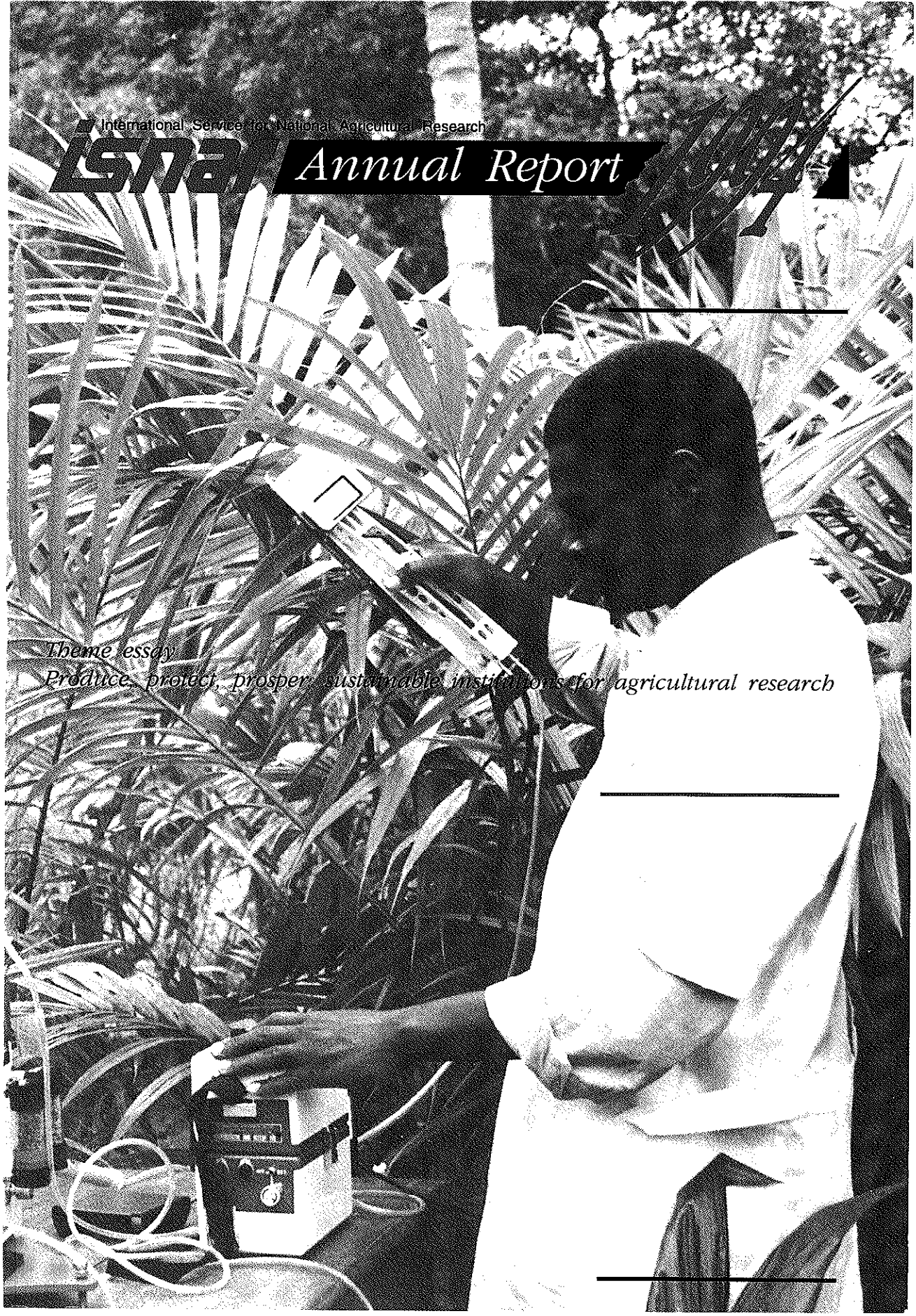
International Service for National Agricultural Research

ISNAR Annual Report 1994



Theme essay

Produce, protect, prosper: sustainable institutions for agricultural research

The mandate of the International Service for National Agricultural Research (ISNAR) is to assist developing countries in bringing about lasting improvements in the performance of their national agricultural research systems and organizations. It does this by promoting appropriate agricultural research policies, sustainable research institutions, and improved research management. ISNAR's services to national research are ultimately intended to benefit producers and consumers in developing countries and to safeguard the natural environment for future generations.

ISNAR offers developing countries three types of service, supported by research and training:

- For a limited number of countries, ISNAR establishes long-term, comprehensive partnerships to support the development of sustainable national agricultural research systems and institutions.

- For a wider range of countries, ISNAR gives support for strengthening specific policy and management components within the research system or constituent entities.

- For all developing countries, as well as the international development community and other interested parties, ISNAR disseminates knowledge and information about national agricultural research.

ISNAR was established in 1979 by the Consultative Group on International Agricultural Research (CGIAR), on the basis of recommendations from an international task force. It began operating at its headquarters in The Hague, the Netherlands, on September 1, 1980.

ISNAR is a nonprofit autonomous institute, international in character, and apolitical in its management, staffing, and operations. It is financially supported by a number of the members of the CGIAR, an informal group of donors that includes countries, development banks, international organizations, and foundations. Of the 16 centers in the CGIAR system of international centers, ISNAR is the only one that focuses specifically on institutional development within national agricultural research systems.

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June 1995

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Preface

In 1994, funding for ISNAR was again tight and the fiscal outlook remains uncertain. We therefore allowed our overall staff strength to decrease slightly through attrition. We also simplified our organizational structure to integrate better the delivery of our advisory, research, and training services to the national agricultural research systems (NARS) that are our partners.

We are optimistic that ISNAR will be able to come back up to full staff strength in 1995 so that the institute can respond better to the many service requests from the NARS.

Despite continued concern over funding, staffing, and our response capacity, ISNAR moved ahead on several fronts during the year. First, we reinforced our training activities around the world, mostly through regional workshops and seminars, but also via single-country events. This reflects, in part, the maturation of ISNAR research on various themes of research policy and management, as well as a growing emphasis on the transfer of "technology" — management tools, methods, and approaches — to the NARS. During the year we stepped up work on translating these products into training materials and modules and delivering them to both NARS managers and national and regional trainers.

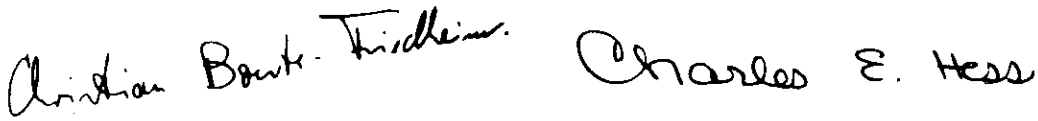
Second, we strengthened our links with several regional bodies in Latin America and sub-Saharan Africa. The aim is to promote stronger South-South cooperation and to multiply the impact of ISNAR's knowledge and services. In one instance, ISNAR was instrumental in the creation of a new regional association to serve the needs of national research organizations in Eastern and Central Africa.

Third, at the international level, ISNAR played a key role in promoting better links between NARS and the CGIAR global network of research centers. With the International Fund for Agricultural Development (IFAD), ISNAR cosponsored an important consultation between NARS leaders and international center directors in December in Rome. It was an occasion for the NARS to set out a vision of their future role in international agricultural research.

ISNAR believes that the voice of national research needs to be much louder within the CGIAR. The NARS need stronger representation in the global governing structure of the donors, in the guidance of research programs by the boards and management of individual international centers, and in the day-to-day interactions among practicing research scientists around the world. Helping developing countries to alleviate poverty, increase food and fiber production, and protect the environment is the raison d'être of the CGIAR. Without strong NARS to participate in the global research effort and to translate its results into practical solutions, this goal is no more than a mirage.

In 1994, ISNAR worked directly with 43 countries — in most cases assisting with specific management and policy problems or documenting national experiences, and in a few cases establishing links for future cooperation. These achievements are recorded in the following pages. But although ISNAR is fully dedicated to serving the national systems, it is a small actor within the global development community. Our task exceeds our resources and we therefore look to the donors and to all international centers, both members and nonmembers of the CGIAR, to share in the work of strengthening the NARS.

On behalf of ISNAR's Board of Trustees, management, and staff, we take pleasure in presenting the institute's annual report for 1994.



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Director General

Charles Hess
Chairperson, Board of Trustees

May 1995

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Constitutionally appointed observer from FAO

* Completed service in 1994
** Joined the board in 1994

Seated, left to right: Lydia Makhubu, Charles Hess, Nicole Senécal, Christian Bonte-Friedheim. Standing, left to right: Berndt Müller-Haye, Henk Breman, Kenzo Hemmi, Just Faaland, Martín Piñeiro, Alessandro Bozzini, Kurt Peters, and Amir Muhammed.

