

ISNAR in the Eighties



International Service for National Agricultural Research

The International Service for National Agricultural Research (ISNAR) began operating at its headquarters in The Hague, Netherlands on September 1, 1980. It was established by the Consultative Group on International Agricultural Research (CGIAR), on the basis of recommendations from an international task force, for the purpose of assisting governments of developing countries to strengthen their agricultural research. It is a non-profit autonomous agency, international in character, and non-political in management, staffing, and operations.

ISNAR is the youngest of the 13 centers in the CGIAR network, and it is the only one which focuses primarily on national agricultural research issues. It provides advice to governments, upon request, on organization, planning, manpower development, staff requirements, financial and infrastructure requirements, and related matters, complementing the activities of other assistance agencies. In addition, ISNAR has active training and information programs which cooperate with national agricultural research programs in developing countries.

ISNAR also plays an active role in assisting these national programs to establish links with both the international agricultural research centers and donors.

ISNAR is supported by a number of members of CGIAR, which is an informal group of more than 30 donors; it includes countries, development banks, international organizations, and foundations. In 1984, funding for ISNAR's core program was provided by:

Australia
Canada
European Economic Community
Federal Republic of Germany
Ford Foundation
France
Ireland
Italy
Netherlands
Philippines
Spain
Sweden
Switzerland
United Kingdom
United States Agency for International Development
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**ISNAR's medium-term program
projected from its first three years**

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Foreword

ISNAR came onto the international agricultural research scene in September 1980. While similar in concept to its predecessors in the system of the Consultative Group on International Agricultural Research, the area of its mandate was new within the system. Its mandate is to help strengthen national research capabilities in developing countries to better plan, organize, carry out, and evaluate agricultural research using their own human, natural, and financial resources.

With just three years of work behind it, ISNAR is still in its early stages of development. It has cooperative programs with more than 20 developing countries in all regions. It has stimulated and taken part in a number of innovative activities with research managers and policy makers. Teaching cases have been prepared and other materials assembled and tested in its training program. Reports of its studies of national agricultural research systems, conferences and seminars have been widely distributed.

ISNAR is studying research organizations and management issues in national programs and keeping abreast of the work of others to gain a better understanding of key factors in effective national agricultural research systems.

In pursuing its assigned role, ISNAR has strengthened links with other CGIAR centers, and many assistance sources for agricultural research have been brought into constructive contact with the needs of national systems. The ISNAR staff and Board of Trustees have examined in detail the first three years of program activity and achievement. On the basis of our findings, we have projected the institution's program for the rest of the 1980's. We offer the substance of that examination and projections here in this document. The program we have projected here represents the reasoned view of the future as we see it now. As a new organization, of course, we must be flexible to meet changing circumstances, to respond to challenges and opportunities that we cannot now foresee.

May 8, 1984



W.A.C. Mathieson
Chairman
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Concepts and Knowledge from Early Experiences

ISNAR is the youngest organization in the CGIAR system. It was established in December 1979 through a Memorandum of Understanding signed by the International Bank for Reconstruction and Development and the United Nations Development Programme, to which was annexed the Constitution of the new Service. A nucleus of staff was recruited and numerous administrative arrangements were made during 1980; the new Service began its full-scale operational activities in 1981.

The ISNAR Constitution specifies that: "The first six years of ISNAR's existence (five years following a start-up year) are considered as an initial period to gain experience and to test the effectiveness of the Service. . . The initial period is considered, inter alia, as a phase to build up a medium-term program."

The present paper presents the pattern for such a medium-term program, based on the experience of ISNAR in its start-up year, 1981, and during 1982 and 1983.

A presentation of this type must necessarily be of a tentative nature. As its name makes clear, ISNAR is a service organization responding to requests from national agricultural systems. The needs of the national systems change over time and ISNAR's activities must change with them. A number of assumptions regarding such developments are made in this paper. They may or may not turn out to be accurate. All that can be said is that the paper presents the best forecast by ISNAR staff in early 1984, regarding the main thrust of requests for ISNAR assistance that may be received in the mid- and late-eighties.

The Setting

The pressures on national agricultural research systems throughout the developing world are certain to increase drastically in the coming decades. Indeed, the tasks facing the research community in developing countries are probably more complex, and certainly more urgent, than those that confronted the industrialized nations at any comparable stage of their development.

Food requirements continue to increase at historically unprecedented rates in response to population growth and urbanization. Many countries, particularly those in the low-income category, have since about 1970 been meeting their food deficits by increasing imports of cereals and other foodstuffs at an unsustainable rate; they now have no practicable alternative to stimulating domestic food production. Even those nations which have been most successful in their agricultural development have used up many of their easy options; future increases in output are likely to be both more expensive and more difficult to attain. With new land becoming increasingly scarce in most regions, improved technology for intensifying food production must be considered the key to progress, even though it is not by any means a sufficient condition for solving food problems.

