IICA

INTER-AMERICAN INSTITUTE FOR COOPERATION ON AGRICULTURE
OAS

PROGRAM II
TECHNOLOGY GENERATION AND TRANSFER

Guidelines for Cooperation

OFFICIAL DOCUMENTS SERIES No. 37

PROGRAM II TECHNOLOGY GENERATION AND TRANSFER

Guidelines for Cooperation

General Directorate
Inter-American Institute for Cooperation on Agriculture
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FOREWORD

The 1987-1991 Medium Term Plan (MTP), which was approved by the member countries at the Third Special Meeting of the Inter-American Board of Agriculture (IABA), held in Mexico, October 27th through 29th, 1986, assigned programs a leading role in IICA's institutional action. It states, "Programs are the most important mechanism for implementing IICA's policies of concentration of effort and exercise of technical leadership during the 1987-1991 term. They provide a natural framework within which to carve out IICA's area of competence and reach agreement on regional and country level actions."

The Plan also establishes a series of standards and general principles for the operation of the five programs, as well as certain specific guidelines for each one. The programs are:

Program I: Agricultural Policy Analysis and Planning

Program II: Technology Generation and Transfer

Program III: Organization and Management for Rural Development

Program IV: Marketing and Agroindustry

Program V: Animal Health and Plant Protection

On the basis of the general principles provided by the Medium Term Plan, it is now necessary to prepare a specific document for each program, containing the detailed guidelines and action strategy to be developed in each case. This will give a more

complete and specific understanding of the programs to the countries, actual or potential donors, Institute technicians, other organizations, and other interested parties.

The structure of such "guidelines for Program cooperation" includes a reference to the general principles set down in the Medium Term Plan, a description of the main problems to be faced, a presentation of the objectives and operating strategy, which is the crux of the document, and a list of human and financial resources available for developing the proposed actions.

Martín E. Piñeiro
Director General

PROGRAM II: TECHNOLOGY GENERATION AND TRANSFER ACTION GUIDELINES FOR 1987-1991

I. GUIDELINES CONTAINED IN THE 1987-1991 MEDIUM TERM PLAN

The 1987-1991 Medium Term Plan (MTP), approved by the IABA in Mexico City, in October 1986, is the document in which the member countries--through the IABA--established the guidelines for IICA action during the stated period, based on the permanent objectives of the Institute and priorities in the Americas.

Consequently, the frame of reference for action guidelines for the five programs defined in the Plan should be the objectives and the general strategy of the Plan, as well as the specific recommendations for the programs outlined in the MTP.

1. General objectives

The general objectives established for IICA action during the period in question include: "encouraging, promoting and supporting the efforts of the Member States to propel the development of the agricultural sector as the major source of economic growth, both as supplier of foodstuffs for domestic consumption and as the major source of foreign exchange; to intensify modernization and increase production efficiency in the agricultural sector; and to pursue regional integration."

Furthermore, to attain such objectives it is indicated that production, marketing and processing strategies should be established to increase the

value of agricultural production, maximize participation and ensure just distribution; that technological innovation should be encouraged so as to maintain comparative advantages and competitiveness within a framework of equitable distribution of benefits and the conservation of natural resources, and that joint actions should be promoted to facilitate better use of available resources and develop production and commercial complementarity.

2. General strategy

The MTP outlines the following strategy, based on four points, for meeting its objectives:

a) Concentration of efforts and technical leadership in a small number of subject areas of high priority to the member countries;

b) Setting priorities on certain of IICA's functions and forms of action in which the Institute has greater experience and, consequently, advantages over other organizations;

c) Redesign of the operating structure to achieve technical excellence in the subject areas of the programs, on the one hand, and expedient and flexible decentralized operation, on the other; and

d) An increase in the availability and effective use of external resources.

3. Principles of program operation

The 1987-1991 MTP, which defines programs as the

most important mechanism for concentrating efforts and exercising technical leadership, and as a natural framework within which to carve out IICA's sphere of competence, establishes the following operational guidelines for IICA's programs:

- Concentrate efforts in a small number of "subject areas of concentration," selected on the basis of their priority, the comparative advantages of the institution, and the potential for having a significant impact.

- Achieve technical leadership and innovative action through the development of a team of highly qualified technical personnel that will conduct research, hold professional meetings, produce useful publications resulting from its work, and always be receptive to the exchange of experiences with the member countries.

- Encourage the mobilization of national technical resources, by making full use of national technicians through their participation in reciprocal cooperation and exchange networks.

- Emphasize the search for complementarity with other international organizations and centers, as a means of achieving efficiency and facilitating program access to the countries of the region.

- Give high priority to preparing and implementing multinational projects and to other cooperation activities that involve several member countries, as a means of providing integrated solutions to common problems.

To implement this strategy, the MTP establishes a number of organizational changes for the programs:

- The number of programs is decreased from 10 to five.

- Program directorates are established at headquarters with the minimum critical mass for each directorate, with greater authority (particularly in the management of multinational projects), and with the responsibility of ensuring technical leadership and the quality of activities implemented within the framework of the program.

- Changes are made in the criteria for assigning personnel to the offices in order to have a stable staff trained in identifying and preparing projects, while specialized technical personnel work on a temporary basis, according to the duration of specific projects.

II. THE PROBLEMS OF TECHNOLOGY GENERATION AND TRANSFER IN LATIN AMERICA AND THE CARIBBEAN

Science and technology in the post World War Two context became a pivot of economic and social change. More than any other factor, including natural resources and economic policies, technological innovation determines the productive capacity of a country's resources and controls its ability to compete on international markets. Every sector has abundant examples of the way in which scientific and technological development processes have contributed to economic, political and social development. It is enough to point to the industrial miracle of

post-war Japan or the resounding agricultural success of countries such as India, which in the early 1960's was hovering on the brink of a food crisis, and which today, thanks to the results of technological innovation, holds reserves surpassing 20 million tons of basic grains.

Latin America and the Caribbean have not remained untouched by these trends. During the last quarter century, major transformations have taken place in the generation, transfer and adoption of agricultural technology, and heavy investments have been made for the development of institutional infrastructure and training of human resources. These efforts cannot be viewed in isolation from the fact that agriculture in the region has grown more dynamic during the period, as revealed in the rising productivity and production of important crops. It is also true that these successful experiences in the region have taken place side by side with situations in which agricultural production has been unable to meet the demand for food for domestic consumption and still enjoy an exportable surplus.

The region today is facing an economic crisis of major proportions. It will bring profound transformations in society and in the role played by every sector. Evidence already shows that the agricultural sector must play an active role in this process to meet growing demands for food and contribute to export growth. The need to move decisively into a phase of highly technological agriculture is no longer a challenge of the agricultural sector alone, but has become a concern of society as a whole.