Executive Summary

ISNAR is one of 18 international centers supported by the Consultative Group on International Agricultural Research. It began operations in 1980. Headquartered in The Hague, the Netherlands, ISNAR assists developing countries in making lasting improvements in the performance of their national agricultural research systems (NARS) and component organizations. ISNAR does not conduct biological and physical research but is concerned mainly with the policy and management aspects of research at the national and regional levels and with promoting sustainable research institutions. In working with the NARS, ISNAR aims ultimately to bring benefits to agricultural producers and consumers in developing countries and to safeguard the natural environment.

This executive summary highlights major activities and events. Further description of ISNAR's 1994 work is found in the main text.

Board of Trustees

Charles Hess of the USA was elected chairperson of the ISNAR Board of Trustees. His term began in October. Hess is the director of International Programs, College of Agricultural and Environmental Sciences, of the University of California. He has served on the ISNAR board since 1993. He was formerly assistant administrator in the US Department of Agriculture with responsibility for agricultural research. Hess succeeds Nicole Senécal, vice-president (multilateral branch) of the Canadian International Development Agency.

Three new board members were appointed during the year: Alessandro Bozzini of Italy, Just Faaland of Norway, and Martín Pineiro of Argentina. Kenzo Hemmi of Japan left the board upon completion of his term of appointment. In 1995, the ISNAR board will have 12 members, including the director general. In addition, a representative of FAO is a constitutionally appointed observer.

Theme essay on sustainable research institutions

National agricultural research organizations are crucial to future production increases and the protection of natural resources. Their sustainability is of great concern to ISNAR and is one of three overriding themes identified for action in ISNAR's strategy for the 1990s. The theme essay of the 1994 annual report examines this issue mainly from the perspective of performance, that is, an organization's ability to produce a steady stream of relevant outputs for the benefit of an identified clientele. In the case of agricultural research organizations, these outputs are technology, such as new or improved varieties and farming practices, as well as information and knowledge.

The essay focuses on two key management functions essential to sustaining performance. The first is planning and managing resources for research. The second is research's interactions with partners, especially investors and other organizations involved in agriculture.

The overall level of investments in research is something over which individual research managers have little control. Even the imbalance between operating funds and staff salaries typical of many research systems is largely out of their hands. What research leaders *can* do is carefully manage the funds they are given, as well as the human and physical resources purchased with those funds. Sound resource management, combined with methods for ensuring the scientific quality and relevance of research programs and projects, can improve performance. Such resource and program management requires an institutionalized cycle of planning, monitoring, and evaluation, based on good management information and feedback from the users of research, especially from farmers and extension. These are a few of the topics on which ISNAR provides assistance to NARS in the form of advice, management tools, and training.

The second key management function is managing interactions and maintaining linkages with partners and stakeholders. Relations with investors are particularly important for sustaining institutions. Over the past three decades, investors have made major contributions to the creation of an agricultural research infrastructure in the developing world. These include construction of research facilities, provision of technical assistance, and training for tens of thousands of scientists and technicians.

Yet donors and lenders have often been insensitive to the institutional realities of the recipient country. Foreign consultants are often used to design the research programs and projects, with minimal regard for national priorities and absorptive capacity. In short, the investors' own agenda and interests may dominate the institutional design and the research effort. Investors may also impose restrictive conditions on how money is to be spent, and the actual research is often led by expatriates with a short-term commitment, particularly in Africa.

The national research institutions designated to execute investor programs do not necessarily have the trained staff to continue the work or the domestic funding to sustain efforts once the investor pulls out. Top-down planning of externally funded projects can actually threaten true institutional development and undermine long-term performance.

Sustained performance requires national ownership of research programs and achievements. This means that local scientists and managers should be in the driver's seat in research planning and implementation. Investors should play a supporting role.

NARS have many other partners in national research — universities, private companies, NGOs, and regional and international organizations, to name the most prominent. These linkages are increasingly germane to the sustainability of national systems. This is because the agenda of researchable problems is expanding beyond the immediate capacity of many NARS to respond, at a time when funding is getting tighter. Regional and subregional cooperation, and participation in the so-called ecoregional initiatives of the CGIAR, are two examples of partnerships that can, with proper joint planning, alleviate the burden on NARS through the sharing of research tasks, resources, and information. Without such sharing, many NARS will be unable to sustain the research effort needed to serve the varied needs of their clients. A "culture of cooperation" — among NARS, their research partners, and investors — needs to be promoted to ensure the long-term performance of national research.

A change in ISNAR's structure

During the year, in which the financial outlook was rather dim, ISNAR moved toward an internal organizational structure that more fully integrates the delivery of its three services — advice, research (on policy, organization, and management), and training. Activities are now organized into two client-oriented programs: (1) Policy and System Development and (2) Management. Program 1 responds to the system-level problems faced by ministers of agriculture, ministers of finance and planning, regional organizations, and donors. Program 2 responds to the daily concerns of managers running research organizations.

The activities of the two programs are supported by four specialized units: Publications Services, Computer Services, the Training Unit, and Library and Documentation Services. These units serve not only ISNAR's in-house needs, they also provide support to NARS in their respective areas of expertise.

Policy and system development

The Policy and System Development program deals with research policy, system structure, and the linkages that a NARS must maintain with its external and internal environments. A brief description of its major themes and activities follows:

- Through its **Indicator Series**, ISNAR is a source of information on resources (researchers and funds) for national agricultural research throughout the world. With support from Italy, SPAAR, and its own core budget, ISNAR has continued this work with a project on sub-Saharan African countries, which includes data up to 1992. Statistical briefs on nine African countries were finalized in 1994; drafts were prepared on five others.

- The SARMAC project to strengthen agricultural **research in the Arab countries** has been a joint effort of ISNAR and the Arab Organization for Agricultural Development. ISNAR organized a workshop in Beirut to share the experiences of the SARMAC project with research leaders from 12 Arab countries. Lessons and experience from earlier reviews of the NARS of Algeria, Iraq, Sudan, and Yemen were presented and discussed.

- A collection of conceptual papers, case studies, and lessons from NARS' experiences with **structural adjustment** was completed. The final two country case studies examined links between agricultural research and structural adjustment in Burkina Faso and in East Africa. The Italian government, CIDA, and the World Bank's Economic Development Institute (EDI) provided additional funds for this ISNAR project.

- The first phase of research into the complementary roles of the **public and private sectors** in agricultural research ended in 1994 with the completion of case studies on Colombia, Ecuador, and Jamaica. A further study in Chile will serve to validate the approach so that it becomes part of ISNAR's tool kit for system reviews and other work.

- ISNAR completed a long-awaited book on agricultural **research evaluation and priority setting.** It will be published by Cornell University Press in early 1995 under the title *Science under Scarcity*. The book will be a standard reference for academics and for advisors in planning and research ministries who have a sound knowledge of economics. ISNAR also held an international consultation on regional priority setting and continued collaborative work on research evalu-

ation in East Africa in three projects involving KARI, Humboldt University of Berlin, and ICRAF.

- The **Intermediary Biotechnology Service** (IBS) provides developing countries with information and advice on complex policy and planning issues surrounding agricultural biotechnology. ISNAR published and disseminated an IBS report that outlines a four-stage process and framework for making decisions about biotechnology-based agricultural research. It also organized a major regional workshop in Singapore for research policymakers and public- and private-sector research managers from six Asian countries.

- ISNAR hired two consultants to review its previous studies and advisory work on **organizational models** for agricultural research. A Briefing Paper on the topic was published.

- A multiyear project to study the research priorities and organizational strategies of 50 **small countries** came close to completion in 1994. A synthesis of experiences and lessons coming out of several in-depth country studies will reach publication in 1995.

- ISNAR began a joint research project with the Overseas Development Institute (UK) on promoting and sustaining the role of **farmers' organizations** in influencing research agendas and priorities. Case studies in Zimbabwe, Mali, and Bolivia are in progress. With support from the Dutch government, the project on **linkages between research and technology transfer** was extended. Case studies of research links with farmers' organizations in Burkina Faso, Ghana, and Kenya were completed. This created the basis for action research to improve the capacity of research managers and leaders of farmers' organizations to strengthen links between them. Further case studies by local teams in Mali, Zimbabwe, Senegal, and Tanzania are planned.

- A two-year project to reinforce the **role of universities** in NARS in sub-Saharan Africa continued in 1994. Case studies were launched in Benin and Nigeria by national researchers. The project is being carried out with the University of Hohenheim in Germany.

Management

The Management program aims to bring about sustained improvements in the performance of national agricultural research organizations, primarily those in the public sector. Three themes give direction to the program's work: management of research programs, management of resources for research, and organizational change.

The first two themes relate to the performance of agricultural research organizations — namely effectiveness (high-quality, relevant programs) and efficiency (economic use of resources). The third is related to technology and knowledge transfer to NAROs — assessing the impact of ISNAR's outreach efforts and finding new ways to disseminate knowledge and institutionalize management innovations. The following are highlights of the program's 1994 achievements:

- A multicountry project to improve research **planning, monitoring, and evaluation** (PM&E) in Latin America and the Caribbean was completed. It was funded by national, regional, and international agencies, with the largest contribution coming from IDB. PM&E training materials based on Latin American experiences have been trans-

lated into English and are being adapted for use in Africa.