Research must be devoted not only to increasing yields and permitting more intensive cropping; it must also consider the problems of coping with the environmental stresses that are emerging with increasing intensity in many regions. Unsuitable agronomic practices are leading to massive soil erosion; drought is an increasing problem as cultivation moves into less-favored areas; salinity is building up in irrigated lands; vast areas of rangeland are being damaged by excessive grazing. Not only must new technology take account of these factors; it must also give appropriate weight to economic and social considerations and, in particular, to the need to assure employment in the rural areas in the absence of job opportunities

elsewhere. The crucial challenge to scientists and policy-makers is to achieve rapid increases in production, while conserving the environment and maintaining the positive features of traditional farming systems.

There are few developing countries where the agricultural research establishment is capable of coping successfully with such problems. The Task Force on International Assistance for Strengthening National Agricultural Research, whose report led to the creation of ISNAR, classified developing countries into four categories according to the stage of development of their agricultural research systems.

The Task Force estimated that there were perhaps six countries in its Category A, consisting of countries with generally adequate levels of manpower, capable in both the management and the conduct of research. These countries have made substantial progress in the development of a well-organized research infrastructure and are in a position to interact with advanced research systems in other parts of the world. They may need assistance in handling specialized areas of research.

Category B consisted of countries with generally adequate levels of manpower, but whose research activities are fragmented, uncoordinated, and isolated from the development process. The Task Force estimated that there were about 10 countries in this situation.

Category C was composed of countries large enough to require a balanced agricultural research system, but lacking essential research infrastructure and usually having only a few crop research programs of limited scope. These nations need to develop effective research organization and management and to build the scientific manpower to carry out research programs. The Task Force indicated that this was the largest of any of the categories and contained about 40 countries.

Finally, according to the Task Force report, Category D consisted of about 35 small countries with very limited resources and insufficient area in any single crop to warrant a comprehensive research system. In these countries, the main need foreseen by the Task Force is to develop research capability, largely of an adaptive nature and including the necessary physical facilities for a few important commodities.

While the experience of ISNAR may bring out the importance of other considerations, the Task Force's survey defines the main features of the setting in which ISNAR must plan its program for the mid- and late-eighties.

The Role of ISNAR

In a broad sense, the role which ISNAR should play is defined in its Constitution. In this document it is stated that the "ultimate goal is to enable developing countries to plan, organize, manage and execute research more effectively. . . ." To that end, ISNAR is to provide assistance in "identifying research problems," in "formulating research strategies and policies," in "building up an adequate institutional infrastructure and other research facilities," and in "promoting specific national or regional research programs."

ISNAR is also expected to promote cooperation between the national institutions of the developing countries on the one hand, and the agricultural research centers of the CGIAR system, bilateral programs, and the international scientific community on the other.

An important provision is that ISNAR will normally seek the assistance of existing national and international agencies for the execution of its programs and projects. Only in exceptional cases will ISNAR take on operational responsibilities. Such activities must be financed by non-core sources and each case must be approved in advance by the Board of Trustees.

The guidance provided by the Constitution is not sufficient in itself to define the special role of ISNAR both within the CGIAR system and within the broader framework of international cooperation. Indeed, it has been the experience so far that the role of ISNAR is not entirely understood in some quarters. Furthermore, there is a measure of latitude for different interpretations of the Constitution on a number of points. For these reasons, it is believed appropriate to indicate in the present document the way ISNAR sees its role in the coming years.

ISNAR is dedicated, in the first instance, to the concept of system-building. This involves helping a country work towards the best possible way of organizing and managing its overall agricultural research program. This task requires an examination of such issues as structures, programming, financing, staffing, and the linkages of the research system to policy-makers, extension services, producers and other groups. The role of ISNAR will not be limited to examination of a particular system and making recommendations concerning it. Rather, it will work interactively with countries in implementing the measures agreed upon as necessary for strengthening the respective research systems, and in solving the numerous problems that inevitably emerge as change is introduced. ISNAR will maintain this relationship for as long as the country wishes and for as long as ISNAR itself believes that its assistance is useful. Its functions will be advisory. It will not normally take on operational responsibilities.

In the second place, ISNAR is prepared to help countries solve specific problems relating to one or more individual components of their research system. Such work will usually not require a formal review of the system as a whole. However, ISNAR will need to acquire sufficient understanding of the system's overall characteristics to solve these specific problems in the broad context. This type of activity will interest mainly those countries with an already well-developed research system.

