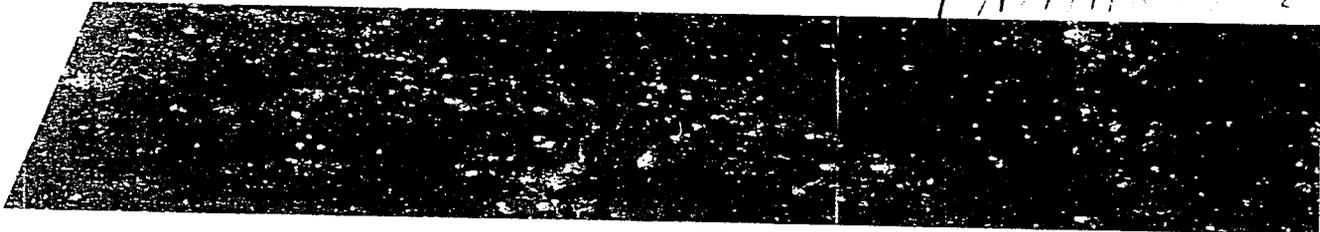


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ISNAR

International Service for National Agricultural Research

Foreword



ISNAR has a unique place in the institutional landscape of the global agricultural research support systems: the Consultative Group on International Agricultural Research (CGIAR), the specialized institutions, universities, and development assistance agencies.

In positioning ISNAR in this institutional landscape, it is helpful to look briefly at three kinds of challenges facing agricultural research in the developing countries.

1. **The technology challenge.** There is a progressive worldwide move towards a science-based agriculture. Technological progress is required in developing countries to deal with food and poverty problems; to increase productivity and promote economic development; and perhaps the greatest challenge, to combine environmental sustainability

with productivity gains as population pressure on the land forces people to move increasingly into more-difficult environments. Many developing countries are coming to realize that science is a bargain -- a better investment than, say, some kinds of high-cost infrastructure expenditures.

2. **The policy challenge.** We need a political climate supporting sound policies -- making credit, production inputs, fair prices, markets, and so on, available to farmers -- to complement technological progress. The policy and economic setting has an important bearing on the impact of research.

3. **The institutional challenge.** We need strong institutional capacities at both the international and national levels to address these complex issues.

NARS face the challenges. In all the discussions about international collaboration in the research and technology generation process – and conforming results to national development goals – the central role of national agricultural research systems has become increasingly clear.

They must assume leadership in that process. This is essential in the larger countries which generate technology, as well as in the smaller countries which essentially import and adapt technology.

Technologies must fit local circumstances if they are to contribute effectively to national progress in the agricultural sector.

All this points to the need for building effective scientific capacities at the national level – strengthening NARS. ISNAR has an important role in the global agricultural research support system's efforts in working with NARS to strengthen their capacities.

Which brings us to ISNAR's activities during 1986 – the subject of this report. ISNAR engaged in two kinds of activities during the year: 1) We developed and tested our strategy – we defined our goal and objectives, and organized our programs and the way we perform our tasks. We enhanced our management capacity, filled gaps where our staff competence needed strengthening, and increased our capacity to fulfill our strategic commitment in the years ahead. 2) We continued collaborating with NARS in system-building activities – we planned our work and worked our plan.

In our 1986 annual report – presented on behalf of ISNAR's Board of Trustees and staff – we describe both areas of activities.

First, we present an overview of our strategy, followed by a description and examples of how we are implementing it in partnership with developing countries around the world. Enabling ISNAR to implement its strategy and carry on its program are our donors. We thank them for their continued support and confidence.

Alexander von der Osten
Director General

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ISNAR Donors - 1986

Donors to core program

Australia (Australian Development Assistance Bureau)
Belgium (Belgian Administration for Development Cooperation)
Canada (Canadian International Development Agency)
European Economic Community
Federal Republic of Germany (Bundesministerium für Wirtschaftliche Zusammenarbeit)
France (Ministère de la Recherche et de l'Industrie)
Ireland (Department of Foreign Affairs, Development Cooperation Division)
Italy
Netherlands (Directorate General for International Cooperation)
Philippines (Ministry of Agriculture)
Spain (Instituto Nacional de Investigaciones Agrarias)

Sweden (Swedish Agency for Research Cooperation with Developing Countries)
Switzerland (Department für auswärtige Angelegenheiten)
United Kingdom (Overseas Development Administration)
United States (Agency for International Development)
The World Bank

Donors for special projects

Government of Canada
Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ)
International Development Research Centre (IDRC)
Government of Italy
Government of Madagascar (with International Development Association)
Rockefeller Foundation

Rutgers University (under contract with USAID)
Government of the Republic of Rwanda (with International Development Association)
Technical Centre for Agricultural and Rural Co-operation (CTA)
Government of The Netherlands
Government of Tunisia (under a World Bank loan)
Government of the United Kingdom
United Nations Development Programme (UNDP)
Government of the United States of America
Winrock International Institute for Agricultural Development (under USAID contracts)
The World Bank



Members of the board of trustees at their December 1986 meeting are, from left to right: Howard Elliot (Secretary), Muhammed, Mwandemere, Dillon, Ekebil, López Saubidet, Carsalade, von der Osten, Thomas, Wessels, Ibrahim Nahal (representing TAC), Porceddu, Eduardo Venezian (representing FAO), and Sadikin.

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* Term ended June 1986

** Elected to Board June 1986



ISNAR Staff - 1986

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- Dr. Howard Elliott, Deputy Director General, Research and Training
- Dr. H.K. Jain, Deputy Director General, Collaboration with NARS
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- Dr. N'Guetta Bosso**, Senior Research Officer (based in Burkina Faso)
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- Dr. E. Trigo*, Senior Research Officer
- Dr. Carlos Valverde, Senior Research Officer
- Dr. Dennis Wood, Training Officer

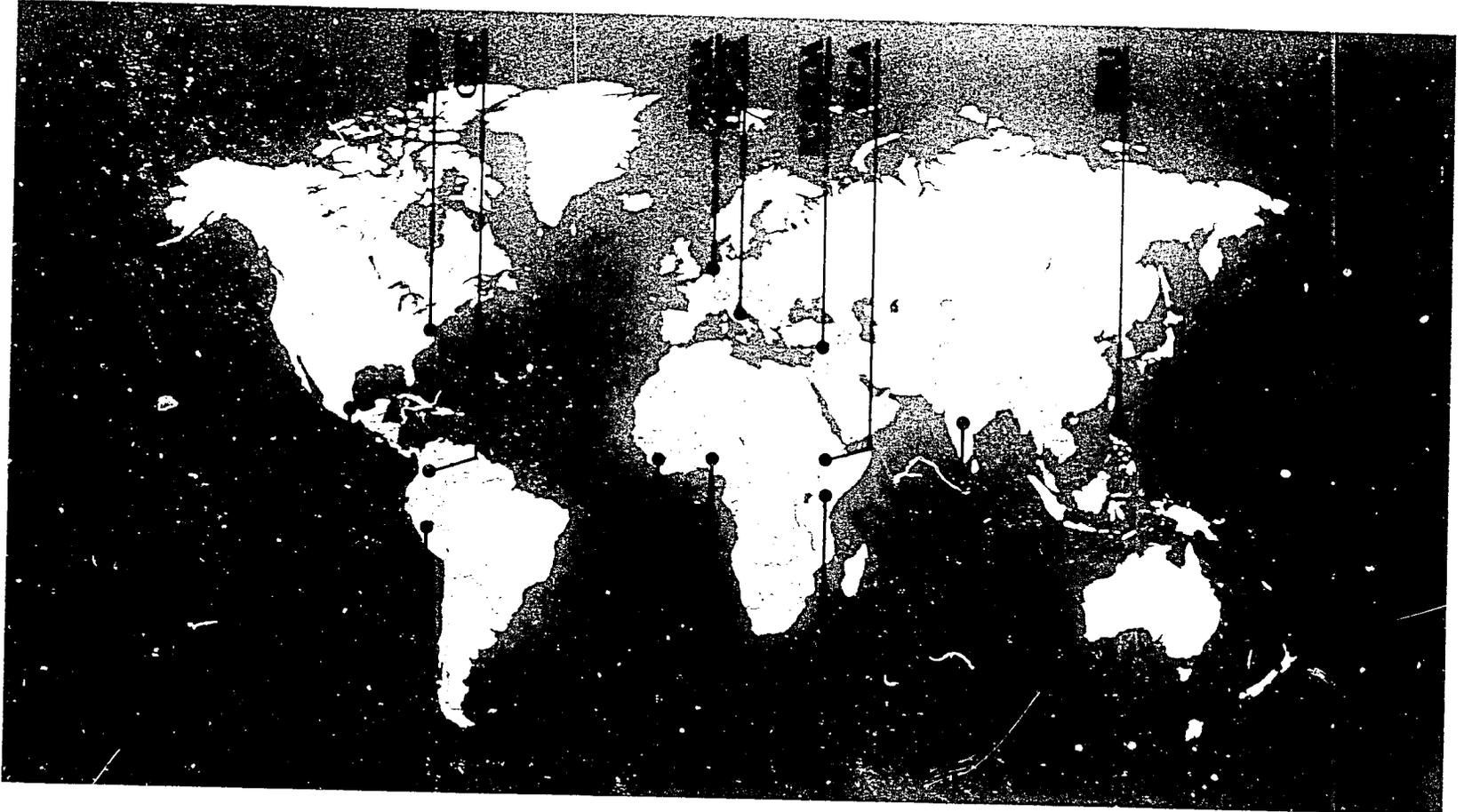
** Joined during 1986

* Completed appointment during 1986

Some acronyms used in this report, including the 13 IARC s

AOAD	Arab Organization for Agricultural Development
CARDI	Caribbean Agricultural Research and Development Institute
CGIAR	Consultative Group on International Agricultural Research
CIAT	International Center for Tropical Agriculture
CIMMYT	International Maize and Wheat Improvement Center
CIP	International Potato Center
FAO	Food and Agriculture Organization of the United Nations
IARC	International Agricultural Research Center (a general term)
IBPGR	International Board for Plant Genetic Resources
ICARDA	International Center for Agricultural Research in the Dry Areas
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IDRC	International Development Research Centre (Canada)
IFARD	International Federation of Agricultural Research Systems for Development
IFPRI	International Food Policy Research Institute
IICA	Interamerican Institute for Agricultural Cooperation
IITA	International Institute of Tropical Agriculture
ILCA	International Livestock Centre for Africa
ILRAD	International Laboratory for Research on Animal Diseases
IRRI	International Rice Research Institute
ISNAR	International Service for National Agricultural Research
NARS	National Agricultural Research System (a general term)
PROCISUR	Regional Cooperative Program of the Southern Cone
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
WARDA	West Africa Rice Development Association

The 13 International Agricultural Research Centers (IARCs)



ISNAR began the second phase of its institutional life in 1986



Drs. H.K. Jain, left, and Howard Elliott were named deputy directors general of ISNAR during 1986. Jain oversees ISNAR's advisory service program, Elliott administers the research and training programs.

ISNAR was a new kind of institution with a new mandate when it was created in 1980. It had no precedent for doing its work and fulfilling its mandate of strengthening national agricultural research systems (NARS) in developing countries around the world. It had to learn by doing during its first five-year trial period, to 1985 – the first phase of ISNAR's institutional life.

A new phase began in 1986. During the year, ISNAR prepared itself for the future and created conditions for performing even more productively. It analyzed the full range of its past experiences, drew appropriate conclusions for its future programs, developed a strategy for its service, adjusted its organizational and management set-up, and equipped itself to meet future program needs.

While ISNAR was *planning* its future, it also was *starting* its future, balancing inward-looking reflection with outward-looking action. Later sections in this report

show how ISNAR's 1986 activities with NARS relate to its strategy.

1986 developments

Following are some of the significant developments that, in 1986, marked the beginning of the second phase of ISNAR's institutional life.

Confirmed CGIAR membership. At its May meeting, the Consultative Group on International Agricultural Research (CGIAR), confirmed ISNAR as an international agricultural research center with full membership in the CGIAR. (The CGIAR is an informal association of countries, organizations, and private institutions lending support to the system of 13 international agricultural research centers around the world.)

Implemented recommendations. ISNAR implemented most recommendations of the External Program Review and External Management Review panels which, in 1985, evaluated its first

five years' accomplishments and its future potential, and recommended its continued CGIAR membership.

Developed a strategy. ISNAR's staff drew important insights from its first five years of experiences with NARS in developing a strategic plan. ISNAR's single most important challenge in preparing for its future. The external review teams' helpful recommendations were considered.

Simply stated, the strategy describes what ISNAR is, its goal, its program objectives, organization, content, and development, ISNAR's challenges and opportunities, how it selects its priorities, and what products and services it offers.

ISNAR's Board of Trustees approved the overall lines of the newly developed strategy at its June meeting. Since then, ISNAR has tested the strategy extensively in its program work, and in consultations with NARS with which it works, donors,

and collaborating institutions. This testing resulted in some refinements to plans for implementing the strategy.