- ISNAR continued implementation of its **management information system**, INFORM. Designed in the Asian context by ISNAR as a program planning and budgeting tool, INFORM was extended during the year to several African countries: Ghana, Kenya, Senegal, and Uganda. Training materials have been translated into French and Spanish. An evaluation of INFORM by consultants recommended further development to make it a more user-friendly tool for monitoring and evaluation.

- Activities in **financial management** were stepped up in 1994. Procedures in the Benin NARS were assessed, budgeting procedures were reviewed in Morocco, and a first meeting of NARO financial managers was held at ISNAR. An assessment of station management conditions in Benin included recommendations on inventory control and on the maintenance of physical resources.

- A workshop on strategic planning for **human resource development** was held in Swaziland for managers from Botswana, Lesotho, and Swaziland, and work continued on the assessment of researcher performance in Morocco. The program also started investigations into the link between human resource management in NAROs and the expansion of research on natural resource management.

- A conceptual paper outlining a method for **assessing organizational performance**, based mainly on the scoring of research outputs, was completed. At a workshop in December at headquarters, NARO leaders from nine countries examined the model and then took it back to their organizations for testing.

- The first **benchmark** study, an examination of methods used by INTA in Argentina for selecting research managers, was conducted. ISNAR hopes such benchmarks will provide NARO managers with credible models for change drawn from similar institutional environments.

Cross-program initiative on natural resource management

ISNAR continued to examine the organizational and management implications of the growing emphasis that developing countries and donors are putting on **natural resource management** (NRM) research. This subject cuts across ISNAR's two programs. In December, ISNAR hosted an international workshop on research policy and management for agricultural growth and sustainable use of natural resources. Participants included national research leaders, policymakers, donors, and representatives of regional and international research organizations. The meeting was a joint effort by ISNAR and Germany's DSE. ISNAR also continued its assistance to Bhutan in the organization and management of NRM research, follow-up to an earlier planning exercise.

Highlights from five countries

- In **Benin**, ISNAR worked with a national team to draft a new national agricultural research policy. Approved by the cabinet in December, this is just the first step in a master-planning exercise for research.

- The comprehensive institutional development (CID) program continued with NARO in **Uganda**, supported by two outposted ISNAR staff. Work covered

salary structure, staffing patterns, training needs, and recruitment; the organization and management structure; research priorities and programs; scientific and management information, including INFORM development and training; and links with extension, other ministries, and Makerere University.

- In **India**, ISNAR played a lead role in drafting a strategy to set up a nationwide agricultural research **information system** to link some 240 sites, allowing the exchange of scientific and management information. The strategy has been accepted by ICAR, the main coordinating agency for agricultural research.

- ISNAR signed a memorandum of understanding with **Ecuador**'s lead institute for agricultural research, INIAP, establishing a three-year CID program. Together, ISNAR and INIAP formulated an integrated program of activities for strengthening agricultural research.

- ISNAR continued its collaboration with **Egypt** under a program supported by CEMARP. A national research strategy was drafted, along with annual and five-year program plans for oasis-related research. ISNAR also provided training in data base development for staff of the Agricultural Research Center and the university faculties of agriculture. The data bases contain information on researchers, academic staff, graduate students, and their research activities.

Regional collaboration

Active at the regional level during the year, ISNAR contributed to the launching of a new regional association in Eastern and Central Africa called ASARECA. Work centered on the formulation of ASARECA's constitution and governance structures. In December ISNAR also signed a memorandum of understanding with CORAF, a regional association of agricultural research directors. The association promotes cooperation among the NARS of the region, as well as between the NARS and international and regional bodies. In Latin America, ISNAR strengthened its links with the regional agricultural organization, IICA. Advisory, research, and training activities in 12 areas of policy and management were identified for mutual collaboration for the benefit of NARS in the region. These are just a few of many 1994 activities whereby ISNAR either promoted links among NARS or attempted to multiply its own impact through dialogue and training.

Collaboration with other CGIAR centers

ISNAR collaborated with other CGIAR centers on six separate activities during the year. A major highlight was ISNAR's contribution to an intercenter strategy on information, which was formulated at a meeting at ISNAR headquarters attended by representatives of 15 centers. Among other things, the meeting endorsed the creation of a high-speed integrated voice and data network for the CGIAR system.

A second highlight of intercenter cooperation was ISNAR's participation in a World Bank exploratory mission to the Russian Federation, with inputs from CIP, ICARDA, and IPGRI. The mission was in preparation for a major World Bank project to strengthen agricultural research and training.

Information and training

Publications Services produced 25 formal ISNAR publications and nine news releases and assisted with the preparation or reproduction of 11 other major documents. The unit surveyed readers on their subject matter interests and updated the mailing list,

which stood at about 2600 entries at the end of 1994.

Computer Services began preparing for the profound changes in information technology expected during 1995 in the CGIAR system and beyond. In August, the unit began replacing ISNAR's 386-type desktop computers with 486 PCs with bigger hard disks, more memory, and better monitors, which cost much less than their predecessors. The replacement cycle will take about one year.

Computer Services provided technical advice and assistance to the NARS of Egypt and Uganda regarding computer services for researchers.

ISNAR's Library and Documentation Services added new literature to its collection during the year, bringing total holdings to 18,000 books and documents. Full access to the Internet was established for the library, providing direct access to vast amounts of information, including the library catalogs of major universities and libraries in Europe and North America.

Training assistance to NARS is integrated with advisory work and research carried out by the staff of ISNAR's two programs. The Training Unit helps in preparing pedagogical materials on a variety of management topics. It also advises and supports NARS in the development of their own management training programs.

The Training Unit's work in 1994 focused on Africa — in Kenya with KARI, in Uganda with NARO, and with the SADC countries in partnership with the Eastern and Southern African Management Institute (ESAMI).

Training modules were prepared for testing in several of the workshops held under the five-year KARI-ISNAR Management and Training Linkage Project in Kenya, funded by the European Union. In Uganda, the head of the ISNAR Training Unit teamed up with outposted ISNAR staff and national managers to carry out a training needs assessment for NARO, done through a series of workshops involving 122 research personnel. This was part of a long-term collaborative program of comprehensive institutional development at NARO. The Training Unit also provided support to ISNAR staff who served as resource persons in management training workshops held under the SADC-ISNAR-ESAMI training project funded by USAID.

Staff strength

ISNAR's staff included 82 employees at the end of 1994, down from 85 a year earlier. Thirty-six are internationally recruited professionals, 15 are locally recruited professionals (research assistants and technical specialists), and 31 are locally recruited staff providing secretarial and office support. A total of 37 employees are women, of which nine occupy professional-level positions.

Consultants

During the year ISNAR drew on the services of 70 outside consultants or consulting groups.

Financial situation

In 1994, ISNAR's total operating expenditures were US $10.121 million. Of that, $6.293 million was funded through core-unrestricted grants and the rest through core-restricted grants, special-project funding, reimbursements for services rendered, and other revenues. This represents a decrease in ISNAR's overall expenditures compared with 1993. While core-unrestricted funding increased by a little over five percent, the combination of core-restricted and other resources fell by about 2.3 percent.

Résumé analytique

L'ISNAR fait partie des 18 centres internationaux parrainés par le Groupe consultatif pour la recherche agricole internationale. En activité depuis 1980, il a son siège à La Haye, aux Pays-Bas. L'ISNAR a pour mandat d'aider les pays en développement à améliorer de manière durable la performance de leurs systèmes nationaux de recherche agricole (SNRA) et des organisations qui en font partie. A cette fin, l'ISNAR n'entreprend pas lui-même de recherches biologiques et physiques, mais travaille essentiellement à promouvoir des politiques et des méthodes de gestion de la recherche appropriées aux contextes national et régional et à conférer un caractère viable aux institutions de recherche. Par son action auprès des SNRA, l'ISNAR a pour but final d'oeuvrer au bien-être des agriculteurs et des consommateurs des pays en développement, ainsi qu'à la conservation de l'environnement naturel.

Le présent résumé analytique met en lumière les principaux événements et activités de l'année 1994, sur lesquels de plus amples détails sont donnés dans le corps de ce rapport annuel.

Conseil d'administration

Charles Hess a été élu président du Conseil d'administration de l'ISNAR à compter du mois d'octobre. De nationalité américaine, M. Hess est directeur des programmes internationaux du College of Agricultural and Environmental Sciences de l'Université de Californie. Il fait partie depuis 1993 du Conseil de l'ISNAR. Il occupait précédemment le poste d'administrateur adjoint au sein du Département américain de l'agriculture, où il était responsable de la recherche agricole. Il succède à Nicole Sénécal, vice-présidente (branche multilatérale) de l'Agence canadienne de développement international.

Trois nouveaux membres sont entrés au Conseil dans le cours de l'année : Alessandro Bozzini, d'Italie, Just Faaland, de Norvège, et Martin Piñeiro, d'Argentine. Kenzo Hemmi, du Japon, a quitté le Conseil à l'expiration de son mandat. En 1995, le Conseil de l'ISNAR se composera de 12 membres, dont le directeur général. Il comprend également, conformément à ses statuts, un observateur de la FAO.