Further, at the request of and in cooperation with a particular country, ISNAR will seek to mobilize the financial and personnel resources required to strengthen national systems, though not intending to become involved in the operational phases of a particular undertaking. ISNAR's expertise in questions of overall systems management should enable it to provide useful assistance in the identification and preparation of projects to be financed or implemented by other organizations. When funding can be found, ISNAR will also be prepared, when requested, to help the government concerned to identify an agency that will take on operational responsibility. Only if no such agency acceptable to the government can be found will ISNAR consider, on an exceptional basis, acting directly in an operational capacity.

ISNAR should strive to become well-recognized in the area of agricultural research policy, planning, organization, and management. Far from competing with the other international centers, ISNAR's activities will surely generate increasing requests for assistance from these centers for the strengthening of programs in particular fields.

The First Three Years of ISNAR

The first three years of ISNAR have seen it grow to its present level of 22 senior staff, complemented as necessary by consultants and support staff. Start-up activities have been undertaken in 15 countries of Africa, Asia and the Pacific, and Latin America. During this period, there has been a coherent development of ISNAR's approach and method for assisting developing countries to strengthen their agricultural research systems.

For administrative purposes, the activities of ISNAR are grouped into four main programs: assistance to the national agricultural research systems (which represents the major effort of the overall program), research on agricultural research systems, training and conferences, and publications and information. Although budgeted as four separate programs, these activities are in fact interactive in nature, with senior staff participating in more than one program according to need.

The methodology developed by ISNAR is based on that envisaged by the Task Force. When a request from a government has been accepted, ISNAR seeks agreement on the approach and procedures to be followed. Normally, the first stage is a review of the existing agricultural research system; this review is necessary to deal with the problems identified in the request or which may emerge in the course of ISNAR's work. The review is generally carried out by a team consisting of both ISNAR staff and consultants. The team works closely with national scientists, so that the conclusions and recommendations of the review are, as far as possible, reached jointly. The approach adopted by ISNAR is aimed at helping the country find its own solutions to its problems. ISNAR does not attempt to convince national scientists or policy-makers to accept a particular model or organizational pattern. This approach tends to maximize the prospect both for an effective follow-up of ISNAR recommendations and for ISNAR participation in this follow-up.

By the end of 1983, major review missions had been carried out in 15 countries. Seven of these were in Africa: the Ivory Coast, Kenya, Madagascar, Malawi, Rwanda, Somalia, and Upper Volta. Five were in Asia and the Pacific: Fiji, Indonesia, Papua New Guinea, Sri Lanka, and Western Samoa. Three were in Latin America and the Caribbean: Costa Rica, the Dominican Republic, and Guyana. Continuing activities are at various stages in most of these countries.

In addition, a number of more limited missions have been carried out to deal with particular subjects in Bangladesh, Cameroun, Colombia, Pakistan, Solomon Islands, Sudan, Thailand, Zimbabwe, the developing member countries of the Asian Development Bank in the South Pacific and the Economic Community of the Countries of the Great Lakes (Burundi, Rwanda, Zaire). Several of these missions have been fully or partially financed by non-core funding.

It is imperative that ISNAR's research on agricultural research systems play an important role in its overall program. To establish its competence in agricultural research policy, planning, organization, and management, and to work effectively with national leaders on these issues, ISNAR must have sound information and critical insight based on the systematic study of existing systems and on synthesis and testing of hypotheses from the related fields of public administration and management relevant to agricultural research systems. It is through its research on agricultural research systems that ISNAR is developing the knowledge base it requires to work effectively with national systems and to develop guides that national leaders can use with confidence.

The first three years have also seen the build-up of ISNAR's training program and the development of expertise and instructional materials on agricultural research management. ISNAR has also taken on specific responsibility for manpower planning, an important issue for most national systems.

At the start of its activities, ISNAR saw its communications and information program handling two quite different tasks: ISNAR's own publication and information requirements, both internal and external and issues of communication within national research systems, including their own communication with policy-makers. However, based on experience and a review of the balance between needs and available resources, this program is being changed to a publications and information program to concentrate on ISNAR's own internal and external requirements. Issues of communication within the national research systems will be addressed within the context of ISNAR's review activities and their follow-up in individual countries.

Cooperation has been established with a wide range of organizations. These include the other centers of the CGIAR system, several of which have participated with ISNAR in conducting review missions and other activities. Links have been developed with both multilateral and bilateral organizations, and with development banks, all of which can be expected to play important roles, at one time or another, in ISNAR's continuing activities with the national systems or in the identification of needs through their own research, training, and information programs. Further, there is growing cooperation with the Food and Agriculture Organization (FAO). Particular importance is attached to cooperation with global and regional organizations that are active in promoting agricultural research; an example is the International Federation of Agricultural Research Systems for Development (IFARD).