Adjusted its structure. To effectively implement its developing strategy, ISNAR adopted a flat, or collegial, organizational structure. Its functional programs – advisory services, research, and training – represent activity thrusts rather than divisions, departments, or other organizational units. This structure encourages individual initiative, and allows staff, representing diverse disciplines, to contribute their skills and pursue their interests in all three programs.

Made management changes. Two deputy directors general were appointed: one oversees the service to NARS activities, the other the research and training programs. Further, management mechanisms and procedures were updated for more efficient future operation.

Equipped for the future. On the more mundane, yet important, side ISNAR bought a Wang VS 100 system and several IBM-compatible PCs which are capable of meeting its computing and word-processing needs for the next five years. An internal committee, assisted by two outside consultants, recommended the equipment choices.

Such equipment is important to ISNAR for its internal use, and increasingly for its work with NARS. Computers increasingly are being used in NARS, and tomorrow's NARS leaders – many now getting postgraduate training in industrialized countries – are returning home knowing of the microcomputer's potential and how to use it.

ISNAR developed a strategy to guide its work with NARS

During 1986 ISNAR developed a strategic plan to guide its work during the next several years. This section reports highlights of the plan.

In ISNAR's early days, it emphasized broad-based reviews of NARS and identification of constraints in the systems. ISNAR has now sharpened its focus -- clearly defining its program contents, emphasizing activities and products to build the national systems. This emphasis is reflected in ISNAR's goal:

To assist developing countries improve the effectiveness and efficiency of their agricultural research systems through enhanced capacity in the areas of research policy, organization, and management.

Three program objectives

ISNAR defined three objectives for its programs in achieving this goal. They are:

1. To support NARS in their system-building efforts to strengthen their performance and contribute to national agricultural development.
2. To develop concepts, tools, and analytical methods appropriate for developing countries' use in the areas of research policy, organization, and management.
3. To help NARC leaders and scientists develop their analytical and management capacities.

Works through three programs

ISNAR pursues these objectives through three distinct and interrelated programs:

1. Its advisory services to national systems.
2. Its research program.
3. Its training program.

In developing these programs, ISNAR was guided by its projection of future demand for its services and its capacity to respond effectively to that demand. It took account

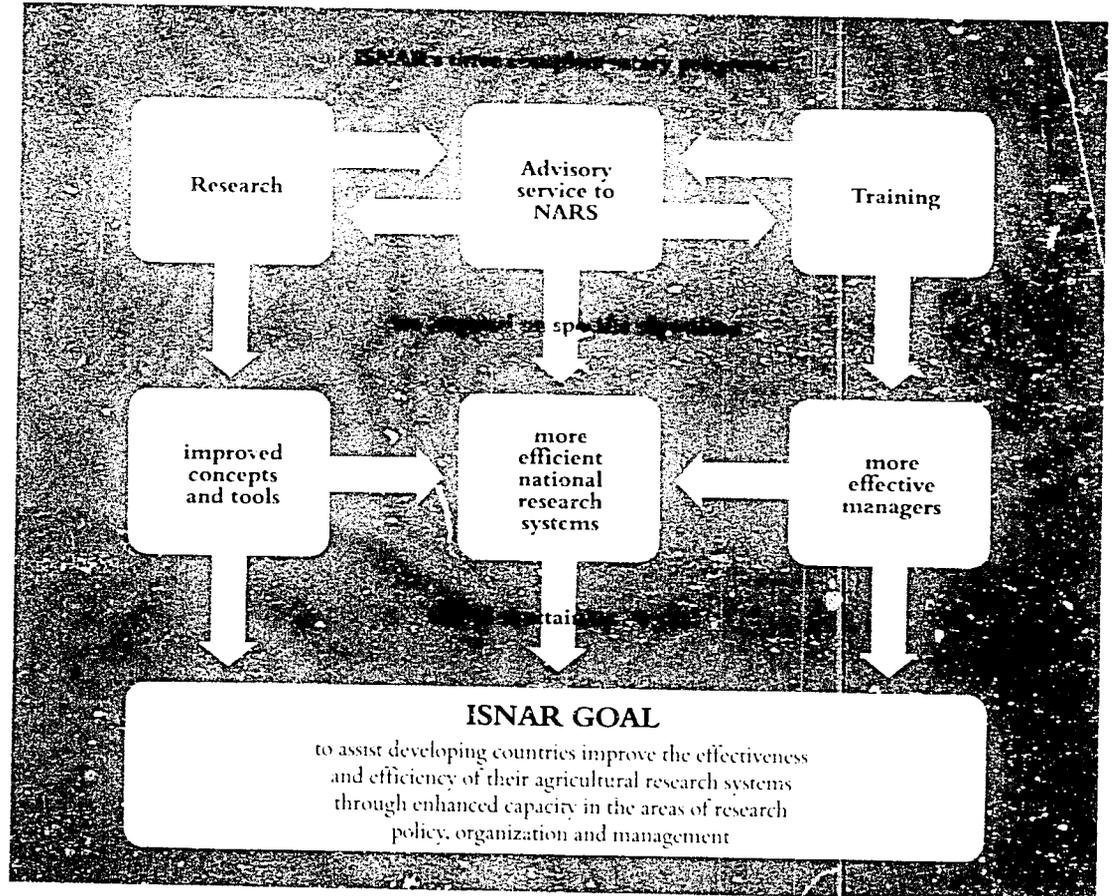
of NARS's requests for more specific services, the need to enhance its research capacity in support of its services, and the need to broaden its impact, through training, to extend its system-building effectiveness.

Its three programs take a systems perspective in emphasizing research policy, organization, and management in keeping with ISNAR's goal. Following is a brief introduction to the thrusts and principal activities of the programs.

Advisory services program

ISNAR's central thrust — its advisory service to NARS — focuses on building the systems' capacities in research policy, organization, and management in partnership with national governments. Its objective is making research systems more efficient in using their resources, and more effective in achieving their goals.

The principal activities within this program include: diagnosing key



ISNAR's three programs take a systems perspective in emphasizing research policy, organization, and management factors.

constraints in NARS, considering the whole complex of institutions involved in generating technology; designing system-building strategies, taking account of all the country's resources available for strengthening the NARS; and collaborating with the NARS in implementing the strategies.

The research program

ISNAR's service is research-based. Through synthesizing its experiences, ISNAR draws out important lessons, keeping its service relevant. Its research output can stand alone, or be an input to its training and advisory services. Demand for ISNAR's research is becoming increasingly specific and technical in developing system-building tools.

The primary research program activities are: building an original fund of knowledge about NARS; developing or adapting methods for diagnosing and analyzing constraints; developing high-impact methods of overcoming constraints

and strengthening NARS; and generating appropriate management concepts and tools for NARS use.

The training program

Training, along with publications, provides a multiplier effect in ISNAR's work, complementing the other two programs. Through its training program, ISNAR reaches larger audiences and broadens the impact of its advisory services. It works with NARS leaders in providing training in organization and management concepts, applied to agricultural research in a developing country environment.

The primary training program activities include: developing training methods and materials; training NARS professionals in the key areas of research policy, organization, and management; and enlarging the training capacities of NARS and regional organizations so they can conduct their own training programs. The next section describes the areas these three programs address.

ISNAR's programs emphasize factors strengthening NARS' effectiveness

As ISNAR evaluated lessons learned during its first five years of working with NARS in developing its program strategy, it determined the critical areas affecting NARS' effectiveness – areas which ISNAR will stress in recommending ways to strengthen the systems.

The three critical areas and the factors comprising them (see next page) are reflected in ISNAR's strategic goal and are the focus of its programs: 1) the *policy* context in which research is conducted; 2) the structure and *organization* of the system; and 3) a set of essential *management* processes.

Thus, ISNAR focuses on policy, organization, and management through its advisory service, research, and training programs.

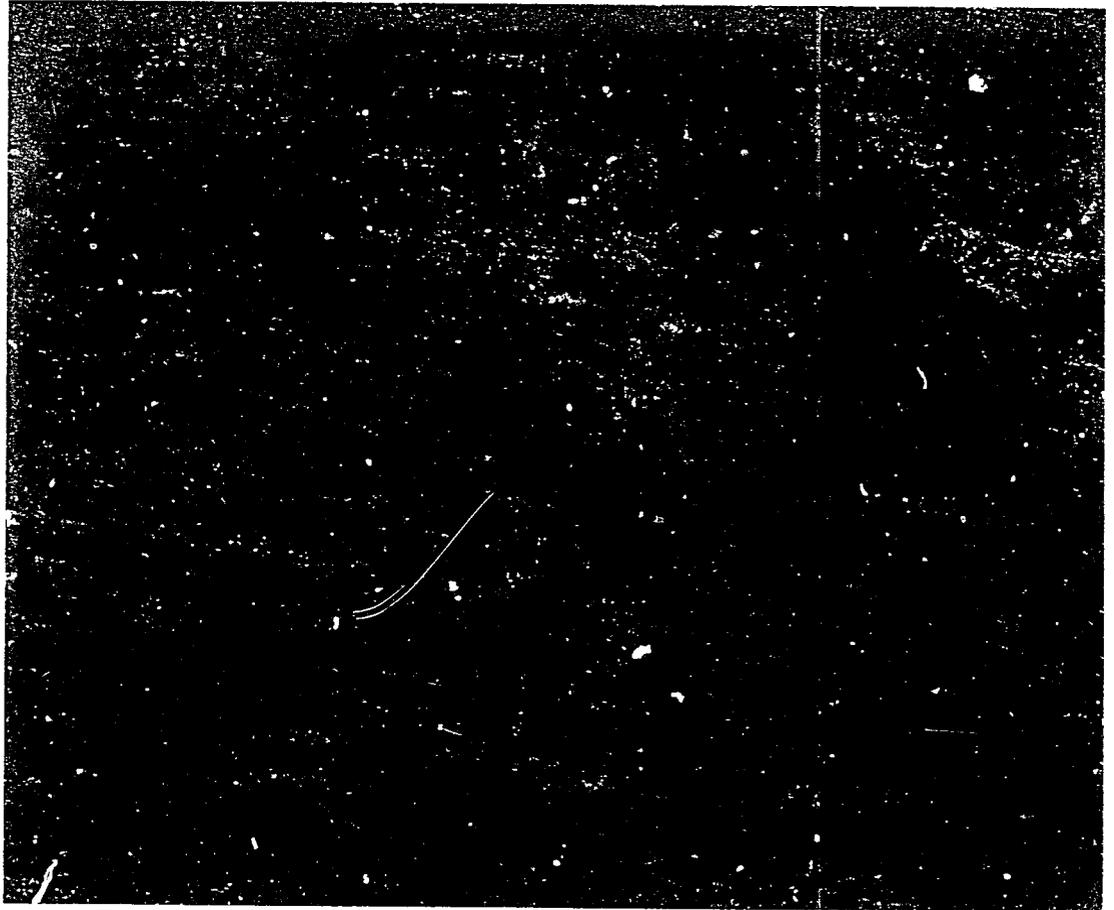
Agricultural research policy. A research system operates within a given set of policies, making this a critical area for NARS. Research policy relates national

development objectives to scientific research priorities, determines what is important, affects priorities, and determines the amount of resources flowing to and their allocation within the system.

Organizational structure. A research system's organizational structure links the system with its social, political, and economic environments. ISNAR has learned that, while structure can make a difference in the productivity of the system, there is no optimal model – organizational structures are a product of the circumstances in which they exist. ISNAR is working to better understand how different structure and organization patterns affect the research process so it can help countries best adapt their research systems to fit their circumstances.

Research management. Key management processes determine how a research system functions, how it performs. Through these management

ISNAR's programs focus
on the critical factors in
strengthening national
research systems.



processes, system leaders conceive, develop, and execute relevant research programs; and mobilize, manage, and use scarce resources in conducting their programs. Since these factors are critical in strengthening NARS, they are important to ISNAR.

Concentrates on six factors

After evaluating the twelve factors in the three critical areas, and consulting with NARS leaders and other development authorities, ISNAR chose six for concentrated attention. They were selected because they are important in improving NARS' efficient functioning, they represent areas where ISNAR has special knowledge, and they offer reasonable prospects for ISNAR having positive impact through its service to NARS.

ISNAR will concentrate its program efforts on these six factors:

1. Formulating effective agricultural research policies: setting priorities,

- allocating resources, and developing long-range plans.
2. Building an effective structure and organization within the NARS.
3. Creating linkages between the NARS, the technology transfer system, and users of technology.
4. Formulating programs and program budgeting.
5. Monitoring and evaluating research system components.
6. Developing and managing human resources.

Here is why each of these factors is important in building an effective NARS.

Formulating effective agricultural research policies: setting priorities, allocating resources, and developing long-range plans.

When a NARS formulates its research policy it takes a key step in translating national development objectives into a research program. If it doesn't clearly

formulate research policies and develop long-range plans, the result often is fragmented research programs – lacking orientation and coherence – only superficially linked to development objectives. Effective planning and priority-setting mechanisms are particularly important for small, resource-poor countries – they need clear choices to guide allocation of their scarce resources.