Thème de l'éditorial : viabilité des institutions de recherche

Les organismes nationaux de recherche agricole ont un rôle crucial à jouer dans l'augmentation future de la production et dans la protection des ressources naturelles. Leur viabilité, qui figure parmi les préoccupations majeures de l'ISNAR, constitue l'un des trois grands thèmes d'action identifiés dans la stratégie de l'ISNAR pour les années 90. L'éditorial de ce rapport annuel de 1994 examine cette question principalement sous l'angle de la performance, c'est-à-dire de l'aptitude d'une institution à assurer un flux régulier de produits appropriés à une clientèle

spécifique. Dans le cas des organismes de recherche agricole, ces produits sont la technologie (par exemple, des variétés ou pratiques culturales améliorées) ainsi que l'information et les connaissances.

Après avoir évoqué les principales contraintes internes et externes qui pèsent sur la viabilité institutionnelle, l'éditorial se penche sur deux fonctions de gestion fondamentales pour une performance durable. La première est la planification et la gestion des ressources destinées à la recherche. La seconde est constituée par les interactions entre la recherche et ses partenaires, à savoir avant tout les investisseurs et les autres organismes intervenant dans l'agriculture.

Le niveau global des investissements que les gouvernements nationaux et les bailleurs de fonds consentent à la recherche est un aspect sur lequel les gestionnaires de la recherche, considérés individuellement, n'ont guère le pouvoir d'influer. Même le déséquilibre entre la masse salariale et les fonds consacrés aux opérations proprement dites, si fréquent au sein des systèmes de recherche, demeure dans une large mesure hors de leur contrôle. Ce que les responsables de la recherche peuvent faire, en revanche, c'est gérer avec le plus grand soin les fonds qui leur sont confiés, ainsi que les ressources humaines et physiques — chercheurs qualifiés, locaux, terrains et équipements — acquises à l'aide de ces fonds. Une gestion saine des ressources, combinée à des méthodes garantissant la qualité scientifique et la pertinence des programmes et projets de recherche, peut contribuer à améliorer la performance (efficience et efficacité). Cette gestion appropriée des ressources et des programmes nécessite un cycle institutionnalisé de planification, suivi et évaluation reposant sur une bonne gestion de l'information et du feedback reçu des usagers de la recherche, et en particulier de la part des producteurs et des vulgarisateurs. Ce sont là quelques-uns des thèmes de l'assistance que l'ISNAR apporte aux SNRA sous forme de prestation de conseils, d'outils de gestion et d'actions de formation.

La seconde fonction de gestion essentielle concerne les interactions et les liaisons avec les partenaires et parties prenantes. Les relations avec les investisseurs sont particulièrement importantes pour la viabilité des institutions. Au cours des trois dernières décennies, les investisseurs (gouvernements nationaux, organismes de crédit extérieurs et agences donatrices) ont contribué de façon majeure à la mise en place d'une infrastructure de recherche agricole dans les pays en développement, notamment par la construction d'installations de recherche, la fourniture d'une assistance technique et la formation de dizaines de milliers de chercheurs et de techniciens.

Cependant, les bailleurs de fonds sont souvent insensibles aux réalités institutionnelles des pays bénéficiaires. Dans bien des cas, la conception des programmes et projets de recherche est confiée à des consultants étrangers qui ne prêtent qu'une attention minime aux priorités et à la capacité d'absorption nationales. En bref, les plans et préoccupations de l'investisseur tendent à dominer la conception de la structure institutionnelle et l'effort de recherche. Il se peut aussi que l'investisseur impose des restrictions quant au mode d'utilisation des fonds, et les recherches proprement dites sont souvent dirigées par des expatriés engagés pour des contrats de courte durée, comme cela se voit en particulier en Afrique.

Les institutions nationales de recherche chargées d'exécuter les programmes de l'investisseur ne disposent pas nécessairement du personnel qualifié ou des financements nationaux requis pour assurer la poursuite de l'entreprise après le retrait de l'investisseur. L'approche de

haut en bas appliquée à la planification des projets financés de l'extérieur risque de faire obstacle à tout développement institutionnel réel et de compromettre la performance à long terme.

Une performance durable exige une appropriation nationale des programmes et des acquis de la recherche. Cela signifie que les chercheurs et gestionnaires locaux doivent être placés au poste de commande lors de la planification et de la mise en oeuvre de la recherche, tandis qu'il revient aux investisseurs d'assumer une fonction d'appui.

Les SNRA ont beaucoup d'autres partenaires qui interviennent dans la recherche nationale : universités, entreprises privées, ONG et organisations régionales et internationales, pour ne nommer que les plus importants d'entre eux. Les relations avec ces interlocuteurs jouent un rôle de plus en plus fondamental pour assurer la viabilité des systèmes nationaux. La raison en tient essentiellement à l'élargissement actuel du champ des problèmes nécessitant des recherches (du fait, par exemple, de l'intérêt croissant pour la gestion des ressources naturelles) : en cette époque de restrictions financières, il en vient à dépasser les capacités immédiates de beaucoup de SNRA. La coopération régionale et sous-régionale et la participation aux initiatives dites écorégionales du GCRAI fournissent deux exemples de partenariat qui peuvent, avec une planification conjointe appropriée, alléger la charge pesant sur les SNRA grâce à un partage des tâches de recherche, des ressources et des informations. Sans partage de ce genre, bon nombre de SNRA seront incapables d'assurer de manière durable l'effort de recherche requis pour répondre aux besoins variés de leur clientèle. Il convient de promouvoir une « culture de la coopération » — coopération entre les SNRA, leurs partenaires de recherche et les investisseurs — afin d'assurer que la recherche nationale soit performante à long terme.

Changement dans la structure de l'ISNAR

Dans le cours de l'année, les perspectives financières étant relativement sombres, l'ISNAR a remanié sa structure organisationnelle interne de manière à mieux intégrer ses trois grandes fonctions : service conseil, recherche (sur les politiques, l'organisation et la gestion) et formation. Les activités sont désormais articulées autour de deux programmes orientés vers les besoins de la clientèle : (1) politiques et systèmes; et (2) gestion. Le Programme 1 vise à répondre aux problèmes se posant au niveau des systèmes pour les ministres de l'Agriculture, les ministres des Finances et du Plan, les organisations régionales et les bailleurs de fonds. Quant au Programme 2, il concerne les problèmes quotidiens des responsables de la gestion des organismes de recherche.

Les activités de ces deux programmes bénéficient de l'appui de quatre unités spécialisées : Service de publication, Service informatique, Unité de formation, Service bibliothèque et documentation. Ces unités remplissent des fonctions internes et externes. C'est-à-dire que, tout en assurant les besoins du personnel de l'ISNAR, elles fournissent également, dans leurs domaines d'expertise respectifs, un appui limité aux SNRA.

Politiques et systèmes

Le programme « Politiques et systèmes » concerne les politiques de recherche, la structure des systèmes et les relations que tout SNRA doit entretenir avec son environnement externe et interne. Ci-après sont brièvement décrits les principaux thèmes et activités de ce programme :

- L'ISNAR produit des **séries d'indicateurs** qui constituent une source d'informations de nature comparable sur le niveau des ressources (humaines et financières) de la recherche agricole nationale dans le monde. Avec l'assistance de l'Italie, celle du SPAAR et moyennant des fonds de son propre budget central, l'ISNAR a poursuivi ce travail, à présent axé sur les pays de l'Afrique subsaharienne, sur lesquels des données ont été rassemblées jusqu'à l'année 1992. Des séries statistiques ont été mises en circulation en 1994 sur neuf pays africains et cinq autres sont en cours d'élaboration.

- Le projet SARMAC, qui vise à renforcer la **recherche agricole dans les pays arabes,** est une initiative conjointe de l'ISNAR et de l'Organisation arabe pour le développement agricole. L'ISNAR a organisé un atelier à Beyrouth afin de faire connaître l'expérience de ce projet aux responsables de la recherche de 12 pays arabes. Les leçons de l'expérience des SNRA d'Algérie, d'Irak, du Soudan et du Yémen, telles qu'elles ressortent d'évaluations antérieures, ont été présentées et discutées à cette réunion.

- Une série de textes théoriques, études de cas et leçons de l'expérience des SNRA en matière d'**ajustement structurel** a été achevée. Les deux dernières études de cas examinent les liens entre la recherche agricole et l'ajustement structurel au Burkina Faso et en Afrique de l'Est. Le Gouvernement italien, l'ACDI et l'Institut de développement économique de la Banque mondiale ont fourni des fonds complémentaires pour ce projet de l'ISNAR.

- La première phase d'une recherche sur la complémentarité des **rôles du secteur public et du secteur privé** dans la recherche agricole a été menée à terme en 1994 avec l'achèvement d'études de cas sur la Colombie, l'Equateur et la Jamaïque. Une autre étude portant sur le Chili servira à valider l'approche adoptée, afin que celle-ci puisse être intégrée dans la panoplie des outils de l'ISNAR pour l'évaluation des systèmes et pour d'autres activités.