New technologies are needed not only to increase yield and expand the agricultural frontier,

but also to diversify production and competitively meet new demands of international markets, and of new consumer habits that have resulted from population shifts over past decades.

The progress of modern science, particularly in the field of biotechnology, and experience with success achieved in other parts of the world, and in particular situations in Latin America and the Caribbean, clearly show that this technological transformation can take place.

The institutional infrastructure in most of the countries is sufficient to provide a basis for the efforts that are needed. This basis consists primarily of an ensemble of research institutes and, in some cases, technology transfer centers. They are decentralized and autonomous, and most were created in the 1950's to streamline the process of technology generation and transfer and to facilitate better linkage with the production sectors. During the same period, significant efforts were also made to develop human resources for technology research and transfer, through important training programs abroad which served to develop graduate programs in agricultural sciences within the region itself.

The region has also seen a number of new institutional developments in the national and international public and private spheres, that have made a major contribution toward strengthening the region's potential to generate an adequate technological basis for sustained agricultural development. An example is the increased participation by private sector organizations in technology generation and transfer activities. Another is the emergence of new mechanisms for horizontal cooperation and technology transfer among countries, such as the PROCISUR

program, the PCCMCA, and PRECODEPA, as well as the international CGIAR centers operating in the region (CIMMYT, CIAT and CIP) and regional organizations such as CATIE and CARDI.

These institutions form a substantial foundation for technology generation and transfer, but they are now confronting problems that seriously restrict their productivity and their ability to make an effective contribution to agricultural development and rural well-being in the countries of the region. The following issues are of particular importance:

a. Difficulties in coordinating technological policy

Difficulties have frequently arisen in coordinating technological policy with other facets of agrarian policy. Consequently, research centers lack clear guidelines for setting priorities, and their activities often appear out of phase with development objectives. There is a visible tendency to concentrate on lower impact problems of sectoral production. In other cases, research findings have been consistent with real technological problems, but needed measures have not been taken with respect to other dimensions of agricultural policy, such as prices, credit, insurance, inputs, etc. This has hobbled efforts for swift transfer and dissemination of new technologies.

b. Changes in the scientific basis of agricultural technology

Over the past decade, important progress has been made in science, particularly with regard

to biotechnology. Such progress is rapidly changing the scientific basis of agricultural technology generation and, in fact, making a large part of existing research infrastructure obsolete, especially with respect to human resources and mechanisms for the exchange of basic scientific knowledge. At the same time, these trends are widening the existing gap between the developed countries and the less developed countries, which has clear consequences for the competitiveness of the less developed countries on international markets. The appearance of these new work areas and their potential impact on the capacity of technological institutions to contribute the technology required for agricultural development and economic growth, make it necessary to define an explicit strategy for the rapid and effective incorporation of these new approaches and work methodologies into the efforts to generate technology within the region.

c. Institutional changes and organizational deficiencies

The organizational structure developed since the mid-1950s unquestionably served as a base for mobilizing early efforts to generate and transfer technology. However, it has lagged behind the changing production structures of the private sector and new institutional developments, such as increasing private sector participation in technology generation and transfer activities and the action of international centers, as well as the scientific development mentioned above. These changes also require new relationships between development activities and basic research, a new definition

of the role of the state and of public institutions in relation to the private sector and international centers. These organizational problems are compounded by poor institutional management practices, due primarily to the growing complexity of technology generation and transfer processes. This complexity, in turn, is a result both of the scientific issues themselves, and the need to diversify and adapt research objectives and technology transfer methods so as to provide a better response to the specific problems of different users.

d. Budgetary constraints and the lack of duly trained human resources

Technology generation and transfer systems saw their budgetary and human resources grow rapidly from the beginning of the 1960's to the mid 1970's. This trend has reversed in recent years. Resource allocations to these activities have stagnated, and in some cases even declined in real terms. The negative impact of this enormous problem has become worse over the past 10 years due to a pronounced decrease in graduate training opportunities, which has made it difficult to replace lost staff members. This has been caused partially by a strong decrease in the resources available for scholarships to study abroad and also by the crisis occurring in several of the graduate programs established in the 1960s.

e. The schism between research and training

Research and technology transfer in most countries are almost entirely separate from higher level or graduate education. This segregation

has tended to worsen the human resources problems discussed above and wastes the opportunity to profit from the natural fit between research and training, especially at the graduate level.

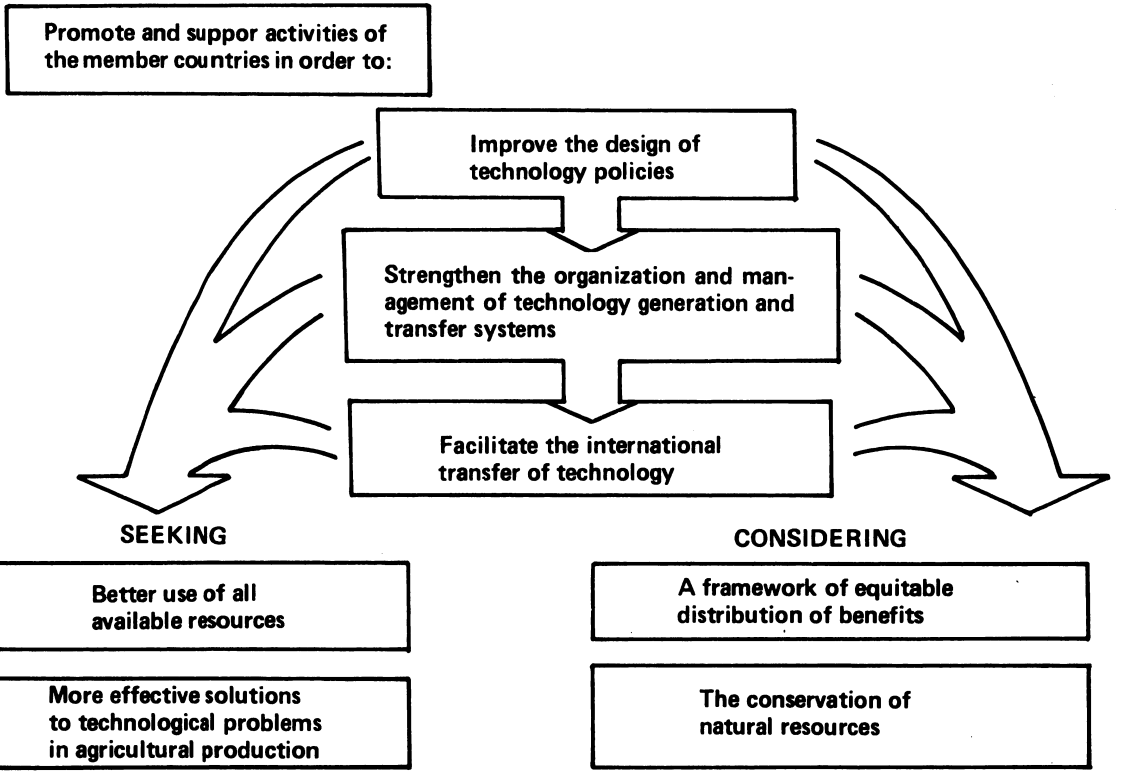
f. Inadequate integration between research and technology transfer