During these early years, financial support for ISNAR has been provided by numerous donors of the CGIAR system. In 1982, total contributions pledged to the core budget of ISNAR amounted to \$2,268,000; this amount came from eleven governments, the World Bank and the Ford Foundation. Additional contributions for special projects totaled

\$164,400 in 1982. Pledges to the 1983 core budget were made by fourteen agencies including governments, the World Bank, and the Ford Foundation for a total of approximately \$2,840,000.

Some Interim Findings

The following brief overview is based on an analysis of ISNAR's first ten review missions. It concentrates on the diagnosis of the problems of national systems. Approaches to remedial action are discussed in subsequent sections.

The findings tend, in general, to confirm the views of the Task Force, although with some changes in emphasis. For the purpose of presentation, the analysis is made in terms of four "areas of concern."

The first area is defined as the **general policy environment of national agricultural research**. This usually depends on two different factors: (1) the importance attached to the agricultural sector within the national economy and (2) the importance attached to research within agriculture. The first factor raises issues going somewhat beyond the responsibilities of ISNAR, but which must nevertheless be considered as having a major influence on its work. Unless there is a strong political commitment to strengthening the agricultural sector, accompanied by a reasonably clear definition of the goals of the sector, it may be extremely difficult to develop a strong research system with secure funding, rational priorities, and the ability to attract and retain high quality staff. In practice, countries differ greatly in the extent to which they are ready to translate a formal commitment to agriculture into specific policies and actions required to build up the sector.

Within the sector, similar considerations arise. The strengthening of agricultural research is unlikely to be a painless exercise: organizational changes, for instance, are likely to involve conflict with vested interests. A definite commitment at the top policy level is needed if the necessary decisions are to be taken and put

into practice. The situation encountered by the ISNAR missions has varied widely, but in several cases it is not obvious that decisions on strengthening the national agricultural research system will obtain the necessary political, policy, and financial backing.

It is rare for policy-makers to have an accurate perception of what agricultural research can and cannot be expected to achieve, or of the time scale involved. Agricultural research institutions, for their part, sometimes pursue their activities without seriously attempting to integrate national development objectives into their respective programs. Indeed, communication between agricultural researchers and policy-makers is virtually non-existent in many countries.

The second area of concern to ISNAR, and the most important in relation to its mandate, is defined as the **objectives, structure, funding and management of the national agricultural research system as a whole**. In most countries, the system has evolved in response to a succession of perceived needs and pressure from external and internal sources; invariably, it is highly fragmented. Decision-making processes are based on governmental structures and practices, which often are not well-suited to the management of agricultural research. There may be little or no coordination of the work of various research institutions. Satisfactory methods for setting and reviewing priorities are not usually incorporated into the system. Funding, especially of non-salary recurrent costs, is generally inadequate, insecure, and poorly allocated. Foreign aid, much of which is of a capital nature, often takes the form of projects which are not integrated with other research underway in the country; they may consequently be somewhat self-defeating by amplifying the defects of the system as a whole. Countering these numerous difficulties is the enthusiasm of the research community for an improvement in the system, and in particular its keen interest in achieving higher standards of research management.

The third area of concern is that relating to the **requirements for scientific, technical, and administrative manpower**. In few countries can the available manpower be considered reasonably adequate in relation to national resources and the importance of agriculture in the national economy. In some countries, manpower availability is so far short of perceived needs that the preparation of a long-term plan for manpower development was considered the highest priority. Technical support for scientists and the need for non-technical staff, such as accountants, must be considered along with the requirements for the training of scientific researchers. Indeed, the availability of trained administrative staff is of crucial importance for the development of the research system. In some cases, excessive dependence has been placed on expatriate scientists as an alternative to developing a corps of trained national researchers.

The fourth area of concern consists of the **external linkages of the agricultural research system**. It has been observed that arrangements for a two-way flow of information between research and extension are generally minimal or based on ad hoc initiatives. The same applies to linkages with university faculties of agriculture and with public corporations and the private sector. This is even more the case with respect to relationships with farmers, which indeed should be a vital component in the overall research process. There is need for more systematic mechanisms for the national systems to utilize the results of research already obtained by the international agricultural research centers, other international and regional organizations, and even within the country itself.

Although these four areas of concern have been presented separately, there is a strong interrelationship among them. Further, findings in these four areas reinforce the view of ISNAR that assistance for the strengthening of a national system should not be seen as a short-term exercise. Rather, it should be regarded as a continuing, interactive process, in which a country is assisted gradually in building up its capacity, a process in which problems are solved as they emerge or as opportunities arise.

Program Areas and Issues

The broad lines along which ISNAR proposes to develop its program for the mid- and late-eighties follow from the analysis of ISNAR's interim findings. Before activities are examined, it is useful to indicate the assumptions made regarding the overall size and shape of the program.