- Dans le cours de l'année, l'ISNAR a terminé la rédaction d'un livre attendu de longue date sur **l'évaluation et la définition des priorités de la recherche agricole,** qui sera publié au début de 1995 par Cornell University Press sous le titre *Science under Scarcity.* Il s'agit d'un ouvrage de référence qui s'adresse aux universitaires et aux conseillers des ministères du Plan et de la Recherche, et qui suppose de bonnes notions d'économie. L'ISNAR a également organisé une consultation internationale sur les priorités régionales et continué de collaborer au travail d'évaluation de la recherche en Afrique de l'Est dans le cadre de trois projets auxquels participent le KARI, l'université Humboldt de Berlin et l'ICRAF.

- Le **Service de liaison en biotechnologie** (SLB) fournit des informations et des conseils aux pays en développement sur les problèmes complexes de politiques et de planification liés à l'application des biotechnologies à l'agriculture. L'ISNAR a publié et diffusé un rapport du SLB proposant un processus en quatre étapes et un cadre de décision pour l'utilisation des biotechnologies dans la recherche agricole. Il a également organisé à Singapour un important séminaire régional qui a réuni des décideurs et responsables de recherche du secteur public et du secteur privé de six pays asiatiques.

- L'ISNAR a engagé deux consultants qui ont été chargés d'évaluer les études et les missions de service conseil qu'il a effectuées à ce jour en matière de **modèles organisationnels** pour la recherche agricole. Une note informative a été publiée sur ce sujet.
- Un projet d'étude sur plusieurs années concernant les priorités de recherche et les stratégies organisationnelles de 50 **petits pays** a atteint sa phase finale en 1994. Une synthèse des leçons et expériences se dégageant d'études approfondies sur plusieurs de ces pays sera publiée en 1995.
- L'ISNAR a entrepris un projet conjoint de recherche avec l'Overseas Development Institute (Royaume-Uni) sur le développement durable du rôle des **organisations de producteurs** dans la définition des programmes et priorités de recherche. Des études de cas sont en cours au Zimbabwe, au Mali et en Bolivie. Avec l'assistance du Gouvernement néerlandais, l'ISNAR a élargi son projet relatif aux **liaisons entre recherche et transfert de technologie.** Des études de cas sur les relations de la recherche avec les organisations de producteurs ont été achevées au Burkina Faso, au Ghana et au Kenya. Les bases sont ainsi jetées pour une recherche-action devant permettre aux responsables de la recherche et aux dirigeants d'organisations de producteurs de renforcer leurs relations. Il est prévu que d'autres études de cas soient effectuées par des équipes locales au Mali, au Zimbabwe, au Sénégal et en Tanzanie.
- Un projet de deux ans visant à renforcer le **rôle des universités** au sein des SNRA en Afrique subsaharienne a été poursuivi en 1994. Des chercheurs nationaux ont entrepris des études de cas au Bénin et au Nigeria. Ce projet est exécuté en collaboration avec l'université allemande de Hohenheim.

Gestion

Le programme « Gestion » a pour but d'améliorer de manière durable la performance des organismes nationaux de recherche agricole, en particulier dans le secteur public. Les activités sont articulées autour de trois thèmes : gestion des programmes de recherche, gestion des ressources destinées à la recherche, changement organisationnel.

Les deux premiers thèmes ont trait à la performance des organismes de recherche agricole — à savoir leur efficacité (qualité, adéquation des programmes) et leur efficience (utilisation économique des ressources). Quant au troisième thème, il concerne le transfert de technologie et de connaissances en direction de ces organismes — évaluation de l'impact des actions de l'ISNAR et identification de nouveaux moyens pour diffuser les connaissances et institutionnaliser des innovations en matière de gestion. Voici les grandes lignes du travail accompli par ce programme en 1994 :

- Un projet régional visant à améliorer **la planification, le suivi et l'évaluation de la recherche** en Amérique latine et dans les Caraïbes est parvenu à son terme. Il était financé par les organismes nationaux, régionaux et internationaux qui y participaient, et au premier chef par la Banque interaméricaine de développement. Du matériel de formation reposant sur l'expérience latino-américaine a été traduit en anglais et fait actuellement l'objet d'une adaptation au contexte africain.
- L'ISNAR a poursuivi la mise en place de son **système d'information de gestion,** INFORM. Conçu par l'ISNAR

dans le contexte de l'Asie comme un outil de planification des programmes et de budgétisation, le système INFORM a été étendu durant l'année à plusieurs pays africains : Ghana, Kenya, Sénégal et Ouganda. Du matériel de formation a été traduit en français et en espagnol. Des consultants extérieurs ont évalué le système et recommandé des remaniements visant à en faire un outil plus convivial de suivi et d'évaluation.

- Les activités relatives à la **gestion financière** ont été intensifiées en 1994. Les procédures en place chez le SNRA du Bénin ont été évaluées, les procédures de budgétisation ont fait l'objet d'une étude au Maroc, et une première réunion rassemblant les responsables financiers de plusieurs organismes nationaux de recherche agricole a été organisée au siège de l'ISNAR. Une évaluation des modalités de gestion des stations du Bénin a abouti à des recommandations destinées à améliorer le contrôle des stocks et l'entretien des installations et équipements.
- Un atelier sur la planification stratégique du **développement des ressources humaines** a été organisé au Swaziland pour des responsables du Botswana, du Lesotho et du Swaziland, et le travail d'évaluation de la performance des chercheurs a été poursuivi au Maroc. Le programme a également entrepris d'étudier les liens entre la gestion des ressources humaines chez les organismes nationaux de recherche agricole et l'expansion de la recherche sur la gestion des ressources naturelles.
- Un texte théorique a été élaboré au sujet d'une méthode d'**évaluation de la performance organisationnelle** reposant principalement sur la notation des résultats de la recherche. Lors d'un atelier tenu au siège de l'ISNAR en décembre, les responsables des organismes nationaux de recherche agricole de neuf pays ont examiné ce modèle et décidé de le mettre à l'essai chez eux.
- La première **étude de pratiques de gestion exemplaires,** consistant en un examen des méthodes utilisées par l'INTA en Argentine pour sélectionner les responsables de la recherche, a été préparée en vue d'une publication. L'ISNAR espère que ce répertoire de pratiques de gestion fournira aux dirigeants des organismes nationaux de recherche agricole des modèles crédibles d'innovation mis au point dans des environnements similaires au leur.

Gestion des ressources naturelles : une initiative conjointe

L'ISNAR a continué de s'intéresser aux implications, sur le plan de l'organisation et de la gestion, de la place croissante de la recherche sur la **gestion des ressources naturelles** (GRN) dans les préoccupations des pays en développement et des bailleurs de fonds. Il s'agit là d'un sujet qui s'insère dans ses deux programmes. En décembre, l'ISNAR a accueilli un séminaire international sur les politiques et méthodes de gestion de la recherche susceptibles de favoriser la croissance agricole et l'utilisation durable des ressources naturelles. Cette réunion, à laquelle ont participé des responsables de la recherche nationale, décideurs, donateurs et représentants d'organismes de recherche régionaux et internationaux, était organisée conjointement par l'ISNAR et l'agence allemande DSE. Par ailleurs, l'ISNAR a continué d'apporter une assistance au Bhoutan en vue de l'organisation et de la gestion de la recherche sur la GRN, dans

le cadre du suivi d'un exercice de planification antérieur.

Points saillants des activités dans cinq pays

- Au **Bénin,** l'ISNAR a travaillé avec une équipe locale à l'élaboration d'une nouvelle politique nationale de recherche agricole. Le document, qui a reçu l'approbation du cabinet en décembre, constitue la première étape de la préparation d'un plan directeur pour la recherche.
- Le programme de développement institutionnel global (DIG) a été poursuivi en **Ouganda** auprès de la NARO, avec l'appui de deux experts détachés par l'ISNAR. Ce travail a porté sur plusieurs domaines : structure salariale, composition du personnel, besoins de formation et recrutements ; structure organisationnelle et gestion ; priorités et programmes de recherche ; information scientifique et information de gestion, y compris la mise en place du système INFORM et la formation ; relations avec les services de vulgarisation, les autres ministères et l'université de Makerere.
- En **Inde,** l'ISNAR a joué un rôle de premier plan dans l'élaboration d'une stratégie en vue de la mise en place d'un système d'information pour la recherche agricole au niveau national. Ce système, qui reliera quelque 240 sites, permettra des échanges d'information scientifique et d'information de gestion. La stratégie a été acceptée par l'ICAR, principal organisme de coordination de la recherche agricole dans ce pays.
- L'ISNAR a signé avec l'INIAP, principal institut de recherche agricole de l'**Equateur,** un protocole d'accord concernant un programme DIG d'une durée de trois ans. L'ISNAR et l'INIAP ont formulé conjointement un programme intégré d'activités de renforcement de la recherche agricole.
- L'ISNAR a poursuivi sa collaboration avec l'**Egypte** dans le cadre d'un programme financé par le CEMARP. Une stratégie de recherche nationale a été élaborée, ainsi que des plans annuel et quinquennal pour la recherche sur les oasis. L'ISNAR a également assuré une formation à la mise en place des bases de données au personnel du Centre de recherche agronomique et des facultés d'agriculture. Les bases de données contiennent des informations sur les chercheurs, les universitaires, les étudiants diplômés et leurs activités de recherche.

