors in consultation with the Bank, as established in chapter XIV.
- 6.2 **Technology generation projects.** Projects costing up to US\$100,000 per project will be financed, with execution periods of up to three years, renewable annually. Eligibility for financing for the second and third years will depend on fulfillment of the goals established for the preceding year and the resources available in the FUND. The FUND may finance all of the operating costs of a proposal, provided they do not exceed 70% of the total cost of the project and will give preference to projects that include larger contributions from other sources through beneficiary institutions, in accordance with the criteria set forth in Appendix A. The resources from these contributions must be exclusively allocated to the project.
- 6.3 **Technology transfer projects.** Projects costing up to US\$100,000 will be financed, with periods of execution of up to five years, renewable annually. Such renewal will be subject to fulfillment of the goals established for the preceding year. Small farmers will contribute 10% of the cost of the project during the first year, 20% during the second year, 30% during the third year, 40% during the fourth, and 50% during the fifth. Medium-sized farmers will contribute 20, 40, 60, 80, and 100%, respectively. These contributions will be deposited in the FUND within three months after approval of the financing.
- 6.4 **Specialist training projects.** Specific training courses will be financed in priority areas, provided by institutions with proven capacity and experience in the proposed areas. Requesting agencies will contribute physical facilities and demonstrate demand for the proposed course. The beneficiaries or sponsoring institutions will cover 30% of the cost during the first year of the project, 40%

during the second, 50% during the third, and 60% during the fourth and fifth years.

- 6.5 The FUND may finance training courses or events requested by groups of farmers or trade associations, for which purpose the provider will be hired on a competitive basis. The proposals submitted by providers will be evaluated by the FUND's project administrative unit (PAU) in accordance with the criteria set forth in chapter IX.
- 6.6 Any request will include a budget according to guidelines issued by the FUND, which will be evaluated and reviewed by the PAU.

VII. FUND MANAGEMENT

- 7.1 The highest authority of the FUND will be the **board of directors**, consisting of seven members:
- the executive director of DICTA, who will act as chairman;
 - a representative from the Ministry of Finance;
 - a representative from the forestry sector appointed by COHDEFOR;
 - a representative from the Professional Colleges of Agriculture;
 - a representative from the service providers appointed by CONACTA;
 - two representatives of the producers appointed by CONACTA.
- 7.2 The board of directors will meet monthly but may hold special sessions if the volume of applications for financing so requires.
- 7.3 The functions of the FUND's board of directors are to:
1. Manage the resources of the FUND according to the criteria set forth in these Regulations.
 2. Approve applications for project financing.
 3. Endeavor to maintain the FUND according to the financing needs of ATGT activities.
 4. Annually revise and define the cofinancing parameters in accordance with the FUND's objectives, the sector's requirements and strategies, and the performance of the projects.
- 7.4 The **FUND manager**, appointed by the board, will be responsible for the FUND's operations and will be answerable to the board. He will be in charge of supervising the technical and administrative support units and will act as secretary of the FUND's board of directors.

7.5 The functions of the FUND manager are to:

1. Supervise the FUND's technical and administrative units.
2. Manage the FUND's resources in accordance with the rules and procedures set forth in these Regulations and the policies of the board of directors.
3. Carry out the instructions of the board of directors.
4. Update the manuals on the FUND's functions, policies, and procedures and the guidelines for submitting applications for financing.
5. Prepare the agenda for the monthly meetings of the board of directors.
6. Coordinate the proper flow of applications for financing and supervisory activities with the PAU.

7.6 DICTA will hire a private firm, which will be a specialized agency or nongovernmental enterprise, to operate the PAU. Its main functions will be to:

1. Evaluate applications for project financing submitted by eligible applicants, in accordance with the rules and criteria established in these Regulations and other instructions from the FUND's board of directors.
2. Supervise projects under way and approve disbursements to service providers, in accordance with terms and conditions established in the contracts.
3. Prepare quarterly reports on operations in accordance with the board of directors' instructions.