Long-term plans help ensure continuity and that research will stick to established priorities. They also provide a framework for effectively using donor contributions. For these reasons, relevant tools are needed to assist NARS in formulating national research policies.

Building an effective structure and organization within the NARS.

Here a country and ISNAR consider the size of the research system, the number and types of research institutes, and how they are governed – in short, the

A national system is successful only if the knowledge it produces can be translated into improved technologies which farmers adopt.

mechanisms for mobilizing human, physical, and financial resources, and information, at all levels of the research system.

Creating linkages between the NARS, the technology transfer system, and users of agricultural research.

A NARS is successful only if the knowledge it produces can be translated into improved technologies which farmers are willing and able to adopt. Interaction between researchers and users determines the relevance of the research output and facilitates adoption of new technology by farmers. An ISNAR working group is studying the interface of research and extension, and ways in which NARS can make the interaction between research, extension, and farmers more effective.

Formulating programs and program budgeting.

Here a NARS translates identified

problems into researchable questions, chooses specific research approaches, and allocates available resources to well-defined programs. The desired outcome is a coherent, relevant, and realistic scientific program addressing priority agricultural development problems.

This process can be enormously facilitated by providing appropriate management tools, lacking in most NARS. A common shortcoming, which ISNAR is striving to overcome, is the lack of adequate management information systems that would facilitate formulating a research program and translating it into a viable budget.

Monitoring and evaluating research programs.

Through monitoring and evaluation programs, research managers measure results against planned objectives, introduce interim program adjustments, and generate feedback needed for future

planning. Because research is a long-term process, effective monitoring and evaluation are essential to ensuring program relevance, quality, and optimal use of limited resources.

Many monitoring and evaluating models are not appropriate to circumstances in developing countries. ISNAR is developing new approaches for use by NARS.

Developing and managing human resources.

To be successful, a research system must develop and retain a cadre of experienced research personnel, appropriate to the system in size, mix of academic disciplines, and degree level. This requires sound planning and effective management. A NARS must be able to recruit that cadre of scientists and technicians, offer them attractive career prospects and opportunities for further training, and provide incentives for achievement.

Many NARS are handicapped by serious deficiencies in the quantity and quality of their research personnel. ISNAR data reveal that, in nearly half of the NARS in developing countries, fewer than 5 percent of their staff hold doctorates. Moreover, staff is often young and inexperienced due to high attrition rates. In the absence of career incentives, experienced scientists find better opportunities elsewhere. The best scientists are often the first to leave. NARS need to develop incentive structures which will allow them to retain their staff.

Many NARS lack adequate operating funds. A number of them have increased their staff numbers while facing a decline in their overall budgets, resulting in an excessive share of budgetary resources going to salary payments. Funds for actually conducting research have fallen to as low as 5 percent of total resources in some cases. Result of this distortion is obvious – low productivity of the system's most precious resource, its scientific staff.

ISNAR's response

ISNAR's strategy calls for increasing its capacity to address these six priority factors by:

- developing greater in-house expertise for giving specialized advice and training;
- developing and adapting management concepts and tools for NARS' use;
- generating appropriate training materials dealing with them;
- generating new knowledge about how NARS function.

As to the other six factors in the three critical areas, ISNAR is increasing its capacity to diagnose problems and recommend solutions, or the means of developing solutions, so it can help NARS strengthen their capacities in all areas critical to strengthening the systems.

ISNAR's guiding principles and institutional characteristics

ISNAR spelled out its guiding principles enabling it to carry out its goal, objectives, and programs in developing its strategy in 1986. These principles describe ISNAR's working profile and its place in the global research system.

Guiding principles

Six operating principles guide ISNAR's response to requests for collaboration and its work with countries. They are:

1. ISNAR and a NARS are partners. They plan jointly. National commitment is essential to building the system. The NARS must initiate the working-together process.
2. ISNAR is flexible. Different countries' systems have widely differing needs, depending on the level of their institutional development. Therefore, ISNAR offers a wide range of products and services – from advice and training in specific areas, usually requested by more-advanced systems, to long-term institution-building assistance in less-developed systems which request it. Some less-advanced NARS need continued assistance in implementing desired changes – institution-building is a slow process.
3. ISNAR works in all regions of the world. It learns about research policy, organization, and management in all parts of the developing world, analyzes the wide range of NARS experiences, and transfers knowledge and concepts to other countries and regions.
4. ISNAR observes priorities to maximize its impact. It faces many demands for its time and expertise. To ensure that its resources are fully used, ISNAR uses priority indicators – which it applies both to the country and proposed activity – in determining NARS with which it works. They include a set of considerations for planning, reflecting ISNAR's concerns – equity, impact, and efficiency.

5. ISNAR serves only as an advisor to NARS. It will not assume direct management responsibility in lin functions, or provide long-term technical assistance as a substitute for weak systems. However, it will work with research systems on a long-term basis in strengthening their organizational and management capacities.
6. ISNAR serves as a catalyst – it helps NARS find help from other sources, such as establishing linkages with other NARS, with specialized institutions in relevant fields of competence, and with donors and development agencies. Further, ISNAR works with complementary organizations – such as FAO, IICA, and Winrock International – as well as a wide range of donors who are willing to commit funds to strengthen national agricultural research systems.

ISNAR's characteristics

It takes a multidimensional approach, integrating its unique knowledge of and expertise in the triad of organizational and management sciences, agricultural research, and developing countries. Its service is research-based, with its research program backstopping its advisory service to NARS and training programs.

It offers independent help and advice, serving only the interests of NARS.

It has a worldwide mandate, with its services potentially available to any developing country requesting its collaboration, subject to priority considerations and availability of its resources.



ISNAR's worldwide mandate makes its service potentially available to any developing country.

ISNAR's strategy describes its advisory service to NARS program

ISNAR's advisory service to NARS program strategy focuses on direct collaboration in building the national systems and is the main thrust of ISNAR's services.

After a NARS requests assistance and ISNAR decides to make an initial commitment of its resources, ISNAR's work with a country involves three steps -- analyzing constraints in the system, designing a strategy for overcoming those constraints, and implementing the system-building strategy.

Constraint analysis

In the first step -- analyzing constraints -- ISNAR works with the NARS to diagnose the system's strengths and weaknesses. In keeping with its goal, it particularly looks at factors which, when strengthened, can "improve the effectiveness and efficiency of their agricultural research systems through enhanced capacity in the areas of research policy, organization, and management."

This analysis may involve a broad-based system review or, if the system has already been studied adequately, a review of a particular component or management process within the system. (Types of reviews are discussed in the next section.) The products of this analysis are a list of key constraints in the NARS and potential solutions. The analysis provides a rationale and framework for designing a system-building strategy.

Strategic planning

ISNAR and national research leaders then can design a system-building strategy or plan, with suggested measures ranging from ways to solve specific management constraints -- which may require further in-depth analysis of particular components -- to broad-based recommendations for changing the organization and structure of the system. This plan often is part of the system review.

The product of strategic planning collaboration -- a specific plan for

implementing the proposed changes includes clear priorities among the recommendations and an appropriate sequence for implementing them. Another product is ample evidence supporting the recommendations so they can be clearly presented and argued by system leaders. In some cases, ISNAR takes the next logical step by collaborating with NARS and donors in project preparation looking towards further system-building efforts.

Implementing the plans

ISNAR and the individual NARS work together in implementing the system-building efforts. They may collaborate on any of a wide range of activities, depending on circumstances.

Some systems do not need or want intensive, close collaboration with ISNAR at certain times, but want to maintain a relationship. In such cases, ISNAR may, for example, include them in relevant training workshops or serve as a catalyst, bringing

together the NARS and other specialized institutions in system-building activities.

Or a country may request ISNAR's intensive, long-term collaboration in, for example, effecting needed changes in the system's organization and structure to make the system more productive and effective.

In some situations ISNAR places a resident advisor in the country to help a NARS with its multiple system-building tasks. Again, in keeping with ISNAR's goal, the resident advisor's emphasis is on building the country's research policy, organization, and management capacities, as part of a clear institution-building plan or project. Resident advisors' activities are funded either by the country or by donors, not ordinarily out of ISNAR's core budget.

At the end of 1986, ISNAR had resident advisors posted in four countries: a technical advisor to the director of the National Agricultural Research Institute of

Burkina Faso, assisting in planning, evaluation, and implementation of research programs, and organization of research services; a research management specialist in Indonesia; a programming consultant specialist in Madagascar; and an advisor on agricultural research planning and programming in the Rwandan Institute for Agricultural Sciences.

Flexible collaboration

ISNAR's flexibility, adjusting its collaboration to each developing country's circumstances with a range of appropriate tools and activities, makes its advisory service to NARS especially valuable. It enables ISNAR to collaborate in strengthening a specific component or components of a system, or implementing major, fundamental changes in the system's organizational structure to improve its research capability. ISNAR's collaboration sometimes changes with changes in the country's needs and circumstances.

26-



ISNAR analyzes NARS constraints through comprehensive reviews

ISNAR's first step in working with a national system or a system component in its advisory service to NARS program is a review – an analysis of the system's strengths and weaknesses. The review is not an end in itself; it provides a basis for designing a system-building strategy or plan.

In 1986 ISNAR analyzed the procedures, effectiveness, and efficiency of its reviews. It analyzed the types of reviews, emphasizing ways to make these tools even more useful and efficient.

Overall system review

In a comprehensive system review, ISNAR addresses all the issues it considers relevant in assessing the system's overall performance potential. It examines the whole agricultural research system, focusing on the structure and organization at the national level. Its product includes general recommendations for strengthening the institutional and management components of the NARS.

In several countries, ISNAR's system review recommendations provided a basis for major reorganization of the research structure – often requiring important political decisions outside the research system. Examples include Dominican Republic, Kenya, Papua New Guinea, Sri Lanka, and Zaïre.

A variant of the overall system review is the agricultural technology management system (ATMS) review which looks further at the relation of the political and economic environment to the technology generating, transfer, and users systems. ATMS attempts to determine the likely impact of new agricultural technology on the country, and on the resources, organization, management, and external factors influencing the impact of technology. ISNAR collaborated in an ATMS review in Panama.

ISNAR reviewed Ethiopia's research system (see page 31) in 1986, analyzing strengths and constraints in the system's components, looking towards developing a manpower plan.

A component review mission examines specific components of national systems which ISNAR and NARS leaders agree need strengthening.

Institution review

The research structure in some countries calls for an ISNAR review and advisory service to strengthen a particular national agricultural research institute or department, and focuses both on internal management and the institution's linkages with the environment in which it operates.

To a large extent, institute managers can make decisions on recommended changes. Acquiring the means for implementing them may take some time. Such reviews resulted in early and intensive collaboration between ISNAR and Indonesia, Madagascar, Morocco, and Rwanda.

Component review

This type of review mission examines a specific management component or group of components of a NARS or research institution which ISNAR and system leaders agree needs strengthening.

A component review usually is conducted after a larger review has taken place. However, ISNAR's involvement with some countries has started with component reviews looking towards developing human resources, as in Bangladesh, Thailand, and Zimbabwe. Component reviews have served as a step in strengthening research management components, as in The Gambia.

In a manpower training needs review, ISNAR works with systems in projecting their manpower/personnel requirements over specific time periods in the future. The system-building strategy includes the training implications of that evaluation – policies and procedures – which need to be adopted. Argentina and Colombia provide examples of such ISNAR collaboration.

Research strategy and plan

Where the system is sufficiently well understood, either through an ISNAR review or some other evaluation, ISNAR

Year and type of review/study starting collaboration

	1981		1982		1983		1984		1985		1986	
	Costa Rica Kenya Indonesia		Burkina Faso Fiji Guyana Ivory Coast Malawi Papua New Guinea Pakistan Rwanda Solomon Islands		Cameroon Dominican Republic Madagascar Somalia Sri Lanka Sudan Thailand Western Samoa Zimbabwe		Bangladesh Jordan Kenya Morocco Zaire		Argentina CARDI Colombia Fiji The Gambia Panama Sri Lanka Tunisia		Ethiopia Niger Zimbabwe	
An overall system review assesses the system's performance potential, focusing on its structure and organization.	• •		• • • • • • •		• • •		•		•		• •	•
Agricultural technology management system (ATMS) expands on the system review, looking at the policy/economic environment, other factors.											•	
An institute review focuses both on the internal management and linkages with the environment in which the institution operates.		•		•	•			•	•		• •	
A human resources study deals with personnel management issues, including recruiting, reward structures, and performance appraisal.							• •	• •	• •			
A management training review looks at a national system's planning and management issues to identify its training needs.					•	•						
Research strategy and plan development gives a system a new sense of direction, and enhances its contribution to agricultural development.				• •		•		•	• •			



A member of the ISNAR team and an Ethiopian researcher discuss aspects of a research program being developed in the country, during ISNAR's review of the national system.

collaborates with a NARS or an institute in preparing a short- or medium-term research plan and in making recommendations for institutional changes necessary to achieve the research plan objectives. It was an initial step in ISNAR's involvement with Papua New Guinea and Western Samoa. In Fiji, Kenya, Somalia, Sri Lanka, and Tunisia, ISNAR assisted in developing the research plans in follow-up collaboration after overall system reviews.