Collaboration régionale

Pendant l'année 1994, l'ISNAR a mené des activités au niveau régional, notamment en Afrique subsaharienne. Il a aidé au lancement d'une nouvelle association régionale, l'ASARECA, en Afrique de l'Est et centrale en contribuant à la rédaction de son acte constitutif et à la définition de sa structure de direction. Par ailleurs, l'ISNAR a signé en décembre un protocole d'accord avec la CORAF, association régionale des responsables de la recherche agronomique. Cet accord vise à promouvoir la coopération entre les SNRA de la région, ainsi qu'entre les SNRA et les organismes régionaux et internationaux. En Amérique latine, l'ISNAR a renforcé ses liens avec l'IICA, organisme régional de coopération pour l'agriculture. Les deux institutions ont identifié, dans 12 domaines ayant trait aux politiques et à la gestion, des activités de prestation de conseils, recherche et formation qui feront l'objet d'une collabora-

tion au profit des SNRA de la région. Ce sont là quelques-unes des nombreuses activités régionales que l'ISNAR a accomplies en 1994 pour développer les relations entre les SNRA ou tenter de multiplier son propre impact par le dialogue et la formation.

Collaboration avec d'autres centres du GCRAI

Au cours de l'année, l'ISNAR a collaboré à six activités avec d'autres centres du GCRAI. Au premier chef, il a contribué à une stratégie d'information intercentres qui a été formulée lors d'une réunion tenue à son siège, à laquelle participaient des représentants de 15 centres. Entre autres éléments, cette réunion a décidé de doter le système du GCRAI d'un réseau intégré de communication vocale et de transfert de données à grande vitesse.

En outre, l'ISNAR a participé, de même que le CIP, l'ICARDA et l'IPGRI, à une mission exploratoire de la Banque mondiale auprès de la Fédération de Russie. Cette mission avait pour but de préparer un important projet de la Banque mondiale visant à renforcer la recherche agricole et la formation dans ce pays.

Information et formation

Le Service de publication a produit durant l'année 25 publications officielles et neuf communiqués de l'ISNAR, tout en aidant à la préparation ou à la reproduction de 11 autres documents importants. Il a mené une enquête sur les profils des usagers et procédé à la mise à jour de la liste de diffusion, qui comptait environ 2 600 noms (individus et organisations) à la fin de 1994.

Le Service informatique a entrepris des préparatifs pour les profonds changements devant intervenir à partir de 1995 dans la technologie de l'information au sein du système du GCRAI. En août, il a commencé à remplacer les micro-ordinateurs de type 386 de l'ISNAR par des 486 ayant un disque dur de plus grande capacité, davantage de mémoire et des écrans plus perfectionnés. Les nouveaux ordinateurs sont d'un coût nettement inférieur à celui de leurs prédécesseurs. Le processus de remplacement s'étendra sur une période d'environ un an.

Par ailleurs, le Service informatique a assuré des conseils techniques et une assistance aux SNRA d'Egypte et d'Ouganda concernant les services informatiques destinés aux chercheurs.

Le Service bibliothèque et documentation a enrichi sa collection par l'acquisition de nouveaux ouvrages et possède désormais un fonds de 18 000 livres et documents non publiés. La bibliothèque a été dotée d'un accès au réseau Internet par le système de télécommunications public. Elle dispose ainsi de la possibilité de consulter directement de vastes bases de données, et notamment les catalogues des grandes universités et bibliothèques d'Europe et d'Amérique du Nord.

Des actions de formation des SNRA sont intégrées dans le service conseil et le travail de recherche des deux programmes de l'ISNAR. L'Unité de formation aide les experts de ces programmes à préparer du matériel pédagogique sur une diversité de thèmes ayant trait à la gestion. Elle conseille également les SNRA et les aide à élaborer leurs propres programmes de formation à la gestion.

En 1994, le travail de l'Unité de formation a été axé sur l'Afrique, où des partenariats ont été établis avec le KARI au Kenya, la NARO en Ouganda, et l'Eastern and Southern African Management Institute (ESAMI) pour les pays de la SADC.

Des modules de formation ont été préparés à des fins d'expérimentation au cours de plusieurs des ateliers organisés dans le cadre du projet KARI-ISNAR de

parte de un programa de colaboración a largo plazo sobre "desarrollo institucional global" en NARO. La Unidad de Capacitación también brindó apoyo al personal de ISNAR que participó en varios de los eventos de capacitación realizados por el proyecto SADC-ISNAR-ESAMI, auspiciado por USAID.

Personal

A fines de 1994 el personal de ISNAR fue de 82 empleados; esto significa una ligera reducción de los 85 empleados del año anterior. De este total, trentiseis son profesionales internacionales, 15 son profesionales locales (asistentes de investigación y especialistas) y 31 son personal de apoyo reclutados localmente en el área de servicios generales, brindando apoyo secretarial y otros servicios de oficina. Trentisiete de estos empleados son mujeres, entre las que hay nueve profesionales.

Consultores

Durante el año ISNAR contrató los servicios de 70 consultores externos o equipos de consultoría.

Situación financiera

En 1994, el total de gastos de operaciones del ISNAR fue de US$ 10.121 millones, de los cuales US$ 6.293 millones provinieron de donaciones irrestrictas y el resto provino de donaciones restringidas al presupuesto central, proyectos especiales, reembolsos por servicios prestados y otros. Esto representa una disminución en los gastos totales de ISNAR comparado con 1993. Mientras que los fondos del presupuesto central-irrestricto aumentaron un poco más del 5%, la combinación de los fondos del presupuesto central restringido y otros recursos financieros disminuyeron cerca de 2.3%.

Resumen Ejecutivo

ISNAR es uno de los 18 centros internacionales auspiciados por el Grupo Consultivo para la Investigación Agrícola Internacional. ISNAR comenzó sus actividades en 1980, con sede en La Haya, en los Países Bajos. ISNAR ayuda a los países en desarrollo a mejorar el desempeño de sus sistemas nacionales de investigación agrícola (SNIA) y de sus organizaciones en forma sostenible. ISNAR, por lo tanto, no lleva a cabo una investigación biológica ni física; sino que trabaja con los líderes de los SNIA para mejorar las políticas y la administración de la investigación a nivel nacional y regional, promoviendo instituciones de investigación sostenibles. En su trabajo con los SNIA, ISNAR busca en última instancia beneficiar a los productores agrícolas y los consumidores de los países en desarrollo así como proteger el medio ambiente y los recursos naturales.

Este resumen ejecutivo informa sobre las principales actividades y eventos de 1994. Una descripción más detallada del trabajo que ISNAR realizó este año se encontrará en la sección principal de este Informe Anual.

La Junta Directiva

El señor Charles Hess, de los Estados Unidos de Norteamérica, fue elegido presidente de la Junta Directiva del ISNAR. Su servicio como presidente de la Junta comenzó en octubre. El señor Hess es el director de los Programas Internacionales de la Facultad de Agricultura y Ciencias Ambientales de la Universidad de California y sirve en la Junta Directiva desde 1993. Anteriormente, el señor Hess fue administrador asistente del Departamento de Agricultura de los Estados Unidos, a cargo de la investigación agrícola. El señor Hess sucede a la señora Nicole Senécal, vice-presidente (oficina multilateral) de la Agencia para el Desarrollo Internacional Canadiense.

Durante este año se eligieron tres nuevos miembros de la Junta: Alessandro Bozzini de Italia, Just Faaland de Noruega, y Martín Piñeiro de la Argentina. El señor Kenzo Hemmi, del Japón, finalizó su servicio en la Junta. En 1995, la Junta estará constituida por 12 miembros, incluyendo al director general. Además, un representante de la FAO nominado constitucionalmente, participa como observador.

Ensayo sobre instituciones de investigación sostenibles

Las organizaciones nacionales de investigación agrícola son esenciales para el aumento de la producción y la protección de los recursos naturales. La sostenibilidad de estas organizaciones es de gran preocupación para ISNAR, y es uno de los tres temas principales de acción identificados en la estrategia del ISNAR para la década de los 90. El tema central en el Informe Anual 1994 examina este ensayo princi-

palmente desde la perspectiva del desempeño, es decir, la habilidad de una organización para producir un flujo constante de resultados pertinentes para el beneficio de los clientes. En el caso de organizaciones de investigación agrícola, estos resultados son técnicos, tales como variedades nuevas y mejoradas, prácticas culturales, información y conocimientos.

Después de destacar los factores internos y externos que dificultan la sostenibilidad institucional, el ensayo enfoca dos funciones claves en la gestión y el manejo, esenciales para un desempeño sostenible. La primera función es la planificación y el manejo de los recursos de investigación. La segunda son las interacciones de la investigación con los socios, especialmente las fuentes financieras y otras organizaciones involucradas con la agricultura.