Size and Shape of the Total Program

In the face of virtually limitless needs for strengthening national agricultural research systems, ISNAR will continue to aim at quality and not quantity in its output of work. System-building is a complex and often delicate process, and a corresponding degree of sensitivity, experience and good judgment is needed by external organizations engaged in helping countries towards a successful completion of this task. There are few international experts in this field; a mere transposition of experience from one country to another is generally not sufficient. ISNAR will enlarge its understanding of the problems and its institutional capability without greatly expanding the size of its staff and the scale of its activities. Over the medium term, it is expected that the number of senior core staff will be in the range of 22 to 28 people.

To the extent that requests for ISNAR assistance exceed its capacity to help, a balance will have to be made between taking on new commitments and assisting national systems in the continuing activities evolved from earlier country reviews. New commitments will, if necessary, be determined by the application of existing criteria, which include the degree of commitment to strengthening the research system, the potential support for improvement, the urgency of the problems, and the opportunity for significantly expanding ISNAR's information base for the possible benefit of many countries.

In the medium term, reviews of national agricultural research systems are expected to continue at a level of about three to five a year, after which the number of new requests which ISNAR can handle will need to be reviewed. As previously foreseen, the emphasis of the program has already moved towards the implementation of measures proposed by the national systems and ISNAR. Such implementation, rather than the development of general reviews, should be regarded as the long-term objective of ISNAR's work. Indeed, it may be a better choice of terms to refer to the "preparatory phase," (consisting largely of review missions) and the "program phase" during which the actual strengthening of a national research system occurs. It is necessary to make clear, however, that the program is carried out by the country, with ISNAR providing back-up support and advisory assistance as requested.

The role of ISNAR defined in a previous section will not require it to develop an elaborate array of operational activities. However, it should examine various methods to conduct its program of work with the national systems. To date, a concentrated review and analysis of a national system by an ISNAR team has been the main approach. There are other methods which should be tested, such as a small ISNAR team working with a national team over an extended period of review and analysis with a predetermined program of work and visits. Another method may be through posting an ISNAR staff member in a developing country, at the request of the country, to work with national leaders on the review and analysis. As emphasized earlier, the review and analysis is only the start of cooperation between ISNAR and a national research system. There will be cases in which it will be essential for ISNAR to post staff in a country for an extended period to help monitor implementation of changes in the system that have been recommended and accepted. Such a scheme would also enable

ISNAR to test its recommendations and, through continued direct contact, to strengthen the information base it needs on how to strengthen national systems. It is estimated that over the medium term there might be as many as ten ISNAR staff posted in various countries. In the large majority of cases, however, ISNAR will carry out its role by means of regular visits, arranging cooperation with the IARCs, assisting collaboration with multilateral and bilateral donor agencies, providing training courses, and offering help on information activities.

It is assumed that the core budget of ISNAR, over the medium term, will remain approximately \$3 million per year in terms of 1980 dollars. This budget level is compatible with the forecast of activity presented in the preceding sections. Most of the outposted staff are expected to be financed from sources outside the core budget.

Main Patterns of Activity

It is proposed that program development be viewed in terms of two broad and interrelated patterns of activity. Each of these will require an integrated approach by all of the ISNAR programs. They do not correspond precisely to ISNAR's internal structure, but they may be regarded as general objectives for the work of ISNAR as a whole. These patterns of activity are summarized as follows:

1. To work interactively in depth with about 30 countries at any particular time in strengthening their national systems for agricultural research and to:
 - a) Carry out review missions when requested;
 - b) Assist countries when necessary to translate ISNAR recommendations into specific projects;
 - c) Help to mobilize external aid for project support;
 - d) Provide continuing policy advice when sought.

2. To develop the capacity of ISNAR to provide specialized information and advice on the major aspects of planning, organization, and management of agricultural research. The delivery of this information and advice will be through its direct contact with national leaders, through its training programs, and through its publication activities.

As a part of its overall objectives, ISNAR will work closely with national leaders to try to improve the policy environment for strengthening national agricultural research. As an integral part of its functions, ISNAR will develop cooperation with other international organizations and research centers.

The following analysis examines these broad lines of development and indicates, in general terms, the possible implications for the four main programs of ISNAR.

Strengthening National Systems

It is expected that ISNAR will have the capacity during the next few years to provide substantial assistance to about 30 national agricultural research systems at any particular time. The services requested from ISNAR will vary widely from one country to another; thus, the total workload to be handled can be forecast only in general terms. As ISNAR carries out its work, the process and product are reviewed periodically to determine ways and means to increase effectiveness and improve procedures. Guides for review, analysis, and evaluation are being developed from these studies to assist ISNAR in its work. Many national systems can well use these guides for their own self-analysis and self-improvement.