ISNAR has found that developing a research strategy and plan gives research a new sense of direction, and improves a system's capacity to contribute to accelerated programs of agricultural development. Also, it frequently leads to further recommendations for changes in the research system, such as rationalizing a system's network of research stations or identifying areas where the infrastructure needs improving.

Review recommendations

ISNAR is making review missions more effective by:

- matching the type of review to the individual country and system circumstances, based on an ISNAR exploratory visit in a country.
- identifying the system's fundamental constraints in planning, programming, and implementing research activities; assessing the appropriateness of the system's overall research program to overall national agricultural development needs; and recommending helpful changes, taking into account the interactions and interdependence among the NARS' component parts.
- thoroughly documenting concrete, soundly based report recommendations with the objective of stimulating action. ISNAR recognizes that NARS managers must be armed with convincing evidence if they are to effectively present their positions in favor of the review recommendations and stimulate changes.

Ethiopian review example

ISNAR's 1986 review of Ethiopia's research system illustrates the way ISNAR prepares for and adapts its review to the individual country's circumstances. It also highlights some of the complex issues ISNAR encounters in analyzing constraints in a system.

ISNAR reviewed certain management components of Ethiopia's Institute for Agricultural Research (IAR) in October/November 1986. This review grew out of the government's request for ISNAR's help in developing a sound manpower plan, called for by the World Bank in its project work with Ethiopia.

When Ethiopia first requested ISNAR's help in late 1984, ISNAR responded with a preliminary assessment in February 1985, concluding that the starting point would be reviewing the research program being developed. This position was confirmed during a second visit to Ethiopia in May 1985.

Following further changes in Ethiopian research plans, a World Bank consultant assessed the new situation in May/June 1986 and concluded that any new manpower plan must be based on a defined future research program. He so recommended to IAR – which formally requested in July 1986 that ISNAR review the research program, looking towards developing a manpower plan. Terms of reference for the review were discussed in September 1986 while the IAR general manager was participating in an international research management workshop at ISNAR.

Basis for a manpower plan

During its review in October/November, ISNAR looked at the system's organizational linkages, management of program formulation, and other aspects which are important in developing a manpower plan. Manpower recruitment and development plans are shaped by the long-term research program which, in

turn, must take account of changes in the dynamic research environment.

Two examples demonstrate this point. One: Some of Ethiopia's well-drained, sloping, red volcanic soils are so badly eroded – and production capacity permanently reduced – that the government has moved about half a million people to newly opened lowlands. These lowlands have high potential, but are unfamiliar both to the new highland settlers and the national agricultural research officers, and new thrusts are needed in IAR's research program. Moreover, more conservation-oriented cropping systems are needed on the vulnerable sloping soils, calling for new research specializations, which IAR must take into account in making its manpower development plans.

Two: IAR proposes, and its board of directors has agreed, to develop a total research staff of 486 – up from 212 at present – by the end of the 1993/94 10-

In 1986, ISNAR conducted eight exploratory missions and three system reviews.

year plan. The ISNAR team judged that such a manpower target was not unreasonable for an agricultural country of 54 million people (by 1994), but questioned whether the supply of graduates is possible with present policies, and whether the research system can absorb such a rapid rate of increase. These concerns feed back into manpower planning for the system.

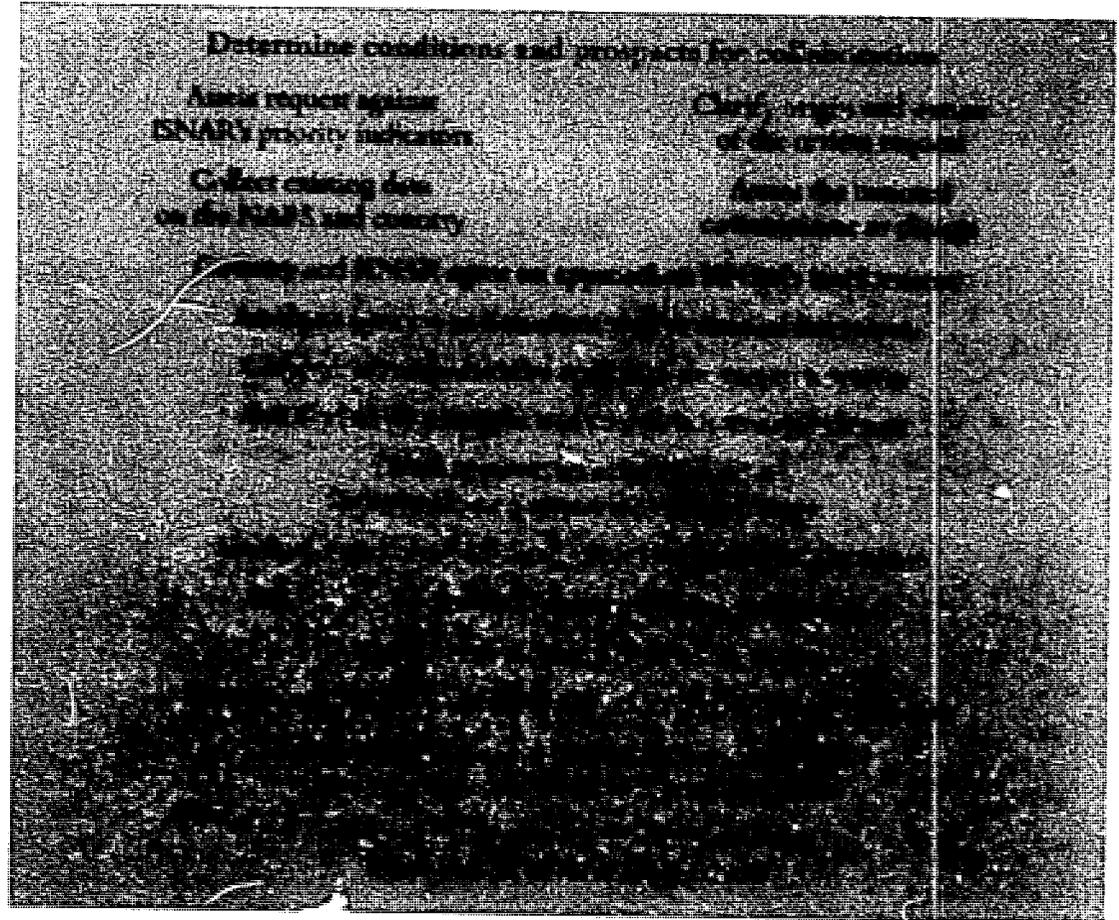
Meanwhile, the ISNAR team focused on improving management procedures to formulate effective research programs, and on measures to improve research/extension linkages. If its report is favorably received, ISNAR remains willing to collaborate further with Ethiopia in formulating a manpower plan and improving other management processes.

Other review activities

Counting its work with Ethiopia, in 1986 ISNAR conducted eight exploratory missions in response to NARS requests for collaboration — in Cameroon, Chile, Costa Rica, Ethiopia, Niger, Uruguay, and Zimbabwe.

Some of these requests build on earlier efforts on particular components; some emerged from contacts during training events; and one, Costa Rica, will be the first time ISNAR has done a "second-generation" review — a reevaluation of a system it reviewed five years earlier.

ISNAR conducted three new system reviews in 1986 — in Niger and Zimbabwe, in addition to Ethiopia.



The overview at right shows typical steps taken in ISNAR's collaboration with national systems in its advisory service program. The previous section describes ISNAR's reviews in analyzing system constraints and developing potential solutions. The next section describes collaboration between ISNAR and NARS in designing and implementing system-building plans.

ISNAR and NARS collaborate in designing, implementing system-building strategies

ISNAR collaborates with countries in many ways, through different degrees of involvement, and over widely varying time frames. It is committed to working jointly — over a long period of time if necessary — with concerned groups in countries with which it collaborates.

This section provides some examples of the concepts and tools — the range of ISNAR's activities — in designing and implementing system-building strategies in its advisory service to NARS program.

Intensity may vary

The intensity of ISNAR's collaboration with a country may ebb and flow. Costa Rica, for example, implemented on its own initiative most of the recommendations coming out of ISNAR's 1981 review — its first in Latin America — with little further input from ISNAR. The country made significant achievements in such areas as regionalizing its research staff, integrating research and extension, and directing

additional resources toward agricultural research.

ISNAR's review recommendations helped create a frame of reference and dialogue among Costa Rican research and extension leaders, easing their subsequent improvement efforts. Donors also read the report and used it as a framework for their support.

In 1986 ISNAR's collaboration again became active. At Costa Rica's invitation, ISNAR conducted an exploratory mission to the country in December and plans to conduct a follow-up review in 1987. Focus of the review will be on organization and structure of public sector agricultural research, and on managing the research process.

Policy context important

One of the three critical areas in strengthening NARS — and a focus of ISNAR's collaboration — is the policy

context in which the system operates. One way ISNAR does this is by meeting with policymakers and research managers to jointly analyze the research system's potential to supply the technology needed by the agricultural sector. This has proved to be effective in increasing policymakers' awareness of the role of research and the need for creating conditions for its success.

An example was preparation of Fiji's research plan. Following a review in 1982, Fiji requested ISNAR's further assistance in implementing some review recommendations – including helping prepare a research plan as recommended by the mission team. ISNAR collaborated with a task force appointed by the Minister of Agriculture in designing the system-building plan. ISNAR also discussed with the Permanent Secretary, the Director of Agriculture, and other senior officials the nature of the research plan and the support needed from them to make it succeed.

The involvement with policymakers in further system-building activities has paid off: Fiji's support for agricultural research in its national budget has increased. Its research service now is more amply funded, and the higher councils of the government have a greater appreciation of the role of research than before ISNAR's more recent collaboration with the country.

Gaining donor support

Collaboration with Fiji also illustrates the importance of ISNAR's working with research leaders in documenting the evidence to back up the recommendations in a system-building strategy.

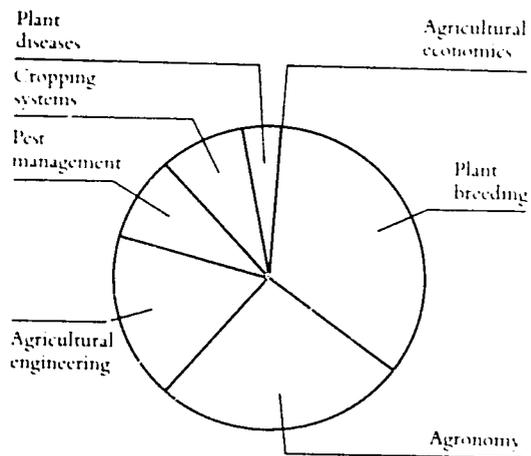
Fiji scientists believe that, armed with a research plan for implementing the strategy, they presented their case for assistance more effectively and were more confident in negotiating with donors. Donors have increased their support to Fiji – in the past two years the governments of Japan, Australia, and New Zealand have

provided increased bilateral assistance for rice research, a soils and crop evaluation program, and developing a field and laboratory infrastructure.

Information for managing

Most research systems in developing countries face a first generation problem of acquiring the resources – getting well-trained people and the physical facilities – for doing research. Indonesia's Agency for Agricultural Research and Development (AARD) has made considerable progress in increasing its resources; it has built a large research system, with a competent staff and extensive facilities for conducting research.

Indonesia now faces a second-generation problem – it needs to develop improved procedures for managing its research program, finances, people, and facilities. Valid and reliable data, in usable form, are critical for research planning and management. Without good information, it is not possible, for example, to properly



The pie-chart illustrates one type of information being generated by Indonesia's management information system for AARD managers' use. It shows where resources are being invested at one institute, which helps management decision-making regarding future program balance.

allocate overall research resources, including physical resources, or plan future recruiting and training needs.

To overcome the information constraint in managing the Agency, in 1986 AARD and ISNAR began developing an appropriate management information system which senior AARD officials can use in program budgeting, and to plan and monitor the program, money, people, and materials involved in agricultural research.

Information is useful to AARD management only if it is easily accessible. Microcomputers offer a tool for storing and accessing the information – therefore, ISNAR and AARD selected computer software which is capable of handling a large amount of data and is “user friendly.”

AARD and ISNAR took other steps in implementing the research management strategy in 1986. They agreed on information needed, developed

preliminary formats for handling such information in the microcomputers, and began testing their approach at one institute.

As is the case with many ISNAR activities, what is learned in its collaboration with AARD will be shared with other NARS facing similar constraints.

Program budgeting system

In a somewhat similar vein, ISNAR and Morocco are collaborating in improving program formulation and program budgeting – common points of weakness in NARS. Other research systems also are interested in their work on these processes.