El nivel global de las inversiones en la investigación auspiciado por los gobiernos nacionales y las agencias financieras es un factor sobre el cual los administradores de la investigación tienen poco control. Es más, el desbalance entre los fondos operativos y los sueldos del personal que caracteriza a muchos sistemas de investigación, también está fuera de su control. Lo que ellos *pueden* hacer en estas situaciones es manejar cuidadosamente los fondos que se les proporciona, así como los recursos humanos y físicos que se obtienen con esos fondos— científicos capacitados, edificios, tierras y equipo.

Un buen manejo de recursos, combinado con métodos adecuados para asegurar la calidad científica y la pertinencia de los proyectos y programas de investigación, pueden ayudar a mejorar su desempeño — eficiencia y efectividad. Este manejo de programa y de recursos requiere un ciclo institucional de planificación, seguimiento y evaluación basado en un buen sistema de información así como en retroalimentación de los usuarios, especialmente de los agricultores y extensionistas. Estos son algunos de los aspectos, en los cuales ISNAR brinda asistencia a los SNIA, a través de asesoramiento, nuevas herramientas para la gestión y el manejo, y capacitación.

La segunda función clave es el manejo de las interacciones y el mantenimiento de los vínculos con socios y los interesados. Las relaciones con las agencias financieras son particularmente importantes para la sostenibilidad institucional. Durante las últimas tres décadas, los inversionistas (gobiernos nacionales, agencias financieras, donantes) han hecho importantes contribuciones para la creación de una infraestructura de investigación agrícola en los países en desarrollo. Estos incluyen la construcción de instalaciones de investigación, la provisión de asistencia técnica, y la capacitación de miles de científicos y técnicos.

A pesar de esto, los donantes y las agencias financieras han sido a menudo insensibles a las necesidades de las instituciones del país beneficiario. Con mucha frecuencia, consultores externos han sido utilizados para diseñar los programas y proyectos de investigación, y a veces ellos no toman en cuenta las prioridades nacionales y su capacidad de absorción. En resumen, la agenda de las agencias financieras y sus propios intereses pueden dominar el modelo institucional y las actividades de investigación. Las agencias financieras pueden también imponer condiciones para el uso de los fondos, y la investigación es a menudo liderada por científicos extranjeros, quienes tienen un compromiso sólo a corto plazo con las instituciones. Esto sucede especialmente en Africa.

Las instituciones nacionales de investigación designadas para ejecutar los programas de inversión no necesariamente tienen el personal capacitado para continuar el trabajo ni cuentan con los fondos locales para continuar con las actividades,

una vez que las agencias financieras se retiran. La planificación "desde arriba" de los proyectos externos puede limitar el desarrollo institucional local y comprometer el desempeño a largo plazo de las organizaciones de investigación.

El desempeño sostenible requiere de una identificación nacional con los programas de investigación y con sus metas. Esto significa que los científicos locales y los directores de la investigación deben ser los protagonistas principales cuando se realize la planificación de la investigación y su implementación. Las agencias financieras sólo deben jugar un rol de apoyo.

Los SNIA tienen otros socios en la investigación nacional, entre ellos los más destacados son las universidades, las empresas privadas, las organizaciones no gubernamentales, y las entidades regionales e internacionales. Los vínculos con estos socios son cada vez más importantes para la sostenibilidad de los sistemas nacionales. La principal razón es que la agenda de los problemas para la investigación está creciendo (debido por ejemplo, al mayor énfasis en el manejo de los recursos naturales) fuera de la capacidad de respuesta de muchos SNIA, en una época en que los fondos son cada vez más escasos. La cooperación regional y subregional y la participación en la llamada iniciativa ecoregional del GCIAI son dos ejemplos de cooperación que pueden, con una planificación adecuada, aliviar la carga de trabajo a los SNIA, compartiendo las tareas de investigación, los recursos y la información. De lo contrario, muchos SNIA serán incapaces de mantener el trabajo de investigación que servirá a las diversas necesidades de sus clientes. Es necesario promover una "cultura de cooperación" entre los SNIA, sus socios en la investigación y las agencias financieras con la finalidad de asegurar un desempeño adecuado a largo plazo del sistema nacional de investigación.

Un cambio en la estructura del ISNAR

Durante este año, en el que el panorama financiero ha sido relativamente difícil, se modificó la estructura del ISNAR para mejorar la integración de sus tres servicios — investigación (sobre políticas, organización y manejo), capacitación y asesoramiento. Las actividades del ISNAR se dividen ahora en dos programas: (1) Desarrollo de Políticas y Sistemas de Investigación y (2) Manejo de la Investigación. El primer programa ayuda a resolver los problemas a nivel de los sistemas de investigación que enfrentan los ministerios de agricultura, ministerios de finanzas y planificación, organizaciones regionales y donantes. El segundo programa ayuda a resolver los problemas diarios de los directores de las organizaciones de investigación.

Las actividades de estos dos programas están apoyados por cuatro unidades especializadas: Unidad de Publicación, Unidad de Servicios de Computación, Unidad de Capacitación, y la Biblioteca y el Centro de Documentación. Estas unidades tienen funciones tanto internas como externas. Es decir, no sólo sirven las necesidades internas del personal de ISNAR sino también brindan apoyo a los SNIA en sus respectivas áreas de especialización.

Desarrollo de Políticas y Sistemas de Investigación

El programa Desarrollo de Políticas y Sistemas de Investigación trata sobre las políticas de investigación, la estructura de sistemas, y los vínculos que los SNIA deben mantener con los ambientes internos y externos. A continuación damos una breve descripción de los principales temas y actividades.

- A través de su **Serie de Indicadores,** ISNAR es una fuente de información comparativa sobre los niveles de recursos (investigadores y fondos) para la investigación agrícola mundial. Con el apoyo de SPAAR, de Italia, y de su presupuesto central, ISNAR ha realizado un proyecto en los países de la región de Africa sub-Sahariana, que incluye datos acumulados hasta 1992. Los resúmenes estadísticos de nueve países del Africa fueron publicados en 1994, y también se prepararon documentos sobre otros cinco países.
- El proyecto SARMAC que fortalece la investigación agrícola **en los países árabes** ha sido un esfuerzo conjunto de ISNAR y la Organización Arabe para el Desarrollo Agrícola. ISNAR organizó un taller en Beirut para compartir experiencias de este proyecto con los líderes de investigación de 12 países árabes. Se presentaron y discutieron lecciones y experiencias de revisiones anteriores de los SNIA de Algeria, Iraq, Sudán y Yemen.
- Se completó una colección de documentos conceptuales, estudios de caso, y lecciones de las experiencias de los SNIA con los procesos de **ajuste estructural.** Los últimos dos estudios de caso revisaron las relaciones entre la investigación agrícola y el ajuste estructural en Burkina Faso y Africa del Este. El Gobierno Italiano, CIDA y el Instituto de Desarrollo Económico del Banco Mundial (EDI) suministraron fondos adicionales para este proyecto.
- En 1994 se completó la primera fase de investigación sobre los roles complementarios entre los **sectores público y privado** en la investigación agrícola, con la finalización de los estudios de caso de Colombia, Ecuador, y Jamaica. Un estudio adicional, a realizarse en Chile, servirá para validar el enfoque de manera que pueda formar parte del conjunto de herramientas que utilizará ISNAR para la revisión de sistemas, así como otros trabajos.
- Durante el año ISNAR finalizó un libro sobre **la evaluación de investigación y el establecimiento de prioridades.** Este libro será publicado por Cornell University Press, a comienzos de 1995, bajo el título *Las Ciencias bajo Condiciones de Escasez.* Este libro será una referencia estándar para los académicos y asesores de los ministerios de planificación que tengan un buen conocimiento de economía. ISNAR también llevó a cabo un taller internacional sobre el establecimiento de prioridades regionales, y continuó el trabajo colaborativo sobre la evaluación de la investigación del Africa del Este en tres proyectos que involucran a KARI, la Universidad Humboldt de Berlin y el ICRAF.
- El **Servicio Intermediario de Biotecnología** (IBS) proporciona a los países en desarrollo información y asesoramiento sobre políticas y temas de planificación relacionadas con la biotecnología agrícola. ISNAR publicó y difundió un informe de este proyecto que describe un proceso de cuatro etapas y un marco para la toma de decisiones sobre la investigación agrícola basada en la biotecnología. Asimismo, organizó en Singapur un taller regional para los formuladores de políticas y los directores de investigación de los sectores público y privado en seis países del Asia.
- ISNAR contrató a dos consultores externos para revisar sus estudios anteriores y su trabajo de asesoría sobre los **modelos institucionales para la inves-**

tigación agrícola. Se publicó un Documento Informativo sobre este tema.