Research and technology transfer are frequently assigned to different organizations. In other cases, there are no formal mechanisms at all for transfer. This has made it difficult to identify correctly the problems facing farmers. It has also led to a flow of new technology which is not relevant to the specific needs of producers. One of the principal causes of this situation is the lack of planning mechanisms to facilitate meaningful farmer participation in decisions concerning what to research and what type of technology to transfer.

g. The problem of small countries

The major problem faced by small countries in the field of research and technology transfer is the potential conflict between technological development needs and the amount of resources available for investment in such activities. The issues are related, although indirectly. A country's technological needs depend on its size and the variety of goods it produces. Differences among countries in this sense are not significant. On the other hand, the ability to obtain financing and to make such efforts pay is directly linked to the economic scale of production, which in many countries is a serious constraint to achieving the levels of investment required for maintaining needed research and technology transfer infrastructure.

FIG. 1 GENERAL GOALS AND OBJECTIVES OF THE TECHNOLOGY GENERATION AND TRANSFER PROGRAM



III. OBJECTIVES

The situation described above can be summarized as a poor fit between opportunities and problems. There are opportunities because the countries of Latin America and the Caribbean have the infrastructure and the specific experiences needed to develop new technologies required for agricultural transformation in the region. There are problems due to a number of shortcomings that hold down productivity and reduce effectiveness. On the basis of this contrast, IICA's activities will be directed toward cooperation with the member countries to solve their problems and overcome restrictions so as to reap the full benefit of available opportunites and resources.

In this context, the general objective of the Technology Generation and Transfer Program is to promote and support actions by the member countries to improve the design of their technological policies, strengthen the organization and management of their technology generation and transfer systems and facilitate their international technology transfer, so as to make better use of available resources and a better and more effective contribution to solving the technological problems of agricultural production, within a framework of equitable distribution of benefits and the conservation of natural resources.

The specific objectives are to:

1. Contribute to and support the design and implementation of policies that will make it possible to take full advantage of the potential contribution of technology to agricultural development and the economic growth of the countries of the region.

2. Contribute to and support the countries of the region in designing and implementing mechanisms for coordination between the public and private sectors to ensure that full advantage is taken of all the scientific and technical capacities in each country.

3. Encourage the development of organizational structures for technology generation and transfer that will facilitate making use of the potential for new scientific advances and will accurately reflect the characteristics, possibilities and specific needs of each country.

4. Contribute to and promote the design and adoption of mechanisms by the technological institutions of the region; to plan, program, implement, follow-up and evaluate technology generation and transfer activities that will ensure more effective use of all public and private resources available for such activities at the international and country levels.

5. Promote and strengthen the region's capacity to train specialized human resources in the field of agricultural research and, at the same time, encourage greater participation of the universities in technology generation and transfer activities.

6. Encourage and promote the design and increased workability of reciprocal cooperation mechanisms in the field of agricultural research among the countries of the region to achieve greater complementarity

and improved use of the resources available in each country.

7. Support, together with IICA's other operation centers, national technology generation and transfer systems in preparing and managing investment projects that will enable them to make better and more efficient use of available resources.

IV. STRATEGY

1. General Guidelines

Implementation of program activities will take place within the strategic framework set forth in the 1987-1991 Medium Term Plan, and operations will be guided by the following general criteria:

a) Maximum use of institutional resources and comparative advantages

Even though a majority of IICA's human and budgetary resources are concentrated in the Technology Generation and Transfer Program, they are almost insignificant when compared with the technology research and transfer capacities available in the region. To cite one example, the budgetary resources approved for Program II for 1987 are equivalent to less than 0.4 percent of the current budgets of the national agrarian research institutes in the region. This means that a strategy aimed at direct support for research activities and/or specific technology transfer programs can have only a limited impact and will always show a high cost-benefit ratio.

In view of this situation, and given the nature of IICA as a multinational technical cooperation program and the general premise of promoting activities that make the best use of available resources, the program will concentrate its efforts on conducting projects and activities with a great multiplier effect in areas where a relevant technical contribution can be made or in areas where the countries are either unable to conduct projects or activities by themselves or encounter difficulties in doing so.

In this context, the program seeks to lessen the emphasis on direct support for physical and biological research activities and specific technology transfer programs in order to favor activities designed to improve capacity for decision-making and for organizing and managing the resources available to each country for those activities. It will also give priority to the development of multinational projects and national activities that could potentially be applied in other countries.

This reorientation of program activities with regard to physical and biological research, in a strict sense, is proposed within the context of closer collaboration with the Tropical Agriculture Research and Training Center (CATIE), which, as a center specialized in research and training and as an IICA-associated program, has the technical and institutional capacities needed to offer support in these areas, particularly in Central America, Panama and the

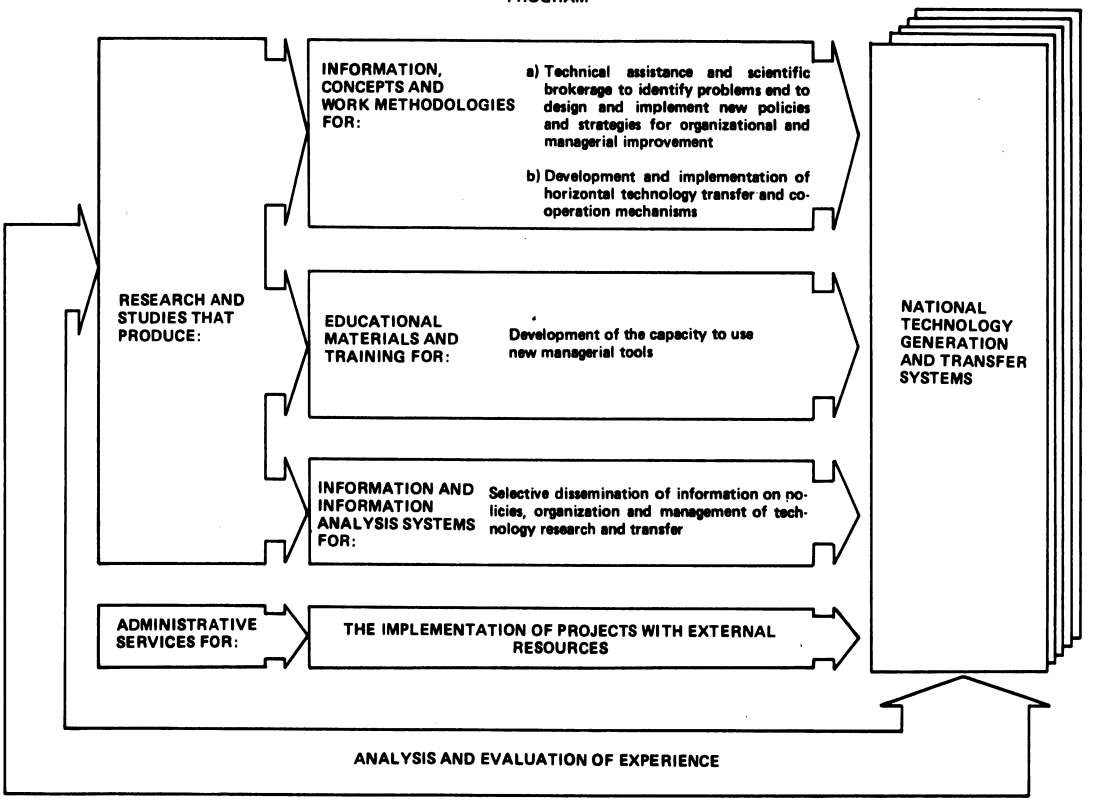
Dominican Republic, its area of direct influence.