They are attacking the common constraints flowing from the fact that research programs frequently are formulated without being effectively linked with national development objectives and producers' immediate needs. Taking NARS as a whole, the program-formulation side is not well

advanced. (An ISNAR working group is reviewing the way several countries formulate their programs, and is contemplating doing specific case studies in selected developed and developing countries to increase ISNAR's expertise on the subject.)

Program budgeting is practically non-existent in many NARS. The approach taken by ISNAR and Morocco is developing and testing computer software which facilitates the accounting and monitoring required in a research program-budgeting system. The ambitious aim includes improving the information system – along with developing a method of formulating system and station programs – to make research programs congruent with national policy and relevant to farmers.

As a result of its collaboration with Morocco, ISNAR has developed a fairly well advanced program-budgeting system utilizing microcomputer technology.

Maximum benefit from the system assumes that a research organization has formulated appropriate research programs.

NARS structural changes

ISNAR's collaboration with some countries has called for designing needed changes in the system's organization and structure to make the system more productive and effective. Implementing this kind of change requires ISNAR's intensive, long-term collaboration. Three examples:

- ISNAR's collaboration with Kenya led to far-reaching recommendations about creating a semi-autonomous research organization to take over the functions of the Scientific Research Division of the Ministry of Agriculture.
- In Sri Lanka, creating a research council to coordinate the work of several different ministries involved in agricultural research was an important recommendation.

- In Dominican Republic, transferring research from the Ministry of Agriculture to a semi-autonomous institute, requiring parliament to enact a new law, became the centerpiece of proposals for strengthening the research service in that country.

In all these and other cases, ISNAR works with senior officials and scientists of the countries – and in some cases with donors – over a number of years. In cases where external donors are involved, ISNAR typically helps the NARS prepare plans which the NARS later develop into projects for donor financing. In general, as these projects are implemented, ISNAR maintains contacts with system leaders, making suggestions, consulting on problems as they arise, and helping pace the development.

Growing collaboration

In Zimbabwe, ISNAR's collaboration started with specific, limited activities back in 1983, and expanded to a 1986 review of the national system's organization and structure, planning and programming of

research, and research/extension/client linkages.

ISNAR first collaborated with Zimbabwe with an exploratory visit, followed by Zimbabwe's inclusion as one of three



Members of the ISNAR review mission discuss with staff various aspects of Zimbabwe's research organization, planning, and linkages, in its review of that system in 1986.

African countries in which case studies of research management training requirements were conducted during the year. In 1983, the Department of Research and Specialist Services (DR & SS) first invited ISNAR to participate in their annual review of their research and extension programs - a participation which has continued each year since. Each annual review is accompanied by an ISNAR presentation emphasizing some aspect of management.

In 1984, at Zimbabwe's invitation, ISNAR developed a short-term manpower development and training plan for DR & SS, and many aspects of the plan have been or are being implemented. Some senior staff have attended ISNAR regional research management training courses and have participated in workshops at ISNAR headquarters.

ISNAR conducted an in-country training workshop in planning and programming in 1986. Two related decisions came out of

that workshop - DR & SS officials set up a national task force to review the research organization and its priority-setting and planning mechanism, and invited ISNAR to review important segments of the research system. ISNAR participated in the task force's review, from mid-November to early December 1986. The final report of the review recommendations is expected to be the subject of a National Workshop on Organization and Management of Research in Zimbabwe in 1987.

Works with 25 countries

These examples indicate the range of activities ISNAR carries out in its advisory service to INARS program in implementing its strategy.

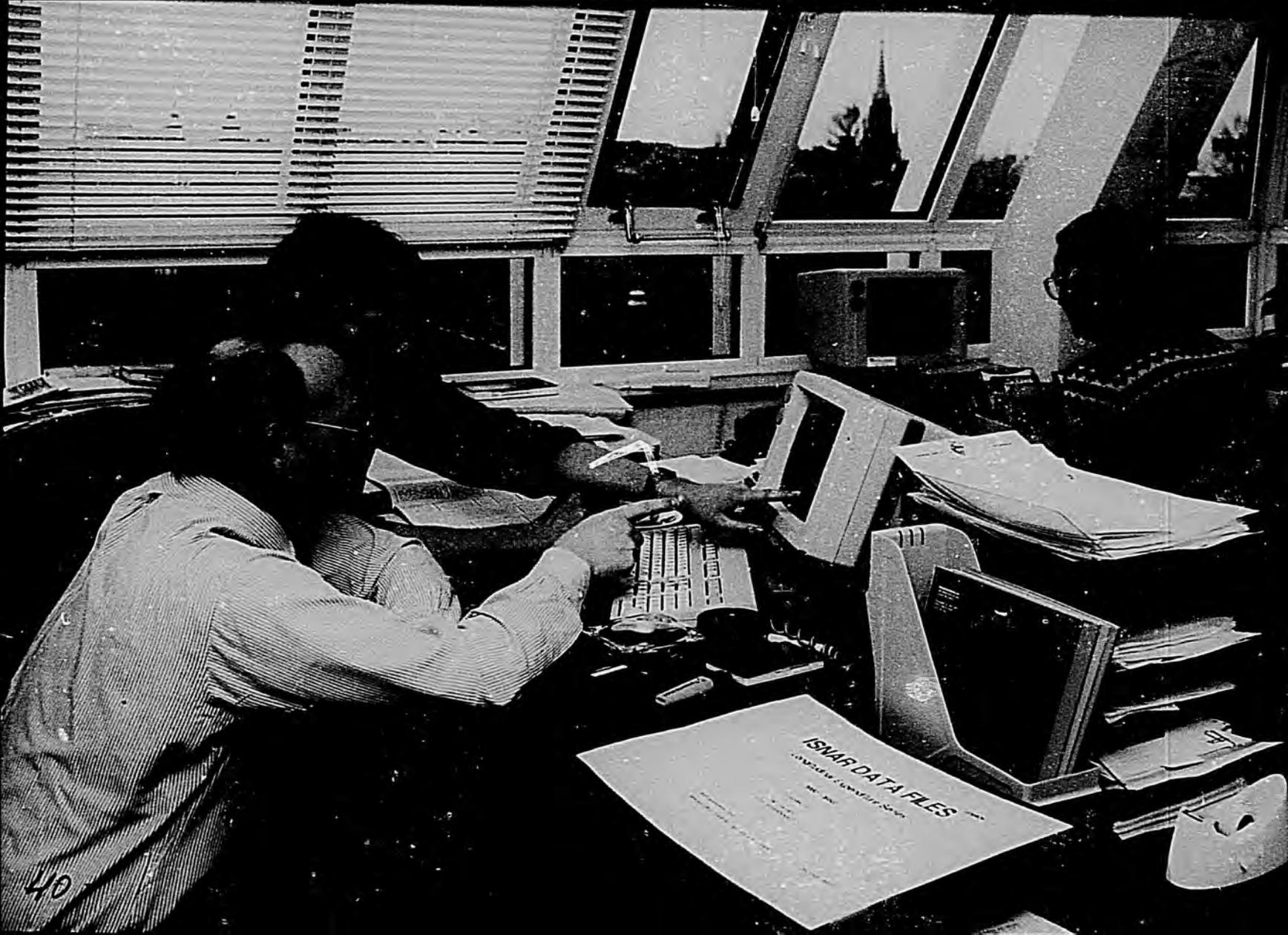
In 1986 ISNAR initiated or continued its active collaboration with 25 countries and two regional organizations. They are:

Africa: Burkina Faso, Cameroon, Ethiopia, The Gambia, Kenya, Madagascar, Niger, Rwanda, Zaïre, Zimbabwe.

Asia: Bangladesh, Fiji, Indonesia, Pakistan, Philippines, Sri Lanka, Thailand.

Latin America: Chile, Costa Rica, Dominican Republic, Panama, and Uruguay, plus CARDI and PROCISUR.

West Asia and North Africa: Egypt, Morocco, Tunisia.



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ISMAR DATA FILES
COMPUTER INVESTIGATION

ISNAR's research backstops service to NARS and training programs

ISNAR's strategy spells out the research program's importance and upgrades it to an "action" program with a clear problem-solving focus in which all staff members participate.

ISNAR has developed into a research-based service. Research backstops its advisory service to NARS program by producing and adapting useful tools in the areas of agricultural research policy, organization, and management. It helps strengthen the training program by providing information needed in developing materials to improve management techniques through training.

The research program's primary responsibilities are:

- to accumulate knowledge about NARS. Research systematically synthesizes the knowledge and experience ISNAR gains through collaborating with NARS in building the systems. It also collects information for ISNAR's data base.

- to identify common constraints in NARS and high-impact system-building activities.
- to develop or adapt analytical methods which ISNAR and NARS leaders can use, especially in evaluating the effectiveness and efficiency of formulating policy, and organizing and managing NARS.
- to conceptualize NARS' management problems and develop improved management tools for resolving them. This largely involves adapting developments in the organization and management sciences to developing-country situations.
- to maintain up-to-date information on developments in relevant fields – such as public administration and management sciences – to ensure that ISNAR remains current on the latest developments.

Two major ongoing projects illustrate the importance of the research program:

- One was continued in 1986 – the global

ISNAR is continuing to construct an accurate, reliable global data base on national agricultural research systems. National systems, donors, and international agencies need such information to help in planning their activities.

data base on NARS. The data base project is important to NARS and to ISNAR.

- One was conceived and got under way in 1986 – a research project on the organization and management of on-farm research. This major two-year project – discussed later in this section – will provide knowledge increasingly requested by NARS.

Data base activities

For two years, ISNAR has been painstakingly constructing a global data base on NARS. National systems, donors, and international agencies need such reliable information on NARS to help plan their activities.

The data base has many uses. Some examples: NARS leaders can use various agricultural research activity indicators – such as personnel and expenditure figures – in comparing their systems with others. International agencies and donors need the

data to improve their coordination and priority-setting mechanisms. Further, the data base helps ISNAR do its own research on problem-oriented issues, making it more effective in collaborating with NARS.

ISNAR is well placed to carry out this activity. Its frequent system-level contacts with NARS in developing countries around the world help both in collecting and expanding uses for the data. Also, it works with organizations and individuals who need such data, and who will therefore help maintain its currency and quality.

Emphasis on quality

ISNAR emphasizes data quality and developing a data set containing carefully documented and comparable observations. In 1986, for example, it continued working towards standardizing the collected data and developing procedures to adjust the time-series, cross-country research expenditure figures into comparable units.

ISNAR must be sure of the data base quality before widely diffusing information from it. ISNAR has done some initial analysis of overall trends from the data base. Results of that exercise in 1986 were presented at an ISNAR/University of Minnesota (USA) seminar and at the IFARDI conference in Brasilia, Brazil. Data base information also was used extensively in the World Bank's West African Agricultural Research Review, the Eastern and Southern Africa Research Review, an ISNAR on-farm research seminar, and its own system reviews.

At year's end, work was under way to consolidate the data and begin preparing a statistical volume that eventually will ensure the data's wide accessibility. Some preliminary analysis, attempting to place ISNAR's quantitative view of NARS in a policy context, also was in progress.

History of cooperation

In late 1984 ISNAR cooperated with the International Federation of Agricultural

Research Systems for Development (IFARDI) in mailing the first Survey of National Agricultural Research Systems to 116 developing countries. Through 1985-86, 60 countries had completed and returned questionnaires. Similar cooperation with the Arab Organization for Agricultural Development (AOAD) yielded further data. The ISNAR/IFARDI and ISNAR/AOAD survey returns provided an important input into the data base.

However, the full database documents many other sources providing information about the same variables, plus a wealth of related information from published and unpublished sources. ISNAR continually adds to the database, and refines and synthesizes the multiple observations being entered, putting ISNAR's emerging quantitative view of NARS in its proper context.

As the database is being updated, ISNAR is seeking to collaborate with other

institutions and organizations in maintaining it as a service to NARS leaders, planners, and donors.

OFCOR research project

In January 1986 ISNAR began a two-year study of the organizational and management implications for NARS of adopting an on-farm, client-oriented approach to research.

On-farm, client-oriented research (OFCOR) links technology-generating research with the farmer. It recognizes that research systems frequently are not sufficiently aware of the needs, production conditions, and technology demands of resource-poor farmers. As a result, these farmers' needs have not been adequately taken into account in planning and programming research. In too many instances, research has been producing inappropriate technology for this client group.

The OFCOR approach to diagnosing farm-level problems, and designing, developing, and adapting appropriate technological solutions has been strengthened as a research strategy in recent years.

The project objective:

to understand the critical organizational and managerial factors in implementing, integrating, and sustaining on-farm research within a NARS in a way that effectively strengthens national research capacities and advances the process of generating and disseminating technology.

The OFCOR study is another example of the importance of ISNAR's research program. It serves several purposes:

- Integrating on-farm client-oriented research in a national program is a high-priority concern of national research leaders; ISNAR is frequently asked for advice on this topic.

- ISNAR's knowledge base will be expanded in an area in which only limited analysis has previously been carried out.
- The intended output of the study -- a set of practical guidelines and principles -- will be used directly by NARS, and by ISNAR's advisory service program, in strengthening research organization and management.