Review and analysis of national agricultural research systems will continue to be the main instrument for the initial work with the national systems and will provide the basis for recommending improvements to strengthen them. The continued analysis and comparison of experience will produce a continuous strengthening of ISNAR's capabilities.

The methodology for helping countries implement ISNAR recommendations is still in the early stages of development. To date, the recommendations presented by review missions have tended to fall into three main categories: (1) changes in the structure or functioning of the system for more effective utilization of available or potential resources, (2) determining and developing the necessary human resources for agricultural research, and (3) strengthening the system's external linkages. The nature of the specific measures proposed, their financial implications, and the time scale for their implementation vary widely from one country to another. They do not necessarily constitute an entire package; the system can benefit even if only partial implementation is possible.

Ideally, the initial follow-up to a review mission should be the development by the government, with ISNAR assistance if required, of a detailed and phased plan for strengthening the research system. Within the limits of its resources, ISNAR will be prepared to help any country in the formulation of such a plan when requested. In reality, it can be expected that in most cases some recommendations will be promptly accepted or rejected, while other recommendations will require extended consideration. Therefore, there must be a degree of flexibility, and a readiness to improvise, in ISNAR's approach to helping countries towards the implementation of recommended measures. Nevertheless, ISNAR should be ready to make clear that there may be little point in taking partial measures in the absence of a firm policy decision to strengthen the agricultural research system as a whole.

Some of the recommendations coming from a review and analysis can generally be translated into specific projects, which may qualify for support from aid organizations in the form of technical cooperation or investment funding. ISNAR will work with the government in developing such projects, if this is desired, and subsequently participate in efforts to obtain the necessary financial assistance. Normally,

governments already have their contacts with aid organizations, but support from ISNAR may be useful in helping to obtain early assistance of this type.

Some measures proposed as a result of a review and analysis of a national system may not lend themselves to execution in the form of projects. In these cases, ISNAR will be ready to maintain a dialogue with the national system and to offer assistance for implementation in any feasible way. High priority will be given to the provision of advice on policy and organizational issues.

In this respect, ISNAR looks at its research and training programs as playing a major role within the context of mission follow-up and continuing activities with its client countries. The first is carried out by generating the materials needed to develop and increase the awareness and understanding by national policy-makers of the potential contributions of agricultural research and its policy and resource requirements. The second is conducted by providing the vehicle through which national research constituencies are exposed to the relevant policy issues.

A matter on which a policy will need to be established by ISNAR's Board of Trustees is the scale to which ISNAR should outpost staff in particular countries. As indicated earlier, it is presently assumed that no more than ten staff would be a reasonable number in this category over the medium term. One possibility would be a regional approach for support of national systems. This would involve the outposting of an ISNAR staff to assist a group of countries or making other arrangements to utilize expertise available in the area. Outposted ISNAR staff should be able to draw on the resources of ISNAR's entire staff and information base, on centers of the CGIAR system, and on the international scientific community.

Promoting a Favorable Policy Environment

In a previous section, it was indicated that efforts to strengthen national agricultural research can be effectively nullified by an unfavorable policy environment within the agricultural sector regarding the role and potential of research. Equally, these efforts can be frustrated by a negative view of agriculture as a whole in the top policy and political management of a country. This is a sensitive issue for an external organization. Nevertheless, the effects of this issue are so crucial and so fundamental that ISNAR must be in a position to contribute towards promoting more favorable policy environments for research, both within the agricultural sector and to some extent beyond it. Naturally, efforts in this direction will be made with caution and in closest collaboration with the national institutions.

One of the issues to be faced squarely but tactfully is that in endorsing agricultural research, policy-makers and politicians are being asked to support a relatively long-range undertaking. The ultimate results of such support may not be evident until their own terms of office are long over. Thus, there is likely to be little short-term political advantage for them, even if there may ultimately be substantial benefits for the community.

In practice, many governments have been known to oscillate from enthusiasm for agricultural research to frustration and despair as the research establishment failed to produce rapid solutions to national food problems. Policy-makers need to be informed of the potential contribution of agricultural research to economic and social development and encouraged to give it the sustained backing which it needs. At the same time, government leaders must be cautioned of the necessity to realize that the results of agricultural research are not rapidly attained.

At the international level, too, there is scope for much greater understanding of the needs and potentials of national systems. Ever since the world food crisis of the mid-seventies, public opinion in the industrialized countries has been alerted to the importance and dangers of global food problem. Factors which are not generally appreciated are: (1) the fundamental contribution which research must make if appropriate technology is to be applied on farms in many environments and (2) the fact that agricultural research is a subject admirably suited to international cooperation. Accordingly, there is a challenging task for ISNAR and others to demonstrate to political and public groups, in both the industrialized and the developing nations, the fact that strengthening agricultural research in the developing countries is urgent, important, and feasible, and that there are immense benefits from external cooperation at both the regional and international levels.