b) Integration of activities

To achieve the general objective of promoting and supporting the activities of the countries to improve the design of their technological policies, strengthen the organization and managemet of their technology generation and transfer systems and facilitate international technology transfer, the program will make integrated use of five action tools: research and studies, technical assistance, technical and scientific brokerage, training, and selective dissemination of information. Within this framework, research and study activities play a double role by providing the basic concepts and methods for technical assistance and training and by serving as mechanisms for feedback, which will operate through the evaluation of specific activities to improve the policies, organization and management of national technology generation and transfer systems.

Technical assistance, technical and scientific brokerage, and training are the main tools for direct action in specific situations, related either to institutional strengthening or to the design and implementation of investment projects. The selective dissemination of information is a tool for technical cooperation, follow-up and supplementary activities in the work areas of the program.

FIG. 2 SCHEME FOR THE INTEGRATION OF ACTIVITIES WITHIN THE TECHNOLOGY GENERATION AND TRANSFER PROGRAM



c) Mobilization of all technical resources available in the region

Technical cooperation needs for defining policies and organizing and managing technology research and transfer are unlikely to be met by IICA's technical resources alone. In the region, however, both technology generation and transfer institutions and private and public research centers and universities have a significant amount of technical resources and experience that can and should be used to benefit the region as a whole, which will require designing mechanisms to mobilize these human resources without weakening the home institutions. In this regard, the program will develop a structure of semi-permanent ties between IICA specialists and the specialists in other national institutions who are connected with priority work areas, in order to involve them in both research and study activities and in technical assistance and training for specific technical cooperation projects. These ties are expected to facilitate an exchange of experience which will multiply the impact of activities and gradually reduce the need for external technical assistance. This would take place within a system of mutual benefits for all the participating institutions, where some would benefit from the help they receive in solving their organizational and management problems, while others would benefit through the expanded work experience that their specialists would gain from their activities in other countries.

IICA's role is to organize the work programs on the basis of specific national projects and to ensure the continuous exchange of concepts and methodologies among the individual specialists and participating institutions.

d) Complementarity of efforts undertaken by other technical and scientific cooperation organizations operating in the region

The principal objectives of a significant number of regional and even extra-regional organizations conducting activities within the region are to promote and support different facets of technology generation and transfer at the national level. In relation to these organizations, the program will follow a policy of making activities complementary, either through joint projects or by providing logistic and/or administrative support to help the countries take full advantage of the potential contribution these organizations can make. An outstanding example is the international agricultural research centers of the Consultative Group of International Agricultural Research (CGIAR), among which CIMMYT, CIAT, CIP and ISNAR are important resources for national technology research and transfer systems in the region. In general terms, IICA plans to continue its active participation in CGIAR in order to maintain resource levels for activities within the region and to tailor such activities more effectively to the problems and needs of the countries. At the specific level,

IICA's relations with CIAT and CIP, organizations dedicated chiefly to physical and biological research activities, will be aimed basically at facilitating the development of mechanisms to ensure effective transfer of technology, generated by these centers in the fields of their specific mandates, to national research programs. In the case of ISNAR, an organization concerned with cooperation in the area of policy, organization and management of national research systems, the program will seek to develop joint efforts based on the improved use of the comparative technical and institutional advantages of each organization.

A second group of institutions is formed by scientific and professional associations within the agricultural sciences and other related areas. These organizations, with which IICA has maintained close ties and, in some cases, has even participated actively in their establishment, are an important element for improving the human resources available for technology generation and transfer and for promoting technical cooperation and international technology transfer. They also provide a valuable forum for discussing different factors linked to the policies, organization and management of national technology research and transfer systems. Consequently, the program will promote the activities of these organizations, both through direct funding for their ongoing activities and through IICA's operational structure for the development of their administrative

functions. In view of the great degree of convergence between the objectives of this group of institutions and the goals of the program, the Latin American and Caribbean Chapter of the International Federation of Agricultural Research for Development (IFARD-LAC) will receive special assistance through financial, logistic and administrative support for its Executive Secretariat. This policy of collaboration and complementarity is intended to create an atmosphere more conducive to horizontal cooperation, to the development and institutionalization of fora for discussion and to the common search for solutions to the problems being faced by national technology research and transfer systems.

e) Priorities for the use of resources

Since the problems to be tackled are extensive and diverse and regular resources are limited, the program will give priority to directing its resources toward:

i. Activities to develop, strengthen and continuously update IICA's capacity to offer technical cooperation in relation to policies, organization and management of technology research and transfer. This primarily includes research and studies to develop work concepts and methodologies, training and updating of the program's technical staff and the structuring of basic mechanisms to mobilize and make use of the technical capacities already existing in the countries.

ii. The development of projects for which external resources from national sources or from other technical and/or financial cooperation organizations have already been committed or are very likely to be obtained. Following the general criteria already presented, emphasis will be placed on multinational approaches and on national activities whose results could also be useful to other countries. In selecting national projects, the level of existing political commitment to introducing adjustments in the policies and/or organizing national technology research and transfer systems will be a fundamental criterion for allocating resources.