How it is operating

ISNAR is directing case studies of eight NARS which have had fairly-long experience with OFCOR and have experimented with and developed different organizational arrangements and management systems for conducting such research. They include Senegal, Zambia, and Zimbabwe in Africa; Indonesia and Nepal in Asia; Ecuador, Guatemala, and Panama in Latin America. These case studies are complemented by a related study of a Bangladesh institute.

National researchers are developing the case studies. This close collaboration makes the study more than a research effort — it contributes directly to system-building efforts of cooperating NARS by strengthening their researchers' analytical capacities, enhances the relevance of the research, and improves the likelihood that collaborating NARS will act on the recommendations.

The study concentrates on success stories rather than failures. Failed efforts are well documented elsewhere. ISNAR hopes its case studies will distill the critical ingredients for success from the experiences of relatively mature OFCOR efforts.

Products expected in 1987

The case studies will be completed during the first half of 1987 as stand-alone products. They also will serve as the primary data for comparing information from the different countries. The end product will synthesize their experiences

and serve as useful guidelines on organizational and managerial arrangements which will help NARS successfully integrate OFCOR with their other research activities.

Research on African needs

ISNAR produced and presented a paper on "Guidelines for Strengthening NARS in Sub-Saharan Africa" at a meeting of the working group of the Special Program for African Agricultural Research (SPAAR) at ISNAR headquarters in June 1986. The working group is chaired by the World Bank and includes representatives of FAO, IFPRI, ISNAR, and UNDP, as well as two directors of African agricultural research institutes. Its objective is to develop guidelines for strengthening sub-Saharan Africa NARS through a technically and economically achievable research strategy.

ISNAR's technical leadership of the SPAAR working group is one activity in its larger collaboration with regional groupings and individual countries in sub-Saharan Africa. ISNAR also produced an inventory of CGIAR activities in the region to aid an IARC working group plan activities in the region.

Further, ISNAR contributed a synthesis of organizational, financial, and human resource issues in West African systems as its contribution to the World Bank's West African Agricultural Research Review.

Role of working groups

At the close of 1986, ISNAR working groups were proposing next steps in developing its own expertise to address the factors it has chosen to emphasize in its programs. ISNAR is developing and refining its diagnostic tools and management instruments for use in the areas critical for strengthening NARS — agricultural research policy, organization, and management in developing countries.



Research leaders from 27 countries discussed management issues at an international workshop at ISNAR headquarters in September 1986.

ISNAR and NARS leaders discuss management issues

In preparing for ISNAR's 1986 conference on "Improving Agricultural Research Organization and Management: Implications for the Future," research leaders from 27 countries received information about issues to be discussed so they could bring illustrations from their own systems to enrich the interchange.

As a result, the participants were ready to contribute to a more meaningful discussion, in addition to hearing presentations of ISNAR's latest work on key management issues and from their fellow research system managers, who highlighted some of the day-to-day management issues they face. The result was a week of intensive discussions.

In addition to hearing about and discussing ISNAR's emerging strategy – a key input in refining the strategy – they dealt with such fundamental organization and management factors as developing human resources, planning and

programming, and NARS organization and structure.

Shared experiences

The tone for the conference was set by the opening remarks of ISNAR's director general. He asked seminar participants "to share your experiences on management issues with your colleagues from other regions and countries. We shall listen. Review with us our joint progress (or the lack thereof) on common issues and projects. We hope for a critical assessment. Identify priority areas for future collaboration. And identify topics in which additional research is needed. This could lead us to an agenda for future work."

Participants' suggestions

The discussion brought forth several points by representatives of countries with which ISNAR is collaborating, including the following:

- Delegates suggested that ISNAR place greater emphasis in its program on the

linkage between research and extension in transferring technology. This resulted in a key refinement in ISNAR's developing strategy.

- It is crucial for NARS to develop support among policymakers and politicians. ISNAR's indirect assistance was requested in helping NARS demonstrate the importance of agricultural research in realizing national development goals.
- Different conference delegates perceived private research organizations' work as being collaborative or competitive. It was suggested that ISNAR help define the roles of private and public sector agricultural research, and make recommendations to improve complementarity.
- ISNAR was asked to look at the research needs of small countries and to recommend how research could best be organized there. Delegates recognized that all countries need some research capacity, if only to interpret world knowledge and adapt research findings.



ISNAR helps NARS leaders develop skills through its training program

The objective of ISNAR's training and workshop program is to help NARS professionals develop their knowledge and management skills in the areas of policy, organization, and management. Only effective managers can strengthen national systems — only they can effectively implement plans for removing constraints in their systems' organization and management.

ISNAR's training program goes beyond the conventional idea of teaching. Through its workshops and conferences, ISNAR creates learning and information-sharing opportunities for different levels of research system leaders and managers, creating a multiplier effect, complementing its service program in strengthening the national research systems.

This section discusses the key points of ISNAR's training strategy — what it does, with whom, how, and cites examples of how it works.

Program activities

Important steps in implementing ISNAR's training program strategy include:

Developing training materials. Out of ISNAR's research program comes information and reports which are useful in developing training materials. Also, ISNAR adapts other institutions' materials and experience.

Developing training methods. Since ISNAR's training program addresses diverse target audiences, it uses different approaches to effectively reach them. Its tools include lectures, group problem solving, slide presentations, case studies, skill-building exercises, and panel discussions.

Organizing and delivering training events. ISNAR uses different kinds of events to conduct its training — workshops and short-term courses, conferences and seminars. However, its long-term aim is to work itself out of a

Participants in a seminar on negotiation and team building from Cameroon's animal research institute finished their course in July 1986. Cameroon's trainers will conduct training in national workshops during 1987.

ISNAR



At right is an overview of ISNAR's training program activities, described in this section.

job; in order that other appropriate institutions and programs can do their own management training, it helps strengthen their training capacities. While ISNAR is strengthening national, regional, and international institutions' training capabilities, it gains their expertise and materials for furthering its training objective.

Target groups of leaders

ISNAR works with the three distinct groups of NARS leaders, and uses materials and approaches appropriate to each. They include the following:

Policy-makers and other high government officials.

ISNAR interacts with them primarily through policy seminars, sometimes held in association with other organizations involved in the policy sphere. In its work with policy-makers, ISNAR builds internal

support for agricultural research; sensitizes them to needs of research institutions, particularly in the managerial and organizational area; helps them appreciate the contribution agricultural research can make to national development; and builds support for their senior management (the second group).

Senior NARS officials, such as directors general, deputy directors, directors of agriculture, and directors of research.

This group is interested in seminars enhancing their capabilities in dealing with such factors as analyzing and defining overall research strategies. Many senior managers acquired their management skills through years of experience. They seek and benefit from increased understanding of broad research management issues.

NARS middle managers, including station directors, national commodity

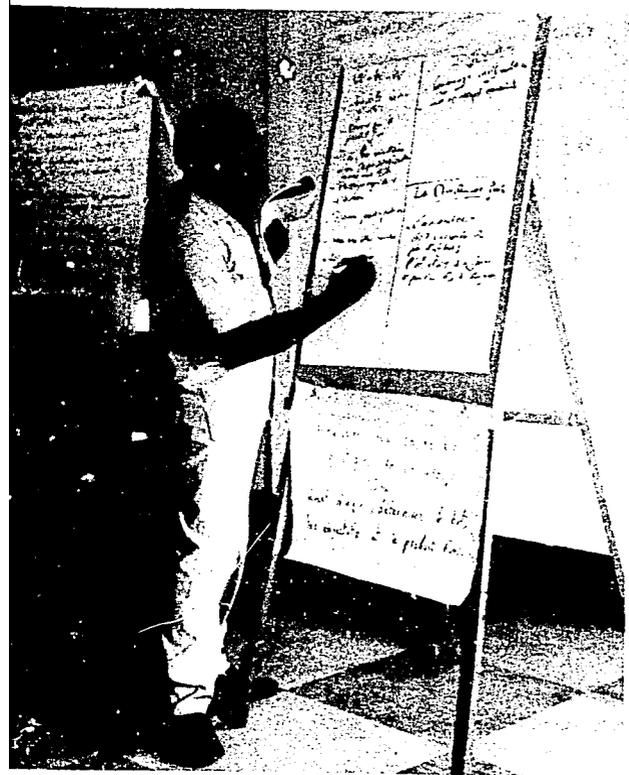
program leaders, and heads of departments and projects.

ISNAR works with them primarily through workshops and short-term courses held in their countries. They make decisions at the station and project level, where research is carried out. Generally speaking, they are well-trained, successful scientists who have been given managerial responsibilities for which they have had little formal preparation. Helping this group sharpen their organization and management skills is an essential element in strengthening agricultural research.

Delivering the training

ISNAR delivers training in four different ways:

1. Direct training. In this situation, ISNAR designs the curriculum and takes it directly to its clients. Consultants supplement ISNAR's staff in particular fields.



A participant in a Cameroon workshop gets practical experience in making a presentation before a group of his colleagues.

2. Coordinate training. ISNAR guides the curriculum design, helps plan the workshops, advises on selecting trainers, and shares its training materials, but leaves most of the training to others.
3. Strengthening training institutions. In this approach, ISNAR strengthens existing institutions that can, with its help and using its materials, incorporate agricultural research management training into their curriculum.
4. Publications. ISNAR disseminates its managerial and organizational know-how through various kinds of publications, including research management cases.

1986 program activities

Following are some examples of different kinds of activities, workshops, and conferences through which ISNAR's training program works. Different kinds of national workshops implement different aspects of its training program strategy.

Through national training workshops, ISNAR works with a national system to train certain people in specific aspects of management. Examples in 1986 included a series of three one-week workshops in communication techniques held in Cameroon; and a one-week course on planning and programming agricultural research in Zimbabwe.

National follow-up workshops are distinguished by the fact that they relate to another event. Some are held as a consequence of a review, as in Kenya, where a two-week agricultural research management workshop was held in January.

In Egypt, a three-day workshop on agricultural research policy in 1986 followed up on ISNAR's 1985 consultation on a national agricultural research project being developed by the Government of Egypt and USAID. ISNAR's suggestions for improving research management were incorporated into the project paper, after which the Egyptian Agricultural Research

Centre (ARC), the International Development Research Centre, and ISNAR began collaborating in a management improvement effort in Egypt, setting the stage for the USAID project. The workshop, attended by the ARC director and the directors of ARC's 13 institutes, dealt with priority setting, programming and budgeting, and monitoring and evaluation – three critical areas of system building that will have to be dealt with by the national agricultural research program.

A national management improvement plan may start with an introductory workshop, with major involvement by system leaders, followed by periodic workshops dealing with specific management topics. Examples of such planning workshops – leading to producing a management improvement plan – are Argentina and Rwanda, where such events were held in 1985, and where plans were laid in 1986 for more in-depth workshops in 1987.

Regional activities

Regional conferences and workshops involve NARS leaders from several countries where, as in all such events, the leaders learn much from each other – as does ISNAR – in sharing experiences from their different systems. These include the following types of events:

An example in March was a three-day human resources development workshop, in which ISNAR cooperated with the Bangladesh Agricultural Research Council and Winrock International Institute for Agricultural Development. It followed a successful regional research program evaluation workshop held in Bangladesh in 1984.

Another was a week-long agricultural research management workshop – in which ISNAR, ICRISAT, and the United States Department of Agriculture cooperated – which attracted 32 USAID Asian project leaders and NARS scientists to ICRISAT in 1986.

Cooperative events

ISNAR also cooperates with other organizations in still other types of activities:

It delivers specific training or presentations at the request of other institutions holding workshops related to agricultural research management. In 1986, it provided major assistance and presentations on managing agricultural research at the annual six-month development-oriented agriculture course held at the Agricultural University of Wageningen, Netherlands; training in manpower issues at East Anglia University, United Kingdom; and lectures on selected management issues in association with other institutions at an event held in Bordeaux, France.

Jointly sponsored conferences, such as the annual two-week Agricultural Research Policy Seminar, co-sponsored by ISNAR and the University of Minnesota, U.S.A., involve policymakers in an intensive study of how to deal with the policy issues they

face. A unique aspect of this seminar is that it includes participants from both developing and developed countries, broadening the range of issues discussed and potential solutions to problems.

Another example of cooperation flowed from ISNAR's providing the secretariat for the International Federation of Agricultural Research Systems for Development (IFARD). In 1986, IFARD organized the First International Meeting of NARS and the Second IFARD Global Convention, both held in Brasilia, Brazil in October. ISNAR's director general gave the keynote address, and its two deputy directors general each made special presentations on aspects of agricultural research management, at the First International Meeting of NARS.

Also, individual presentations are made by ISNAR's staff at the request of other institutions organizing conferences related to agricultural research topics.

ISNAR conferences

ISNAR sponsors conferences, such as its September 8-12, 1986 international seminar on "Improving Agricultural Research Organization and Management: Implications for the Future." (For a report, see page 47.)