How to convert these general considerations into practicable steps is an issue of priority and importance to ISNAR. Clearly, each situation must be handled as circumstances require. Countries vary widely in their degrees of conviction or scepticism regarding the benefits of agricultural research. Further, there is little point in preaching to the converted; those who must be informed are the people, especially those in positions of authority, who know little of agricultural research but who are prepared to take a positive view of its possibilities.

In this regard, one technique regularly used is to establish a dialogue with policy-makers within the framework of an ISNAR review of a national system. Another approach is to conduct seminars in the country to discuss the report of ISNAR's review and its recommendations. At the international level, ISNAR, in cooperation with one or more centers of the CGIAR system and others, has organized discussions on agricultural research for senior policy-makers in ministries of economic affairs and agriculture. Although at this stage there are more questions than answers, ISNAR strongly believes that activities such as these can be of significant long-term value for developing nations.

Unique Role for ISNAR

ISNAR has been established for the specific purpose of strengthening national agricultural research. This gives it a unique role in the international community and particularly within the CGIAR system. Therefore, it is essential that ISNAR build up its specialized information and expertise. It aims to become, on the international scene, a recognized source of professional capability on matters concerning agricultural research policy planning, organization and management, and related fields. ISNAR's body of knowledge, understanding of alternative approaches, staff capacity, and roster of specialized consultants should provide the competence and experience required.

This capability will not be achieved by the mere passage of time and widening of experience. Planned efforts must be made to reinforce ISNAR's expertise through research in depth on unresolved issues, the improvement of procedures for developing "institutional memory," and the strengthening of skills in strategically selected fields.

Issues of Special Concern

Two important areas in which ISNAR is developing specialized knowledge are manpower needs and governance of national systems. Also of importance is the related problem of funding requirements and how they should be met. In addition to these broad fields of inquiry, there are specific problems to which ISNAR will need to direct its attention; some of these are briefly reviewed.

A major issue on which there is no conventional wisdom as yet is the best procedure for **setting research priorities**. Once the overall objectives have been established for agricultural development in a given country, it might be thought easy to identify the research tasks which will make the greatest contribution towards attaining these objectives.

Unfortunately, this is not the case. Decisions must take into account the relative importance of many potentially conflicting factors: production objectives, environmental considerations, equity, nutrition, the capacity of an extension service to transmit and the farmers to adopt a new technology, and the dilemma of whether to seek a rapid but limited payoff or strive for more comprehensive long-range results.

There have been many studies of priority-setting for agricultural research; the challenge now is to find practical ways of translating general principles into operational decisions. ISNAR will attempt to develop improved models for decision-making in a national system that is in an early stage of development. It expects to be in a position to offer national systems carefully considered advice on methodologies and procedures for handling this matter.

A related issue of major importance is the **fragmentation of many national systems**; this presents another series of problems on which ISNAR should be able to offer advice. In some situations, the basic answer will probably lie in improved programming procedures at the national level. In other cases, structural changes in the system may be necessary. However, the modification of institutional structures can be difficult to achieve in practice, because it tends to produce resistance by potential "losers"; this may ultimately lead to a politicization of the reform process. As a general rule, it is advisable to select the least disruptive approach; even so, this principle can leave ample room for judgment in a particular situation. ISNAR should be in a position to identify alternative approaches and to point out the implications of each, leaving the final decisions to the authorities of the country concerned.

A further issue concerns the **review and evaluation of agricultural research programs**. It is important that national systems incorporate arrangements for periodic self-evaluation or for review by an external body. Such mechanisms provide highly useful internal management tools. For this purpose, a methodology is needed that includes an examination not only of the output of the research station or system but also of the use that is being made of the output. This is certainly not an easy problem to resolve; no single scheme for review and evaluation is universally satisfactory. Here again, ISNAR should be prepared to suggest possible approaches in a particular situation, with an analysis of the financial and other implications of each.

Another issue which may be specifically identified is the well-known problem of inter-facing research and extension. Despite all the studies which have been devoted to this matter, and the many analyses of existing extension systems in developing countries, there is still no model or set of models commanding general acceptance. ISNAR will seek to develop alternatives for strengthening the two-way flow of information between researchers and extension workers, and between researchers and farmers. It will take a cautious attitude towards a direct involvement on matters relating to extension systems. However, it is important to remember that there is little point in strengthening national agricultural research unless the problems of farmers are understood by researchers and the output of the scientists can effectively reach the producers.