2. Subject areas of concentration and activities to develop these areas

On the basis of the situation described and of the general guidelines for IICA action in the 1987-1991 period, the Technology Generation and Transfer Program will concentrate its efforts in the following five work areas:

a) Technology policy design

In the area of technological policy, the program will focus on issues concerning the role of technology in economic development. As for problems linked to resource allocation for research and transfer, it will seek more and better integration between the public and private sectors in the field of technology generation and transfer, and

will attempt to keep scientific and technological concerns compatible with other facets of agrarian policy, especially the production and distribution of technological inputs. It will also help design strategies, tools and mechanisms for increasing the inclusion of agricultural technology in national science and technology systems, in order to ensure the use of new scientific advances to further the progress of agricultural production in the countries of the region. In relation to these specific subjects, the program will:

i. Perform studies and research to generate useful information for an improved understanding of the different issues and problems involved.

ii. Use this information as a basis for guiding the countries in the design and implementation of mechanisms, instruments and policies relevant to the characteristics, resources and technology generation and transfer needs of each country.

b. Organization and management of national technology generation and transfer systems and institutions

Program activities for the organization and management of technology generation and transfer activities will be oriented toward:

i. Study and evaluation of existing structures and of new institutional developments and their implications. Provision of technical support for the design and implementation of reorganization processes, whenever necessary.

ii. Strengthening the administration and management of national technology research and transfer systems.

Efforts in this area will focus on the development and implementation of new approaches and working methods for key issues of the administrative and managerial process. This could include planning and programming mechanisms, human resources management programs, and follow-up and evaluation systems. Training activities will be organized for managers of national research and technology transfer systems and will be designed so as to encourage the institutionalization of management training for research and technology transfer over the medium term in universities, graduate programs, and other organizations for human resources training, whether in the agricultural sciences or management sciences.

c. Development or strengthening of human resource training programs

Educational programs located outside the region are presently meeting most of the needs for highly trained personnel in national research and technology transfer

systems. In view of the funding problems common in most of the countries, and the climbing costs of extra-regional training, concrete efforts must be made to increase the participation of graduate training centers of the region in preparing personnel for national technology generation and transfer institutions, both public and private. The program will:

i. Cooperate with national research and technology transfer systems and institutions in preparing human resources development plans.

ii. Cooperate with universities and other training organizations in areas related to curriculum development.

iii Promote the development and implementation of mechanisms that will facilitate greater integration between research and graduate training.

d. Reciprocal cooperation and international coordination of research and technology transfer

The region already has experience with networks for information exchange, technology transfer and international coordination of research activities in specific areas. These experiences have proven an effective way to make better use of available resources for such activities. This is particularly true for the smaller countries, which cannot meet all their technological

needs if they act in isolation. The experiences of such programs as the PCCMCA, PRECODEPA, REDINA and PROCISUR provide clear evidence of the usefulness and potential impact of these mechanisms. However, if such programs are to operate effectively, they must be adequately funded and receive enough administrative support to operate internationally. In this context, the program will cooperate with the member countries to:

i. Identify areas and opportunities for cooperation and information exchange.

ii. Seek and obtain needed financial resources.

iii Design and implement institutional and administrative mechanisms for cooperation and exchange.

During the 1987-1991 term, the PROCISUR program will be continued. The implementation phase will begin on the PROCIANDINO project, and initial activities will take place to define similar mechanisms for the countries of Central America and the Caribbean. Stress will be placed on administrative support for research networks such as REDINA, PCCMCA and RISPAL.

e. Formulation and implementation of investment projects

One of the most important requirements for the development and consolidation of a highly productive research and technology

transfer system is adequate financing. Investments in this field have special characteristics and are highly profitable. Therefore, bilateral and international funding agencies are very interested in assisting national efforts to strengthen technology generation and transfer systems. This interest can be translated into concrete, productive programs only if specific projects are available and administrative capabilities exist for implementing them. The program will facilitate the efforts of member countries to reap the benefits of these funding opportunities. It will:

i. Assist national institutions in seeking resources.

ii. Cooperate, together with the Investment Projects Center (CEPI), in the design and formulation of projects.

iii At the request of the countries, participate in administering these projects.

3. Operational structure

Program actions are implemented through activities conducted by the program directorate and by the IICA offices in the member countries. In general terms, the program directorate is responsible for the orientation of all IICA activities linked to technology generation and transfer, for implementing them at the multinational level, and for coordination with other IICA program activities. Offices

in the countries assume direct responsibility for technical cooperation activities within their specific national spheres.

Within this framework, the program directorate will direct its efforts and resources toward:

i. Developing concepts and continuously updating the technical capacities of the Institute in the areas of program concentration.

ii. Analyzing and approving, within the framework of the programming system, all projects to be conducted in the field of technology generation and transfer, and implementing national projects that fall within the areas of program concentration.

The national offices will be responsible for:

i. The design and implementation of national technical cooperation projects within the areas of concentration of Program II.

ii. Logistic support and administrative follow-up of the national components of multinational projects within the program.

iii Identifying, preparing and implementing service projects linked to national technology generation and transfer systems.

In terms of specific projects, interaction between the two operational levels will formally take place through programming, follow-up and evaluation systems, whose structure and procedures are based on the different responsibilities of each operations

center and reflect the need to ensure the merging of the project objectives and the program guidelines established in the 1987-1991 Medium Term Plan. Table 1 provides a summary of the responsibilities of and interaction between the program directorate and the national offices for each type of project with regard to technical and budgetary initiatives and responsibilities.

TABLE 1
SUMMARY OF RESPONSIBILITIES AND THE FORM OF INTERACTION BETWEEN THE PROGRAM DIRECTORATE AND THE NATIONAL OFFICES BY TYPE OF PROJECT: TECHNOLOGY GENERATION AND TRANSFER PROGRAM

TYPE OF PROJECT	INITIATIVE AND LEVEL OF TECHNICAL AND ADMINISTRATIVE RESPONSIBILITY	RESPONSIBILITY FOR BUDGETARY RESOURCES
1. PROGRAM DIRECTORATE AND MULTINATIONAL PROJECTS ASSIGNED TO THE PROGRAM DIRECTORATE	PROGRAM DIRECTORATE. Responsible for the conception and general implementation of the project NATIONAL OFFICE. Provides logistic support and administrative supervision of the implementation of the national components	Activities are implemented with budgetary resources under the responsibility of the program directorate.
2. NATIONAL PROJECTS WITHIN THE AREAS OF PROGRAM CONCENTRATION	PROGRAM DIRECTORATE. Participates in project approval and evaluation; provides technical support in accordance with subject priority and availability of resources	Activities are implemented with resources under the responsibility of the national office.
3. ADMINISTRATIVE SERVICE PROJECTS	PROGRAM DIRECTORATE. Participates in project approval; provides support and participates directly in the design and negotiation stage. NATIONAL OFFICE. Responsible for project identification and for the design and negotiation of the technical and legal instruments required for implementation.	Activities are implemented with external budgetary resources under the responsibility of the national office.