7.7 The PAU will be compensated for its services on the basis of: (1) the evaluation of applications; and (2) project supervision. These fees will be set forth in the contract that the firm running the PAU enters into with DICTA. The PAU may not charge any fees or commissions of any kind other than those set forth in said contract. The firm running the PAU may not participate in any additional activity related directly or indirectly to the FUND's project financing program.

7.8 The FUND will establish and maintain an account in a commercial bank with resources allocated by the government. Such resources will be used exclusively for: (1) the financing of projects approved by the board of directors; (2) the FUND's operating costs; and (3) the cost of evaluation activities performed by the PAU. Supervision costs will be included in each project's budget.

7.9 The board of directors will annually submit the estimate of expenses for the following fiscal year according to the categories set forth in the project's table of costs. Every year, the board of directors will earmark the resources to be allocated quarterly to finance projects.

VIII. PRESENTATION OF REQUESTS

- 8.1 The requests for financing will be prepared in accordance with the *Guidelines for project preparation* and will be submitted to the PAU.
- 8.2 Applications for financing will describe in detail the specific objectives of the project in terms of its impact on farm productivity and efficiency.
- 8.3 The applications will set quantifiable and verifiable goals directly related to the proposed objectives, the fulfillment of which will be a condition to continuation of the financing beyond the first year.

IX. EVALUATION OF APPLICATIONS

- 9.1 The evaluation of applications for ATGT project financing will be the responsibility of the PAU, which will inform the applicant, within five working days from receipt of the application, whether the application is not acceptable or eligible for evaluation, detailing the reasons or the missing information, as appropriate.
- 9.2 **Eligibility criteria.** An application must fulfill the following conditions to be eligible for *official review* by the PAU: (i) submit documentation as set forth in the *Guidelines for project preparation*; (ii) meet the criteria set forth in chapters I through V.
- 9.3 Once the applications eligible for evaluation have been accepted, the PAU will have 30 days to submit a decision to the FUND manager. This decision will conclude with a recommendation to finance or reject the application – or have it reformulated – together with a summary of the reasons warranting the recommendation for approval, rejection, or reformulation.
- 9.4 Applications for financing will be evaluated by a committee comprised of three people who will have access to expert opinions from people specialized in the specific areas of the proposed project, as appropriate. Each application will be evaluated based on the criteria and point system described in paragraph 9.5.
- 9.5 **Evaluation criteria.** In its evaluation of the applications for financing, the PAU will take into account the following criteria:
 - 1. technical viability
 - 2. environmental viability
 - 3. economic viability
 - 4. institutional (technical, logistical, and financial capacity of the provider)

These criteria will be applied in accordance with the point system described in Appendix A. The methods and procedures to implement these criteria are described in the *Guidelines for project preparation*.

- 9.6 The PAU will be responsible for the technical quality of the evaluation and for the integrity of the process.
- 9.7 The PAU's decision will be reviewed by the FUND's secretariat to verify whether the evaluation procedures and criteria have been met. The secretariat will approve or reject the opinion within three working days after it is submitted.

X. APPROVAL OF APPLICATIONS

- 10.1 After the decision submitted by the PAU recommending approval of an application has been reviewed by the FUND's secretariat, it will be submitted to the FUND manager for inclusion on the agenda of the next meeting of the board of directors.
- 10.2 The decision submitted to the board of directors will include the draft contract between the applicant as service provider, the FUND, and the beneficiary, as appropriate. The contract will include a schedule of disbursements, which will be made in accordance with the procedures set forth in chapter XI.
- 10.3 The board of directors of the FUND may reject or postpone approval of the applications recommended by the PAU when funds are not available in a particular quarter to finance all the projects recommended.
- 10.4 The board of directors may include geographic criteria in the selection process when it is deemed essential to complement other specific actions in certain areas.