Two other areas in which ISNAR will strengthen its capacity are training in research management, and the publication of relevant and timely documents. In the area of **training in research management**, ISNAR has already made a good start in developing courses and course materials. There appears to be a strong need in national systems for this type of training; ISNAR's limited activities have so far been received with considerable enthusiasm. It will be necessary for ISNAR to build up its

capability in this field if it is to play the role that national systems increasingly expect. ISNAR has already begun to exploit the possibilities of a regional approach through cooperation with institutions which can serve as focal points for training in research management over a broad geographical area. It will also develop contacts further with other organizations such as FAO and IFARD.

In regard to ISNAR's **publications and information program**, the paramount need is to publish and make available the results of its reviews and analyses of national agricultural systems. It is also necessary to publish the results of its research on national systems or system components, training materials, and guides developed for use by national systems. There is also the opportunity and the need for ISNAR to develop a specialized information or documentation service on issues relevant to strengthening national agricultural research. In this endeavor, particular attention will be given to topics on organization and management for the use by ISNAR staff as well as to provide information to leaders of agricultural research institutions in developing countries and others concerned with agricultural research development.

Cooperation with Other Organizations and Centers

No subject lends itself so easily to simple generalizations as that of cooperation between institutions. For ISNAR, however, the issue is not one to be treated in a formalistic or perfunctory manner. ISNAR is small in relation to the problems it was set up to handle. If it is to have a significant impact, it must find ways of achieving a multiplier effect. One of these is by providing its services of professional capability and experience to other organizations. ISNAR will be asked for cooperation if it has something to offer, and this in turn depends on the overall quality and reputation of its program.

The analysis of ISNAR's experience during its first three years included a description of how it has started to develop relationships with other centers and international organizations. As ISNAR moves progressively towards more cooperation with the national systems in the implementation of recommendations, new contacts and linkages will be established.

Implications for ISNAR Programs

The lines of development described above have considerable implications for the four programs into which ISNAR activities are structured and for their linkages. These are analyzed at the present stage only in general terms.

Work with national systems. The program for assistance to national agricultural research systems will certainly continue to be the primary thrust of ISNAR activities. It will have to accommodate a continuing buildup in its workload as reviews are carried out in new countries, while at the same time earlier reviews move into the follow-up phase. Indeed, it is the absorptive capacity of this program area which will determine the extent to which ISNAR is able to take on new commitments in the coming years. To some extent, posting of ISNAR staff as advisors in countries or regions can lighten the load on the staff at headquarters, but outposted staff will need careful backstopping if they are to perform successfully.

Research. The program for research in agricultural research systems will play a key role in building up ISNAR's capacity to serve national programs and to help develop the conceptual base it requires to effectively strengthen national agricultural research. The research program will deal primarily with the development of operational concepts relevant to ISNAR's work. However, it will also concern itself with the broader issues related to the promotion of a favorable policy environment for agricultural research.

Training. The training program will continue to be concentrated on training in research management as its major task. The primary target audience will be senior administrators, including research station managers. Geographical coverage will not be limited to the countries with which ISNAR is collaborating on research system development. Conferences on research management can be an important vehicle, not only for the exchange of experiences but also for securing greater attention on matters involving agricultural research policy.

Publications. The publications and information program will have an important contribution to make towards improving an understanding of the role and importance of agricultural research. In addition to documenting ISNAR's own work, the program will provide information on the general subject of research management.

The evolution of ISNAR activities described in this paper will require close linkages among all four of its programs. In particular, it will become increasingly important for work at the country level to utilize and, in turn, contribute to the results of the research program. Similar linkages will be developed in respect to the training program and the publications program. ISNAR can function effectively only by developing unique expertise and utilizing it for practicable operations.

Concluding Remarks

The need and demand for ISNAR assistance to national systems of agricultural research far exceed its modest resources. Therefore, one of the fundamental objectives of ISNAR in the mid- and late-eighties must be to maximize the impact of its work. There are still many questions regarding the best ways of doing this. It is clear that ISNAR will need to be highly flexible in its response to the evolving needs of national research systems.

This presentation of a medium-term program for ISNAR has raised a number of unresolved issues which will have to be settled as it acquires more experience. Thus, this outline of the medium-term program should be regarded as a step in the development process of ISNAR.

A look at the world of the mid- and late-eighties indicates that food problems in many developing nations will become increasingly crucial and complex. Agricultural technology will have a vital role to play as efforts are intensified to make traditional farming systems suitable for coping with the pressures of feeding a modern state. The strengthening of agricultural research in developing countries should thus be given a high priority, both within the countries concerned and at the international level. ISNAR is ready to help national systems of agricultural research prepare for the tasks that face them and, at the same time, will seek to promote a wider understanding of the contribution which agricultural research can make to economic and social development.