V. RESOURCES AND PROJECTS UNDER WAY

For the 1987-1991 term, the program has 64 projects under way, in addition to six projects for which resources are being negotiated. Of this total figure, 11 are multinational projects and 53 are national projects, with 16 in Area 1 (Central), eight in Area 2 (Caribbean), 14 in Area 3 (Andean), and 15 in Area 4 (Southern). The total budgetary resources allocated to the program amount to US$9.358 million in 1988 and US$9.015 million in 1989, of which approximately 30 percent comes from quotas and about 70 percent from external resources. Table 2 presents a complete list of projects under way and under negotiation, classified by operation center responsible for their implementation. Table 3 presents a list of the technical personnel assigned to the program projects as of May 31, 1987.

TABLE 2 PROGRAM II: TECHNOLOGY GENERATION AND TRANSFER

TITLE	COST (US$ x 000)								
	1987			1988			1989		
	REG.	EXT.	TOTAL	REG.	EXT.	TOTAL	REG.	EXT.	TOTAL
PROJECTS UNDER WAY	1595.5	6087.1	7683.0	2797.6	6560.7	9358.3	2854.0	6161.0	9015.0
1. Projects at program headquarters	144.0	0.0	144.0	525.1	0.0	525.1	550.9	0.0	550.9
-Conducting and promoting Program II projects	144.0		144.0	212.7		212.7	218.9		218.9
-Support for defining policies and organization of technology generation and transfer systems */				138.1		138.1	148.3		148.3
-Training in the management of research and technology transfer */				97.0		97.0	102.7		102.7
-Bibliographic information system on policies, organization and management of research and technology transfer */				22.3		22.3	23.7		23.7
-Support for international scientific organizations */				31.5		31.5	33.1		33.1
-Support for the Latin American chapter of the International Federation of Agricultural Research Systems (IFARD) */				23.5		23.5	24.2		24.2
2. Multinational projects assigned to the program	381.6	1602.1	1983.7	629.2	1781.4	2410.6	593.1	1550.8	2143.9
-Cooperative Agricultural Research Program for the Andean Subregion (PROCIANDINO) - Ecuador	72.6	779.7	852.3	88.4	1117.8	1206.2	88.4	801.5	889.9

TITLE	COST (US$ x 000)								
	1987			1988			1989		
	REG.	EXT.	TOTAL	REG.	EXT.	TOTAL	REG.	EXT.	TOTAL
-Cooperative Agricultural Research Program for the Southern Cone (PROCISUR) - Uruguay	268.6	742.2	1010.8	275.0	613.8	888.8	198.0	726.0	924.0
-Research network for animal production systems in Latin America (RISPAL)	40.4	80.2	120.6	55.1	49.8	104.9	81.0	23.3	104.3
-Support for the organization and management of technology generation and transfer in the Caribbean - Saint Lucia */				88.0		88.0	92.6		92.6
-Rational use of renewable natural resources in the humid tropics of the Amazon countries (IICA-TROPICOS) - Brazil */				122.7		122.7	133.1		133.1
3. Country projects	1070.3	4485.0	5555.3	1643.3	4779.3	6422.6	1710.0	4610.2	6320.2
AREA 1 CENTRAL									
Costa Rica Technical cooperation services for the program to increase agricultural productivity (PIPA)	5.0	336.6	341.6		124.8	124.8			0.0
Costa Rica Technical and administrative support for the SEPSA agricultural zoning program	44.7	24.9	69.6			0.0			0.0
Costa Rica Study for improving dairy cattle feeding technology with the use of feed grains		34.8	34.8			0.0			0.0
Guatemala Improvement of double purpose cattle production systems	13.1	52.1	65.2	10.0	35.5	45.5		36.9	36.9

	TITLE	COST (US$ x 000)								
		1987			1988			1989		
		REG.	EXT.	TOTAL	REG.	EXT.	TOTAL	REG.	EXT.	TOTAL
Guatemala	Technical and administrative support for the Agricultural Documentation and Information Center (CEDIA) of the San Carlos University School of Agronomy		5.7	5.7			0.0			0.0
Honduras	Cooperative project by IICA and the International Development Research Centre (IDRC) for introducing the use of the AGRIMEK and AGRIS/IDRC data bases in the countries of Latin America and the Caribbean	5.2	13.8	19.0			0.0			0.0
Honduras	Strengthening the agricultural research and extension program of the Secretariat of Natural Resources */				81.5		81.5	83.0		83.0
Nicaragua	Support for the agricultural information network of Nicaragua		56.5	56.5			0.0			0.0
Nicaragua	Support for MIDINRA in the organization and management of agricultural technology generation and transfer */				63.7		63.7	65.0		65.0
Nicaragua	Support for MIDINRA in the development of new nontraditional farm crops */				10.0		10.0	11.0		11.0
Panama	Support for the National Directorate of Renewable Natural Resources	76.1		76.1			0.0			0.0
Panama	Support for agricultural technology generation and transfer programs */				15.8		15.8	17.5		17.5
Panama	Support for livestock development, animal health and plant protection */				87.5		87.5	88.7		88.7
Dominican Republic	Support for improving livestock production	68.8		68.8			0.0			0.0

	TITLE	COST (US$ x 000)								
		1987			1988			1989		
		REG.	EXT.	TOTAL	REG.	EXT.	TOTAL	REG.	EXT.	TOTAL
Dominican Republic	Technical support for the reorganization and operation of the technology generation and transfer system		20.5	20.5	78.9		78.9	83.3		83.3
Mexico	Support for INIFAP in technology generation and transfer */				95.8		95.8	99.9		99.9
AREA 2 CARIBBEAN										
Barbados	Support of technology generation and transfer for fruit production	100.0		100.5	98.9		98.9	101.6		101.6
Windward Islands	Support for the organization and management of technology generation and transfer */									
	- Dominica				11.7		11.7	12.0		12.0
	- Grenada				43.7		43.7	46.3		46.3
	- Saint Lucia				13.3		13.3	13.7		13.7
Guyana	Support for technology generation and transfer for fruit production */				29.5		29.5	30.3		30.3
Haiti	Coordination of technology generation and transfer systems for the agricultural sector */				45.9		45.9	50.9		50.9
Jamaica	Support for agricultural technology generation and transfer	118.6	49.1	167.7	87.0		87.0	89.9		89.9
Suriname	Strengthening the Animal Production Division	43.9		43.9	17.4		17.4	20.6		20.6
Trinidad and Tobago	Development of cost effective technology for modern tree crop production */				80.4		80.4	82.6		82.6