Again, it is obvious from the range of ISNAR's training program activities that the aim goes well beyond teaching in the conventional sense. Its aim is to further develop the leadership and management skills of national research system professionals -- and that involves more than ISNAR's direct inputs.

1986 Participation by Staff

January 13-24.

Agricultural Research Management Workshop, held at Egerton College, Njoro, Kenya.

Course preparation and lectures by H. Hobbs and T.A. Taylor.

January 20-24.

International Workshop on the structure of a digital international soil resources map.

ISRIC, Wageningen, Netherlands, C. Valverde.

February 8-13.

W. Stoop participated in the strategic review of IITA Farming Systems Program, Nigeria.

February 16-22.

Inter-center workshop on farming systems research at ICRISAT, Hyderabad, India.

W. Stoop presented a paper, "Organization and Managerial Implications of a Farming Systems Approach for NARS". D. Merrill-Sands, participant.

February 12.

Babcock Graduate School of Business, Wake Forest University, Winston-Salem, North Carolina, U.S.A. Lectures on CGIAR, and private-sector research in developing countries, by H. Hobbs.

February 24 - March 7.

Fifth International Course for Development-Oriented Research in Agriculture (ICRA), Wageningen, Netherlands, R. Contant, M. Dagg, R. Devred, H. Elliott, G. Hariri, H. Hobbs, H.K. Jain, D. Merrill-Sands, G. Rocheteau, T.A. Taylor, D. Wood.

March 2-4.

BARC/ISNAR/Winrock-sponsored, International Workshop on Management of Human Resources in Agricultural Research. Paper presented: "The International Service for National Agricultural Research: Opportunities for Its Second Five Years". A. von der Osten.

March 10-17.

H. Hobbs and D. Wood reviewed training materials prepared for FAO training courses by Dr. Gora Beye, FAO, and Mr. Ron Black, consultant. ISNAR, The Hague, Netherlands.

March 10-14.

WAFSRN Workshop -- Implementation of FSR in National Research Systems, Dakar, Senegal. D. Merrill-Sands.

March 13-14.

Regional Cooperative Project IICA/BID/PROCISUR, 4th Board of Directors Meeting, Montevideo, Uruguay, C. Valverde.

March 24-27.

Second Arab Congress on Plant Protection. ASPP/AAEU, Damascus, Syria. G. Hariri presented a symposium paper: "Entomology Research in the Arab Countries".

March - May.

Visiting Assistant Professor, Virginia Polytechnic Institute and State University, Department of Agricultural Economics, Blacksburg, Virginia, U.S.A. P. Pardey.

April 1-4.

Agricultural Research Policy Workshop, Cairo, Egypt. H. Elliott presented "Resource Allocation and Priority Setting in National Agricultural Research Systems: Where Economists Can Help". Presentation by R. Devred and participation of G. Hariri.

April 7-8.

Plenary meeting of Special Program for African Agricultural Research (SPAAR), Paris. ISNAR delegate: R. B. Contant.

April 12-17.

The first Arab Scientific Symposium for Horticulture AOAD, Amman, Jordan. G. Hariri presented a paper: "Rationalization of Pesticides Use on Horticultural Crops for Human Safety".

April 14-24.

Agricultural Research Policy Seminar, University of Minnesota, Minneapolis, U.S.A. Presentations by A. von der Osten, H. Elliott, and H. Hobbs.

April 14-18.

Workshop on Agro-Ecological Characterization, Classification, and Mapping, CGIAR and FAO, Rome, Italy. M. Dagg.

April 23-25.

Rome Forum, Rome, Italy. A. von der Osten, participant.

May 6.

International Course on Food Science and Nutrition. Organized by The Netherlands Universities Foundation for International Cooperation (NUFFIC), Wageningen, The Netherlands. Lecture by B. Mook.

May 18-23.

Mid-term meeting of the CGIAR, Ottawa, Canada. A. von der Osten, H. Elliott, and C. Kramer.

May 30 - June 7.

Meeting in Ouagadougou, Burkina Faso, arranged by CILSS to develop a training program in agricultural research management for the Sahel. D. Wood.

June 9-13.

Technical meeting on research-extension linkage organized by the Technical Centre for Agricultural and Rural Cooperation (CTA) at the Institute for Research, Extension and Training in Agriculture (IRETA) of the University of the South Pacific School of Agriculture, Alafua, Western Samoa. H.K. Jain.

June 9-13.

Meeting of SPAAR working group on Guidelines for Strengthening NARS in Sub-Saharan Africa. The Hague. R.B. Contant, member.

June 20-27.

Center Directors and TAC meetings held at CIAT, Cali, Colombia. A. von der Osten, H. Elliott.

June 23-26.

Planning session to develop a course for USAID agricultural officers from the Asia Near East Bureau, Washington D.C. D. Wood.

July 7-8.

A. von der Osten attended a meeting of the Special Program for African Agricultural Research (SPAAR) Working Group on Networking, European Economic Community, Brussels. With Dr. John Nickel, Director General of CIAT, he represented CGIAR center directors.

July 7-20.

T.A. Taylor: Expert Advisory Committee of IFAD, Africa-wide Biological Control of Cassava Pests, IITA, Ibadan, Nigeria.

July 7-9.

International Workshop on Evaluation in National Agricultural Research Systems. IFARD and IDRC. Singapore. M. Dagg.

July 21-25.

Agricultural Research Management Workshop, organized by FAO for Central American research managers. Panama City, Panama. Management lectures and case studies by H. Hobbs.

August 13-14.

Regional Cooperative Project IICA/BID/PROCISUR. Fifth Board of Directors Meeting, Montevideo, Uruguay. C. Valverde.

August 25-29.

CIAT/IFARD/FDRC seminar on "Priority Themes and Mechanisms of Cooperation for Agricultural Research in Latin America and the Caribbean". Cali, Colombia. Presentations by A. von der Osten and H. Hobbs.

September 15-16.

A. von der Osten attended a joint meeting of the CGIAR Task Force on Sub-Saharan Africa and the Center Directors Working Group on Africa, on the development of coordinating mechanisms for IARC activities at country/regional level in Africa. Paris, France.

September 21-24.

A. von der Osten attended the 20th anniversary celebrations of CIMMYT. Mexico.

October 5-11.

First International Meeting of National Agricultural Research Systems, combined with the Second IFARD Global Convention. Brasilia, Brazil. C. Valverde, organizer. A. von der Osten presented keynote address. H. Elliott, P. Pardey, and H.K. Jain presented papers. C. Kramer, participant.

October 12-17.

ISNAR/Rutgers/IDIAP Workshop on Comparative Advantages of Panamanian Agriculture. H. Elliott presented "The Panamanian Agricultural Technological Management System".

October 13-17.

Workshop on Biotechnology for Crop Improvement: Potentials and Limitations. At IRRI, Manila, Philippines. E. Javier chaired a session.

October 13-17.

E. Javier attended the Annual Meeting of the Rockefeller Program on the Genetic Engineering of Rice (as member of the RF Advisory Board for Biotechnology Research).

October 23.

Meeting of Steering Committee, Netherlands/Burkina Faso AGRISK Project. R.B. Contant, member.

October 27 - November 7.

Center Directors Meeting and International Centers Week. Washington, D.C., U.S.A. A. von der Osten, R. Contant, H. Elliott.

November 8-22.

W. Stoop participated in World Bank appraisal mission for agricultural research project in Ivory Coast.

November 3-7.

Seminar on Food and Nutritional Strategies: Concepts, Objectives, Application, held at the Technical Centre for Agricultural and Rural Cooperation, Royal Academy of Overseas Sciences, Brussels, Belgium. H.K.Jain gave lecture on "Role of Research in Transforming Traditional Agriculture: An Emerging Perspective".

November 7.

Plenary meeting of SPAAR, Washington, D.C. ISNAR delegation: A. von der Osten and R.B. Contant.

December 1-5.

Presentations at USAID Workshop on Agricultural Research Management and Biotechnology, ICRISAT, India. P. Bennell, P. Pardey, and D. Wood.

December 10-15.

Workshop on West African Agricultural Research Review, Cotonou, Benin. G. Rocheteau presented "Guidelines for Strengthening of National Agricultural Research Systems". Presentation by T.A. Taylor.

1986 Publications

Le Système National de Recherche Agricole au Rwanda

The National Agricultural Research System of Rwanda

La Recherche Agricole à Madagascar. Bilan et Perspectives du FOFIFA

Analysis, Evaluation, and Proposals for Strengthening CARDI's Regional Capacity

Kenya Agricultural Research Strategy and Plan
– Volume 1: Organization and Structure
– Volume 2: Priorities and Programs

Proagro 6 – A Relação Setor Público Privado na Geração de Tecnologia Agrícola no Brasil

Proagro 7 – La Fundación Servicio para el Agricultor en el Sistema Agrícola Venezolano

Proagro 8 – La Industria de Semillas en Países Semi-Industrializados: Los Casos de Argentina y Brasil

Proagro 9 – Política Tecnológica Agropecuaria y Desarrollo del Sector Privado: El Caso de la Región Pampeana Argentina

The Development of the Private Sector in Agricultural Research: Implications for Public Research Institutions

Les Recherches à l'ISAR sur les Productions Végétales

Human Resources Planning and Management in the Instituto Nacional de Tecnología Agropecuaria Argentina

Consideraciones para el Mejoramiento de la Investigación Agrícola a Nivel Nacional

Agricultural Research Organization in the Developing World: Diversity and Evolution

The National Institute for Agricultural Research of Morocco
– Volume 1: Present Situation and Prospects
– Volume 2: Annexes

ISNAR Reprint Series No. 3: International Technology Transfer

Catalog of Publications 1986

Program and Budget for 1987

Working Paper No. 5 – Agricultural Researchers in Sub-Saharan Africa: A Quantitative Overview

The Agricultural Research System in Sri Lanka

Improving Agricultural Research Organization and Management: Implications for the Future

1986 Consultants to ISNAR

Dr. Jacqueline Ashby
Cali, Colombia
Participated in the study workshop for organization and management of on-farm research in NARS

Dr. Marcelino Avila
Harare, Zimbabwe
Participated in the study workshop for organization and management of on-farm research in NARS

Dr. Dale Bandy
Lima, Peru
Worked with ISA and ISNAR in the Dominican Republic on the paper "National Resources and IDIA's Agricultural Research Services"

Dr. Stephen Biggs
Norwich, United Kingdom
Participated in an ISNAR study on the organizational and managerial implications of on-farm research for national research systems

Dr. James Bingen
East Lansing, Michigan, U.S.A.
Participated in the study workshop for organization and management of on-farm research systems

Dr. Richard Bernsten
East Lansing, Michigan, U.S.A.
Participated in the study workshop for organization and management of on-farm research in NARS

Dr. Hernán Chavera
Bogotá, Colombia
Worked with SERCITEC/CONSULTAG in the Dominican Republic on the paper "Planning, Programming, Monitoring and Evaluation"

Ing. Jens Christensen
Morkou, Denmark
Worked with SERCITEC/CONSULTAG in the Dominican Republic on the paper on technology transfer policy structure

Mr. Donald Corbett
Redbourn, United Kingdom
Assisted in the preparation of a paper on the organization and structure in the National Agricultural Research System

Dr. Arthur Coutu
Raleigh, North Carolina, U.S.A.
Provided technical assistance and coordination to ISA and ISNAR in the Dominican Republic

Mr. L. Miguel Cuellar
Panama, Republic of Panama
Participated in the study workshop for organization and management of on-farm research in NARS

Dr. Patrick O'Donovan
Rome, Italy
Reviewed the structure and organization of the Department of Research and Specialist Services in Zimbabwe

Ms. Thelma Egerton
Paris, France

Prepared teaching materials for use in seminars at Cameroon on the techniques of communication and team building

Dr. Peter Ewell
Ithaca, New York, U.S.A.

Participated in the study workshop for organization and management of on-farm research in NARS

Dr. Carl Eicher
Harare, Zimbabwe

Assisted in the preparation/revision of the ISNAR Strategy for Africa

Dr. Jacques Faye
Dakar, Senegal

Participated in the study workshop for organization and management of on-farm research in NARS

Dr. W.K. Gamble
Minneapolis, Minnesota, U.S.A.

Assisted with the review of research program management and organization of IAR Ethiopia and preparation of its manpower plan; exploratory discussion of possible avenues for ISNAR/INIA collaboration in Chile

Dr. Elon Gilbert
Banjul, The Gambia

Participated in the study workshop for organization and management of on-farm research in NARS

Dr. Grace Goodell
Washington D.C., U.S.A.

Participated in the study workshop for organization and management of on-farm research in NARS

Dr. William P. Gormbley
Wilton, Connecticut, U.S.A.
Assisted in the review of ISNAR management practices

Dr. Anil Gupta
Dhaka, Bangladesh

Participated in the study workshop for organization and management of on-farm research in NARS

Dr. Fred Haworth
Devon, United Kingdom

Assisted with preparations for the Ethiopia project

Dr. Reed Hertford
New Brunswick, New Jersey, U.S.A.