XI. DISBURSEMENTS

- 11.1 The FUND, as set forth in each contract, will provide an advance depending on the financial requirements of each project. Any other disbursement will require a supervision report issued by the PAU, in accordance with guidelines issued by the FUND. This report will include the certification, views, and recommendations of beneficiary producers in the case of technology transfer projects, trained specialists in the case of training projects, and the supervisory panel in the case of technology generation projects.
- 11.2 Disbursements will be authorized by the board of directors for the project's financing period (one year) and will be issued by the PAU, which will be responsible for their proper use.

XII. EXECUTION

- 12.1 During execution, the beneficiary will submit monthly progress reports to the PAU as agreed in the contract and will cooperate with the PAU in the supervisory process pursuant to the provisions of chapter XIII. The PAU, in turn, will coordinate with DICTA on any matters related to program follow-up.

XIII. SUPERVISION

- 13.1 Project supervision will be the responsibility of the PAU. The contract with the beneficiary and provider will be explicit about the method of supervision and the requirement to cooperate with the PAU in its supervisory activities. The PAU will submit a semiannual progress report on projects under way to the board of directors of the FUND and to DICTA.
- 13.2 The PAU will conduct periodic field visits to verify the monthly reports submitted by the beneficiary. The monthly reports will be brief but substantive and will include, to the extent possible, indicators on achievement of the project's final objectives in relation to the level of effort expended. For the projects involving the training of specialists, an evaluation of the beneficiaries at the end of their course will be required. This evaluation will be performed by the PAU during the last session of each course or event and will be part of the formal supervision of the training projects. For technology generation projects, the opinion of a panel of experts on the subject, who will review the reports and give their opinion on them, will be required.
- 13.3 Representatives of DICTA, the FUND, and the IDB may carry out inspection visits to any project or activity financed with FUND resources, for which purpose the PAU and the beneficiary will provide full cooperation.
- 13.4 The cost of supervision will be included in the budget of each project individually and will not exceed 5% of the total cost of the project.

XIV. EVALUATION OF THE FUND AND AMENDMENT OF THE REGULATIONS

- 14.1 The board of directors will submit an annual progress report to the Ministry of Natural Resources, the Ministry of Finance, SNITTA - through the National Agricultural Science and Technology Council (CONACTA) - and the IDB, on the project's achievements and problems and any recommended amendments to these regulations.
- 14.2 The priorities for financing generation and transfer projects will be adjusted according to the results and recommendations of the

national technology generation and transfer plan which is to be approved by CONACTA.

- 14.3 The board of directors of the FUND will annually amend the cofinancing parameters based on the following: recommendations from the ATGT national plan, changes in demand for ATGT services, resource availability, and results of projects financed.
- 14.4 Any amendment to these regulations will require the approval of DICTA, the SRN, and the IDB in accordance with the respective clauses of the loan contract between the Government of Honduras and the IDB.

Agricultural services modernization Rating criteria and point system for evaluating technology generation projects		
Criteria	Weight%	Points
1. Technical viability	40	
2. Environmental viability	20	Soil conservation Biological pest control or organic agriculture methods
3. Economic viability	15	
4. Institutional viability	25	
Total	100	

Agricultural services modernization Rating criteria and point system for evaluating technology transfer projects		
Criteria	Weight%	Points
1. Technical viability	40	
2. Environmental viability	20	
3. Economic viability	15	
4. Institutional viability	25	
Total	100	

Agricultural services modernization Rating criteria and point system for evaluating specialist training projects		
Criteria	Weight%	Points
1. Technical viability	30	
2. Environmental viability	30	
3. Economic viability	20	
4. Institutional viability	20	
Total	100	

**CRITERIA FOR FINANCING ATGT PROJECTS
IMPLEMENTATION OF APPLICATION EVALUATION CRITERIA**

A. Technology generation projects

Applications for financing for technology generation projects will be evaluated on the basis of the following criteria:

1. technical viability
2. environmental considerations
3. economic considerations
4. institutional and financial capacity

Each application will be assessed in accordance with the point system appearing in Table A.1 below:

Table A.1 Application of criteria for evaluating technology generation projects			
Criteria	Rating and points		
	Not viable	Acceptable	Maximum
1. Technical	<40	>40	100
2. Environmental	<20	>20	100
3. Economic	<15	>15	100
4. Institutional-financial	<25	>25	100
Maximum total			

Projects that fall under the "not viable" category for any of the criteria will not be eligible for financing.