	TITLE	COST (US$ x 000)								
		1987			1988			1989		
		REG.	EXT.	TOTAL	REG.	EXT.	TOTAL	REG.	EXT.	TOTAL
Dominica	Support for small-scale sheep producers	31.9		31.9			0.0			0.0
AREA 3 ANDEAN										
Bolivia	Strengthening a national system for training technicians of the agricultural public sector and outreach workers from producer organizations	40.5		40.5			0.0			0.0
Colombia	Strengthening the national subsystem for information on agricultural sciences (SNICA) and support for Rodrigo Peña Library	64.0	54.3	118.3			0.0			0.0
Colombia	Training in high-priority areas of agricultural sector agencies (PNCA)		175.9	175.9		202.1	202.1		209.8	209.8
Colombia	Support for the Colombian Agricultural Institute (ICA)	17.0	500.0	517.0	30.1	530.0	560.1	31.8	530.0	561.8
Colombia	Support for the CENICAÑA institutional research model		37.7	37.7		20.0	20.0		10.0	10.0
Colombia	Use of mass media for technology transfer and food security	7.5	92.5	100.0			0.0			0.0
Ecuador	Evaluation of tropical grasses in Ecuador		45.5	45.5			0.0			0.0
Ecuador	Strengthening INIAP */				74.0		74.0	75.4		75.4
Ecuador	Support for the Documentation Center of the Ministry of Foreign Affairs */					20.0	20.0		22.1	22.1

	TITLE	COST (US$ x 000)								
		1987			1988			1989		
		REG.	EXT.	TOTAL	REG.	EXT.	TOTAL	REG.	EXT.	TOTAL
Peru	Processing of Andean crops in Peru		87.6	87.6			0.0			0.0
Peru	Technical cooperation to strengthen agricultural research */				113.5		113.5	121.2		121.2
Venezuela	Support for the National Agricultural Information Network (REDIAGRO)	7.4		7.4	5.1		5.1	5.1		5.1
Venezuela	Support for the MAC-FONAIAP Dairy and Beef Production Development Program	60.5		60.5			0.0			0.0
Venezuela	Support for the national technical assistance system */				66.4		66.4	67.4		67.4
AREA 4 SOUTHERN										
Argentina	Technical cooperation with INTA in technology generation and transfer	114.3	292.0	406.3	127.2	342.9	470.1	132.9	130.4	263.3
Argentina	Technical cooperation with the credit program and technical assistance for machinery acquisition */				-	184.0	184.0		460.0	460.0
Chile	Technical cooperation to strengthen the country's principal technology transfer agencies	70.0		70.0	70.0		70.0	72.9		72.9
Chile	Technical cooperation to improve programming processes for agricultural research */				85.8		85.8	89.9		89.9

	TITLE	COST (US$ x 000)								
		1987			1988			1989		
		REG.	EXT.	TOTAL	REG.	EXT.	TOTAL	REG.	EXT.	TOTAL
Paraguay	Strengthening the subsystem for agricultural and forest education	72.8		72.8			0.0			0.0
Paraguay	Preparation and implementation of a medium term plan for the technology generation and transfer system */				70.7		70.7	74.1		74.1
Uruguay	Technical cooperation for graduate training (MGAP/CIAAB)	13.7	103.6	117.3	13.8	62.0	75.8	18.1	62.0	80.1
Uruguay	Technical cooperation for the process of developing a National Agricultural Research Institute */				50.5		50.5	50.7		50.7
Brazil	Technical cooperation with CENAGRI		5.0	5.0		5.0	5.0		5.0	5.0
Brazil	Support for CEPLAC to strengthen biological research activities		50.0	50.0		58.0	58.0		58.0	58.0
Brazil	Technical cooperation to strengthen agricultural research between IICA and the Brazilian Agricultural Research Institute (EMBRAPA)	21.8	219.4	241.2			0.0			0.0
Brazil	Cooperation with the technical team of the Special Ministry for Irrigation	5.6	821.1	826.7			0.0			0.0
Brazil	Administrative support for international centers		205.9	205.9			0.0			0.0

	TITLE	COST (US$ x 000)								
		1987			1988			1989		
		REG.	EXT.	TOTAL	REG.	EXT.	TOTAL	REG.	EXT.	TOTAL
Brazil	Technical cooperation with EMBRAPA to carry out projects for developing agricultural research and determining technology for the southern zone (PROCENSUL II)	67.4	1201.0	1268.4	65.2	2922.0	2987.2	74.2	2897.0	2971.2
Brazil	Technical cooperation with the National Research Council */					273.0	273.0		189.0	189.0

*/ Projects in final phases of approval process.

EXTERNALLY FUNDED PROJECTS IN NEGOTIATION

TITLE	SOURCE OF FUNDING	ESTIMATED AMOUNT (US$ x 000) 1988	1989
B. EXTERNALLY FUNDED PROJECTS IN NEGOTIATION			
Technical support for developing IICA programs	CIDA (Canada)	300.0	400.0
Strengthening capabilities for resource management and improvement of mapagerial skills in national agricultural research systems in Latin America and the Caribbean	IDB Norway	723.5 160.0	723.5 160.0
Cooperative agricultural research program for the central subregion (PROCICENTRAL)	IDB/AID-ROCAP	1000.0	1000.0
Technology generation and transfer for small-scale producers of basic foodstuffs in Central America, Panama and the Dominican Republic	UNDP	400.0	400.0
Information system on the organization and management of agricultural research of interest to Latin America and the Caribbean	IDRC (Canada)	50.0	50.0
Technical cooperation for institutional strengthening of the seed sector in Central America, Mexico, Panama and the Dominican Republic	IDB/AID-ROCAP	195.3	195.3

TABLE 3.

TECHNICAL PERSONNEL ASSIGNED TO THE TECHNOLOGY GENERATION AND TRANSFER PROGRAM

ASSIGNMENT	FIRST NAME	LAST NAME	DUTY STATION
2.0	Eduardo	Trigo	Headquarters
2.1	Eduardo	Lindarte	Headquarters
2.1	Jorge	Ardila	Headquarters
2.2	Edmundo	Gastal	Uruguay
2.2	Víctor	Palma	Ecuador
2.2	Antonio	Pinchinat	Peru
2.2	Guillermo	Villanueva	Panama
2.2	Jaime de J.	Isaza	Jamaica
2.3	Guillermo	Hernández	Ecuador
2.3	Teodoro	Tonina	Uruguay
2.3	Carlos	Molestina	Uruguay
2.4	Bommathanahal	Ramakrishna	Ecuador
2.4	Rafael J.	Marte	Barbados
2.4	Hernán	Caballero	Ecuador
2.4	Carlos E.	Fernández	Costa Rica
2.4	Miguel	Paulette	Brazil
2.4	Ignacio	Ansorena	Venezuela
2.4	Marcial	Jara-Almonte	Honduras
2.4	Raúl	Soikes	Panama
2.4	Edgar L.	Ibarra	Honduras
2.4	Antonio	Saravia	Paraguay
2.4	Gustavo	Cubillos	Guatemala
2.4	Warren	Forsythe	Trinidad & Tobago