Worked with ISA in the human resources development policy structure in the Dominican Republic

Mr. John Hopkins
Rome, Italy

Reviewed the strategy paper and associated strategies for research and training

Ms. Sarita Gómez
The Hague, The Netherlands
Translation for the study workshop for organization and management of on-farm research in NARS; Spanish translation of the 1985 annual report

Dr. Badri Kayastha
Kathmandu, Nepal
Participated in the study workshop for organization and management of on-farm research in NARS

Dr. Stuart Kean
Lusaka, Zambia
Participated in the study workshop for organization and management of on-farm research in NARS

Dr. Robert King
St. Paul, Minnesota, U.S.A.
Participated in the management information systems and program budgeting meeting at ISNAR

Dr. Francois Labouesse
Montpellier, France
Participated in a review mission to Niger

Dr. Christopher Millensted
San Pedro Sula, Honduras
Organization and structure of IDIA, in the Dominican Republic

Mr. Bright Mombeshora
Harare, Zimbabwe
Participated in the study workshop for organization and management of on-farm research in NARS

Dr. Barry Nestel
Surrey, United Kingdom
Participated in the Cairo Workshop, preparing a paper on "Evaluation of Agricultural Research"; also reviewed the institutes and programs of AARD, Indonesia

Dr. George Norton
Blacksburg, West Virginia, U.S.A.
Prepared working paper on Priority Setting Mechanisms for NARS; Recent Experience and Future Needs; also provided technical assistance to personnel at ISA in the Dominican Republic in relation to setting agricultural research priorities

Dr. William Payne
Worcestershire, United Kingdom
Participated in the review of the IAR research program management and organization in Ethiopia

Dr. Susan Poats
Gainesville, Florida, U.S.A.
Participated in the study workshop for organization and management of on-farm research in NARS

Mr. Eliza Riezebos
Bennekom, The Netherlands
Drafting a Master Plan for agricultural research in the Republic of Rwanda

Mr. Peter Rood
Norfolk, United Kingdom
Participated in the study workshop for organization and management of on-farm research in NARS

Dr. Sergio Ruano
Guatemala City, Guatemala
Participated in the study workshop for organization and management of on-farm research in NARS

Mr. Jonathan Sands
The Hague, The Netherlands
Participated in the implementation of the Project Management System in ISNAR

Ing. Rómulo Soliz
Quito, Ecuador
Participated in the study workshop for organization and management of on-farm research in NARS

Mr. Wayne E. Swegle
Des Moines, Iowa, U.S.A.
Prepared the annual report of ISNAR activities in 1985

Mr. Guy Vallaeys
Nogent-sur-Marne, France
Assisted in the reorganization of the National Agricultural Research Institute INERA in Zaire

Mr. Brian Webster
Cambridgeshire, United Kingdom
Assisted in the reporting on the series of IFARD activities in Brasilia

Ms. Theresa Weersma
Wassenaar, The Netherlands
Prepared inventories of IARC activities in Sub-Saharan Africa; CGIAR activities in Africa

Dr. David Shapiro
State College, Pennsylvania, U.S.A.
Assisted in the preparation of a proposal for in-depth study of human resource issues, INRA, Morocco

Dr. Efrain Whingwiri
Harare, Zimbabwe
Participated in the study workshop for organization and management of on-farm research in NARS

Prof. Theodorus Wormer
Muiden, The Netherlands
Participated in the coffee research project in Rwanda

Prof. Lawrence Zuidema
Ithaca, New York, U.S.A.
Assisted in the review and made recommendations on the IAR research program in Ethiopia

ISNAR's 1986 financial highlights



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Price Waterhouse Nederland



The financial information set out on pages 67 to 72 has been extracted from the accounts of the International Service for National Agricultural Research (ISNAR) for the year ended December 31, 1986, which have been examined by us. Based on our examination, we have expressed our opinion that such accounts have been properly prepared using accounting principles consistent with those used in the preceding year to give the information required to be shown in accordance with the accounting procedures contained in the instructions issued by the Consultative Group on International Agricultural Research, Washington, D.C.

Price Waterhouse Nederland

February 27, 1987.

BALANCE SHEET
December 31
(STATED IN U.S. DOLLARS)

Current Assets	1986	1985	Liabilities	1986	1985
Cash	1,468,599	1,315,676	Advance received on		
Receivables from Donors	47,600	196,364	1987 Core donation	70,582	874,060
Other Receivables	209,918	79,513	Accrued Expenses	776,704	344,396
Prepayments	164,036	74,831	Total Liabilities	<u>847,286</u>	<u>1,218,456</u>
Total Current Assets	<u>1,890,153</u>	<u>1,666,384</u>			
Fixed Assets			Fund Balances		
Vehicles	23,234	23,234	Invested in Fixed Assets	1,088,019	786,693
Furnishings and Office Equipment	<u>1,064,785</u>	<u>763,459</u>	Unexpended Funds:		
Total Fixed Assets	<u>1,088,019</u>	<u>786,693</u>	Core-Unrestricted	11,645	(23,738)
			Working Fund	650,000	310,000
			Special Projects	<u>381,222</u>	<u>161,666</u>
			Total Fund Balances	<u>2,130,886</u>	<u>1,234,621</u>
TOTAL ASSETS	<u>\$2,978,172</u>	<u>\$2,453,077</u>	TOTAL LIABILITIES AND CAPITAL	<u>\$2,978,172</u>	<u>\$2,453,077</u>

RECEIVABLES FROM DONORS AS OF DECEMBER 31, 1986
(STATED IN U.S. DOLLARS)

Donor	Amount Pledged in Original Currency	US\$ Equivalent at Time of Pledge	Payment in Original Currency	Received During the Year	Losses (Gains) Arising on Exchange and or Donation Shortfall	Balance Outstanding at the Year End
Core unrestricted operating grants						
Australia	Aus\$ 210,000	146,900	Aus\$ 210,000	142,864	4,036	---0---
Belgium	BFrs 2,000,000	47,600	BFrs 2,000,000	---0---	---0---	47,600
Canada	Can\$ 380,000	277,400	Can\$ 375,000	274,790	2,610	---0---
EEC	ECU 300,000	254,200	ECU 300,000	305,870	(51,670)	---0---
Federal Rep. of Germany	DM 300,000	115,400	DM 300,000	134,458	(19,058)	---0---
France	FF 1,200,000	151,500	FF 1,200,000	177,778	(26,278)	---0---
IBRD	US\$ 800,000	800,000	US\$ 800,000	800,000	---0---	---0---
Ireland	US\$ 135,900	135,900	US\$ 135,900	135,900	---0---	---0---
Italy	L 350,000,000	199,000	L 350,000,000	243,393	(44,393)	---0---
Netherlands	Dfl 600,000	204,100	Dfl 600,000	239,471	(35,371)	---0---
Philippines	Pp 500,000	26,700	Pp 500,000	27,205	(505)	---0---
Spain	US\$ 25,000	25,000	US\$ 25,000	25,000	---0---	---0---
Sweden	Skr 100,000	12,800	Skr 100,000	13,499	(699)	---0---
Switzerland	Swf 440,000	205,600	Swf 440,000	236,518	(30,918)	---0---
UK	PdsSt 130,000	188,400	PdsSt 130,000	193,140	(4,740)	---0---
USAID	US\$ 950,000	950,000	US\$ 950,000	950,000	---0---	---0---
		3,740,500		3,899,886	206,986	47,600
IBRD-stab.fund	US\$ 420,000	420,000	US\$ 420,000	420,000	---0---	---0---
Total Core Unrestricted Operating Grants 1986		4,160,500		4,319,886	(206,986)	47,600
Core restricted operating grant						
Netherlands	Dfl 300,000	130,435		130,435	---0---	---0---
Capital - restricted grant						
Federal Rep. of Germany	DM 50,000	20,849	DM 50,000	20,849	---0---	---0---

**STATEMENT OF SOURCES AND APPLICATION OF FUNDS
FOR THE YEAR ENDED DECEMBER 31, 1986
(STATED IN U.S. DOLLARS)**

	1986	1985		1986	1985
Source of Funds			Application of Funds		
1.- Core Operations			1.- Core Operations		
Unrestricted	3,820,500	3,631,967	Review and Planning NARS	1,857,509	1,807,961
Restricted	130,435	---0---	Research	611,129	320,774
Unexpended balance from prior year	(23,738)	(29,696)	Training	654,040	279,184
Earned Income Applied in Year	451,365	82,387	Program Support (Publ/Inf/Doc)	445,216	471,758
	<u>4,378,562</u>	<u>3,684,658</u>	General Administration	799,023	653,719
			Mandatory review 1985	---0---	175,006
				<u>4,366,917</u>	<u>3,708,396</u>
2.- Capital			2.- Capital		
Unrestricted	---0---	18,000	Capital Additions	210,631	111,682
Restricted	20,849	24,086			
Working Fund	650,000	310,000	3.- Special Projects		
Earned Income Applied in Year	189,782	69,596	Cumulative Expenditure on Projects not Completed	1,375,489	1,386,150
	<u>860,631</u>	<u>421,682</u>			
3.- Special Projects			4.- Unexpended Balance		
Cumulative Income on Projects not Completed	1,756,711	1,547,816	Core Unrestricted	11,645	(23,738)
			Working Fund	650,000	310,000
			Special Projects	381,222	161,666
				<u>1,042,867</u>	<u>447,928</u>
TOTAL SOURCE OF FUNDS	<u>\$6,995,904</u>	<u>\$5,654,156</u>	TOTAL APPLICATION OF FUNDS	<u>\$6,995,904</u>	<u>\$5,654,156</u>

Donors to Special Projects

	Amount Received		
Rwanda: IDA under contract between the Government of the Republic of Rwanda and ISNAR for advisory services in agricultural research management provided by ISNAR to the Rwanda Institute of Agricultural Sciences (ISAR):	\$19,097	Rutgers University under contract of USAID for testing of a methodology for studying agricultural technology management systems in Latin America, with a case study in Panama:	\$27,318
The International Development Research Centre (IDRC) in support of the agricultural research organization and performance program (PROAGRO) carried out in Latin America:	\$28,577	USAID: Dominican Republic as a final payment for ISNAR assistance in the establishment of the Instituto Dominicano de Investigaciones Agropecuarias:	\$97,000
Madagascar: IDA as interim payment on the contract for technical assistance in agricultural research management provided by ISNAR to the National Center for Research Applied to Rural Development "FOHIFA":	\$55,580	USAID: Peru for an institutional assessment of INIPA, the National Institute for Agricultural Research and Promotion:	\$64,927
The Overseas Development Administration of the United Kingdom as final payment for a field study on agricultural management training needs and a series of training workshops in Africa (CIDA- Strengthening of Agricultural Research Management in Africa):	\$5,947	USAID: Somalia for work with Somali research personnel to help define and plan the technical elements of an agricultural research capability development program:	\$6,010
		USAID/Peru for the preparation of a case study of the Agricultural Research, Extension and Education model in Peru:	\$42,910

The Government of Tunisia under a World Bank loan for work undertaken to evaluate the institutional structure of the Tunisian agricultural research system and to establish an integrated program for future research activities:	\$50,685	The Technical Centre for Agricultural and Rural Co-operation, Wageningen, for preparation of the international IFARD Conference held in Brazil in October 1986:	\$6,845
The Rockefeller Foundation for support of a Research Fellow with responsibilities for the On-Farm Research Project:	\$28,000	The Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) for preparation of the international IFARD Conference held in Brazil in October 1986:	\$24,527
The Italian Government for the On-Farm Research Project analyzing managerial implications for national research organizations conducting on-farm activities:	\$385,000	The Government of the Netherlands for preparation of the international IFARD Conference held in Brazil in October 1986:	\$32,609
WINROCK International under a USAID contract to carry out a mid-term review of the Agricultural Research Project in Pakistan for the Pakistan Agricultural Research Council (PARC):	\$13,528	USAID/Washington for preparation of the international IFARD Conference held in Brazil in October 1986:	\$25,000
The Canadian International Development Agency (CIDA) for the second phase of a management training program, Strengthening of Agricultural Research Management in Southern Africa:	\$96,825	The International Development Research Centre (IDRC) for preparation of the international IFARD Conference held in Brazil in October 1986:	\$10,411
		The Italian Government for support of the ISNAR Database on National Agricultural Research Systems:	\$80,000

The Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) for a review of the Institute of Agronomic Research (IRA) and the Institute of Zootechnical Research (IRZ) in Cameroon:	\$58,957
The World Bank for the West Africa Agricultural Research Review:	\$8,600
The Canadian International Development Agency (CIDA) for a workshop in Lusaka, Zambia to review the Guidelines for National Agricultural Research Strategies, prepared by ISNAR under the Special Project for African Agricultural Research (SPAAR):	\$23,717
The United Nations Development Programme (UNDP) for assistance in the reorganization of agricultural research in Zaïre:	\$27,027
WINROCK International under a USAID Contract for services rendered to the Bangladesh Agricultural Research Council (BARC) in the area of human resources management:	\$9,529