For the application of the criteria mentioned, the following aspects will be taken into account:

1. Technical considerations

- project design
- bibliographical research
- methodology
- identification of the end product and its application
- relationship between resources and objectives
- qualifications of researchers

2. Environmental considerations

Probable impact on natural resources

3. Economic considerations

Competitiveness (probable impact on output, costs, and quality)

4. Institutional and financial issues

- institutional capacity to perform research
- logistical capacity (organization and planning for project execution)
- financial capacity (ability to operate for three months without FUND disbursements)
- cofinancing

B. Technology transfer projects

Applications for financing for technology transfer projects will be evaluated on the basis of the following criteria:

1. technical viability
2. environmental considerations
3. economic considerations
4. institutional and financial capacity

Each application will be assessed in accordance with the point system appearing in Table A.2 below:

Table A.2 Application of criteria for evaluating technology transfer projects			
Criteria	Rating and points		
	Not viable	Acceptable	Maximum
1. Technical	<40	>40	100
2. Environmental	<20	>20	100
3. Economic	<15	>15	100
4. Institutional-financial	<25	>25	100
Maximum total			

Projects that fall under the "not viable" category for any of the criteria will not be eligible for financing.

For the application of the criteria mentioned, the following aspects will be taken into account:

1. Technical considerations

- identification of the area and beneficiaries
- project design
- identification of the expected final product and quantitative goals
- transfer method

2. Environmental considerations

Probable impact on natural resources

3. Economic considerations

Competitiveness (probable impact on output, costs, and quality)

4. Institutional and financial issues

- institutional capacity to perform research
- logistical capacity (organization and planning for project execution)
- financial capacity (ability to operate for three months without FUND disbursements)
- cofinancing

The Guidelines for preparing ATGT projects will define specific elements to be considered for each evaluation criterion.

C. Projects for training researchers and extension workers

Applications for financing for projects to train specialists will be evaluated on the basis of the following criteria:

1. technical viability
2. environmental considerations
3. economic considerations
4. institutional and financial capacity

Each application will be assessed in accordance with the point system appearing in Table A.3 below:

Table A.3 Application of criteria for evaluating training projects			
Criteria	Rating and points		
	Not viable	Acceptable	Maximum
1. Technical	<30	>30	100
2. Environmental	<30	>30	100
3. Economic	<20	>20	100
4. Institutional-financial	<20	>20	100
Maximum total			

Projects that fall under the "not viable" category for any of the criteria will not be eligible for financing.

For the application of the criteria mentioned, the following aspects will be taken into account:

1. Technical considerations

- content of the course
- level of preparation
- identification of the final product and its application
- relationship between resources (course content) and objectives (training topics)
- instructors' qualifications

2. Environmental considerations

Coverage of environmental issues

3. Economic considerations

Identification of specific demand for the topic and the training course

4. Institutional and financial issues

- institutional capacity to conduct training
- logistical capacity (organization and planning)
- financial capacity (ability to operate for three months without FUND disbursements)
- cofinancing

The Guidelines for preparing applications for ATGT project financing will define specific elements to be considered for each evaluation criterion.

PROPOSED RESOLUTION

HONDURAS. LOAN No. /SF-HO TO THE REPUBLICA DE HONDURAS
(Project for the Modernization of Agricultural Technology Services)

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 de Honduras, as Borrower, for the purpose of granting it a financing to cooperate in the execution of a Project for the Modernization of Agricultural Technology Services. Such financing will be for the amount of up to US\$15,000,000, or its equivalent in other currencies, except that of Honduras, which are part of the resources of the Bank's Fund for Special Operations, and will be subject to the "Special Contractual Conditions" and the "Terms and Financial Conditions" of the Executive Summary of the Loan Proposal.