2.4	Juan C.	Scarsi	Argentina
2.4	Oliver	Deaton	Bolivia
2.4	Vivian	Chin	Jamaica
2.4	Horacio	Stagno	Uruguay
2.4	Miguel	Cetrángolo	Peru
2.4	Héctor	Alburquerque	Chile
2.4	Eduardo	Indarte	Dominican Rep.
2.4	Marcial	Abreu	Chile
2.4	Héctor	Muñoz	Guyana
2.4	Joel	Maltos	Dominican Rep.
2.4	Manuel	Ruiz	Headquarters
2.4	Rufo	Bazán	Brazil
2.5	Gustavo	Lizárraga	Brazil
2.5	Omar	Brevis	Brazil
2.5	Waldo	Espinoza	Brazil
2.5	Sun Jen	Yang	Colombia
2.5	Ricardo	De León García	Costa Rica
2.5	Eduardo	Lleras	Brazil
2.5	Jorge	Echeverri	Turrialba
2.5	Sergio	Ruano	Costa Rica

Assignment Codes:

2.0	General Directorate
2.1	Program Specialist in General Directorate
2.2	Regional Program Specialist
2.3	Project Specialist, Program
2.4	Project Specialist, Office (Quotas)
2.5	Project Specialist, Office (Other funds)

OFFICIAL DOCUMENTS SERIES

Doc. No.	
1	General Plan of IICA (1970 – English and Spanish)
2*	Advisory Committee (1970 – English and Spanish)
3*	CIES Resolutions on Rural Development (1971 – Spanish)
4	Eleventh Annual Meeting of the Board of Directors – San Salvador, El Salvador, May 5 to 9, 1972 (English and Spanish)
5	Sixth Inter-American Conference on Agriculture – Lima, Peru, May 27 to June 2, 1971 (Spanish)
6*	Twelfth Annual Meeting of the Board of Directors – Santiago, Chile, May 10 to 13, 1973 (English and Spanish)
7	Principal Resolutions of the Board of Directors – Washington, D.C. 1962 to 1972 (English and Spanish)
8	Thirteenth Annual Meeting of the Board of Directors – Caracas, Venezuela, May 16 to 18, 1974 (English and Spanish)
9*	Fourteenth Annual Meeting of the Board of Directors – Ottawa, Canada, May 6 to 9, 1975 (English and Spanish)
10*	Implementation of IICA's General Plan (Elements for Analysis) (1976 – English and Spanish)
11	Fifteenth Annual Meeting of the Board of Directors – Washington, D.C., May 6 to 12, 1976 (English and Spanish)

* Out-of-print.

Doc. No.	
12*	Simon Bolivar Fund – Rules and Regulations (1977 – English and Spanish)
13*	Sixteenth Annual Meeting of the Board of Directors – Santo Domingo, Dominican Republic, May 11 to 19, 1977 (English and Spanish)
14*	Seventh Inter-American Conference on Agriculture – Tegucigalpa, Honduras, September 5 to 10, 1977 (English and Spanish)
15*	Medium-Term Indicative Plan. IICA: The Next Five Years (1977 – English and Spanish)
16	Seventeenth Annual Meeting of the Board of Directors – Asuncion, Paraguay, May 22 to 24, 1978 (English and Spanish)
17*	Eighteenth Annual Meeting of the Board of Directors – La Paz, Bolivia, May 14 to 16, 1979 (English and Spanish)
18	Nineteenth Annual Meeting of the Board of Directors – Mexico, D.F., September 22 to 26, 1980 (English and Spanish
19	Principal Resolutions of the Board of Directors. Washington, D.C. 1973-1980 (English and Spanish)
20	First Special Meeting of the Inter-American Board of Agriculture – San Jose, Costa Rica, February 17 to 19, 1981 (English and Spanish)
21	Eighth Inter-American Conference on Agriculture – Santiago, Chile, April 6 to 11, 1981 (English and Spanish)
22rev.	Base Documents: Convention on the Inter-American Institute for Cooperation on Agriculture; Rules of Procedure of the Inter-American Board of Agriculture, the Executive Committee and General Directorate (1984 – English, Spanish, French and Portuguese)

* Our-of-print.

Doc. No.	
23	Resolutions adopted by the Board of Directors of the Inter-American Institute of Agricultural Sciences and Still in Force (1984 – English, Spanish, French and Portuguese)
24	First Regular Meeting of the Executive Committee and the Inter-American Board of Agriculture – San Jose, Costa Rica, June 9 to 12, 1981 and Buenos Aires, Argentina, August 7 to 13, 1981 (English and Spanish)
25	Second Regular Meeting of the Executive Committee – San Jose, Costa Rica, September 12 to 17 and October 25 to 26, 1982 (English, Spanish, French and Portuguese)
26	Second Special Meeting of the Inter-American Board of Agriculture – San Jose, Costa Rica, October 27 to 29, 1982 (English, Spanish, French and Portuguese)
27	General Policies of IICA (1982 – English, Spanish, French and Portuguese)
28	Medium-Term Plan 1983-1987 (1982 – English, Spanish, French and Portuguese)
29	(Second Regular Meeting of the Inter-American Board of Agriculture – Kingston, Jamaica, October 24 to 28, 1983 (English, Spanish, French and Portuguese)
30	Fourth Regular Meeting of the Executive Committee – San Jose, Costa Rica, December 2 to 7, 1984 (English, Spanish, French and Portuguese)
31	Fifth Regular Meeting of the Executive Committee – San Jose, Costa Rica, July 29 to August 2, 1985 (English, Spanish, French and Portuguese)
32	Third Regular Meeting of the Inter-American Board of Agriculture – Montevideo, Uruguay, October 21 to 25, 1985 (English, Spanish, French and Portuguese)
33	Sixth Regular Meeting of the Executive Committee – San Jose, Costa Rica, July 13 – 17, 1986 (English, Spanish, French and Portuguese)
34	Third Special Meeting of the Inter-American Board of Agriculture – Mexico, D.F., Mexico, October 27-30, 1986 (English, Spanish, French and Portuguese)
35	1987-1991 Medium Term Plan (1986 – English, Spanish, French and Portuguese)

36. Seventh Regular Meeting of the Executive Committee – San Jose, Costa Rica, 15-19 june 1987
(English, Spanish, French and Portuguese)

37. Program II: Technology Generation and Transfer.
(English, Spanish, French and Portuguese)

38. Program I: Agricultural Policy Analysis and Planning.
(English, Spanish, French and Portuguese)

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