- Durante 1994 un estudio sobre las prioridades de investigación y las estrategias institucionales en **50 países pequeños** estuvo a punto de finalizarse. Una síntesis de las experiencias y lecciones que se derivan de varios estudios a nivel de países será publicado en 1995.
- ISNAR inició un proyecto de investigación conjunta con el Instituto de Desarrollo de Ultramar (ODI: Reino Unido) sobre el rol de las **organizaciones de agricultores** en el establecimientos de prioridades para los programas de investigación. Se están realizando estudios de caso en Zimbabwe, Mali y Bolivia. ISNAR, con el apoyo del gobierno holandés, amplió este proyecto involucrando también **los vínculos entre la investigación y la transferencia de tecnología.** Se completaron estudios de caso sobre los vínculos de investigación con las organizaciones de agricultores de Burkina Faso, Ghana y Kenia. Esto creó una base para una investigación de acción con el fin de mejorar la capacidad de los gerentes de la investigación y los líderes de las organizaciones de agricultores para fortalecer los vínculos entre ellos. Se planificaron más estudios de caso a realizarse por equipos locales en Mali, Zimbabwe, Senegal y Tanzania.
- Durante 1994 se continuó un proyecto de dos años para reforzar **el rol de las universidades** en los SNIA de la región del Africa sub-Sahariana. Los investigadores nacionales realizaron estudios de caso en Benin y Nigeria. Este proyecto se lleva a cabo conjuntamente con la Universidad de Hohenheim en Alemania.

Manejo de la Investigación

El programa Manejo de la Investigación tiene como meta el mejoramiento sostenido del desempeño de las organizaciones de investigación agrícola, principalmente aquellas del sector público. Tres temas dieron lugar al trabajo de este programa: la gestión y el manejo de programas de investigación, manejo de los recursos para la investigación, y cambio institucional.

Los primeros dos temas se refieren al desempeño de organizaciones agrícolas de investigación — principalmente la efectividad (pertinencia y calidad) y la eficiencia (uso económico de los recursos). El tercer tema trata sobre la transferencia de tecnología y conocimientos a los SNIA — evaluando el impacto de los servicios del ISNAR, identificando nuevos métodos para difundir los conocimientos y como institucionalizar las nuevas prácticas de gestión y manejo. Los siguientes son los logros más destacados del programa en 1994:

- Se finalizó un proyecto regional para mejorar **la planificación, el seguimiento y la evaluación** (PS&E) de la investigación en Latinoamérica y el Caribe. Este proyecto fue financiado por agencias nacionales, regionales e internacionales, siendo la contribución más grande la del BID. Sus productos principales incluyen un grupo de capacitadores en la región, una serie de materiales de capacitación y publicaciones sobre PS&E. Los materiales de capacitación han sido traducidos al inglés y están siendo adaptados para poder ser utilizados en otras regiones.
- ISNAR continuó con la implementación de **un sistema de información gerencial**, INFORM. Este es un sistema diseñado en Asia por ISNAR como una herramienta para la planificación

y manejo de programas y presupuestos. Durante este año INFORM fue extendido a varios países del Africa: Ghana, Kenia, Senegal y Uganda. Los materiales de capacitación de INFORM han sido traducidos al francés y al español. Una evaluación del INFORM, realizada por consultores externos, recomienda un mayor desarrollo del sistema para que pueda ser utilizado de una manera mas práctica y sencilla en el seguimiento y la evaluación.

- Las actividades en el área de **la gestión financiera** aumentaron durante 1994. Se evaluaron los métodos utilizados en el SNIA de Benin, se revisaron los sistemas presupuestales en Marruecos, y se llevó a cabo en ISNAR la primera reunión de los gerentes financieros de los SNIA. Una evaluación de las condiciones de la gestión y el manejo de las estaciones experimentales en Benin incluyó recomendaciones sobre el control de inventarios y el mantenimiento del equipo e instalaciones.
- En Swazilandia se realizó un taller sobre planificación estratégica en el desarrollo de **los recursos humanos,** dirigida a gerentes de Botswana, Lesotho y Swazilandia. En Marruecos, se comenzó de nuevo el trabajo sobre la evaluación del desempeño del investigador. El programa también inició investigaciones sobre vínculos entre el manejo de los recursos humanos en los SNIA y la ampliación de la investigación sobre el manejo de recursos naturales.
- Se finalizó un documento conceptual que describe un método para **la evaluación del desempeño institucional,** basado principalmente en una serie de indicadores de logros en la investigación. Durante un taller realizado en diciembre, en la sede del ISNAR, los líderes de nueve SNIA revisaron el modelo y acordaron probarlo en algunas instituciones.
- Se publicará el primer **estudio de caso gerencial exitoso,** sobre los métodos utilizados por el INTA, en Argentina, para seleccionar a los gerentes de la investigación. ISNAR espera que estos estudios de casos exitosos proporcionarán a los directores de los SNIA esquemas y opciones confiables que puedan ser adaptados a situaciones similares.

Iniciativa sobre el manejo de recursos naturales

ISNAR continuó su revisión de las implicaciones institucionales y administrativas del creciente énfasis que los países en desarrollo y los donantes ponen en la investigación del **manejo de los recursos naturales (MRN).** Este tema es adecuado para los dos programas de ISNAR. En diciembre, ISNAR organizó un taller internacional sobre políticas de investigación y manejo del crecimiento agrícola, y el uso sostenible de los recursos naturales. Los participantes fueron líderes nacionales de investigación, formuladores de políticas, donantes y representantes de organizaciones de investigación regionales e internacionales. Este evento representó un esfuerzo conjunto de ISNAR y la DSE en Alemania. ISNAR continuó con su ayuda a Bután en la organización y el manejo de la investigación del MNR, que es el seguimiento de un ejercicio anterior de planificación.

Actividades resaltantes en cinco países

- En **Benin,** ISNAR trabajó con un equipo nacional en la preparación de un

nuevo documento sobre las políticas de investigación agrícola. El documento fue aprobado en diciembre por el Parlamento. Este es sólo el primer paso en el desarrollo de un ejercicio piloto de planificación para la investigación.

- El programa sobre "desarrollo institucional global" continuó con NARO en **Uganda**, apoyado principalmente por dos miembros del personal de ISNAR con sede en el país. El trabajo cubrió varias áreas: estructura de sueldos, tendencias en el reclutamiento de personal, necesidades de capacitación y reclutamiento; estructura institucional y gerencial; prioridades y programas de investigación; informacion científica y gerencial, incluyendo el desarrollo y la capacitación en INFORM; y los vínculos con la extensión, otros ministerios y la Universidad de Makerere.

- En **India**, ISNAR tomó el liderazgo en la formulación de una estrategia para establecer un sistema de información para la investigación agrícola a nivel nacional. El sistema permite el intercambio de información científica y administrativa entre 240 localidados. La estrategia ha sido aceptada por ICAR, la agencia coordinadora más importante de la investigación agrícola de este país.

- ISNAR firmó un Acta de Entendimiento con INIAP, la institucion líder en **Ecuador** para la investigación agrícola, estableciendo un programa de tres años de desarrollo institucional global. ISNAR e INIAP formularán un programa integrado de actividades para fortalecer la investigación agrícola.

- ISNAR continuó su colaboración con **Egipto** a través de un programa apoyado por CEMARP. Se preparó el borrador de una estrategia de investigación nacional conjuntamente con los planes para el desarrollo de un programa de investigación anual y quinquenal. ISNAR también proporciona capacitación en el desarrollo de una base de datos para el personal del Centro de Investigación Agrícola y las facultades de agricultura de la universidad. Esta base de datos contiene información sobre investigadores, personal académico, estudiantes graduados y actividades de investigación.

Colaboración regional

Durante el presente año, ISNAR fue bastante activo a nivel regional, particularmente en la región del Africa sub-Sahariana. Contribuyó al establecimiento de una nueva asociación regional en Africa Oriental y Central llamada ASARECA. El trabajo se centralizó en la formulación de su constitución y estructura gubernamental. En diciembre, ISNAR firmó un Acta de Entendimiento con CORAF, una asociación regional constituida por directores de investigación agrícola. Este acuerdo tiene como objetivo promocionar la cooperación entre los SNIA de la región, así como la colaboración entre los SNIA y las organizaciones internacionales y regionales. En Latinoamérica, ISNAR fortaleció sus vínculos con la organización regional agrícola, IICA. Se identificaron actividades de investigación, capacitación y asesoría en 12 áreas relacionadas con las políticas y la gestión y el manejo. Estas son sólo algunas de las actividades regionales a través de las cuales ISNAR trata de promocionar vínculos entre los SNIA o de tener un mayor impacto a través del diálogo y la capacitación.

Colaboración con otros centros del GCIAI

ISNAR colaboró con otros centros del GCIAI en seis actividades diferentes. La actividad más resaltante fue la contribución del ISNAR a una estrategia de información que se formuló en una reunión realizada en la sede del ISNAR, con la participación de representantes de 15 centros. Entre otros aspectos, los participantes en la reunión apoyaron la creación para el GCIAI de una red integrada de transmisión de datos y voz de alta velocidad.

Otra actividad destacada de cooperación entre los centros fue la participación de ISNAR en una misión del Banco Mundial a la Federación Rusa, con contribuciones también del CIP, ICARDA e IPGRI. Fue una misión preparatoria de un proyecto del Banco Mundial para fortalecer la investigación y capacitación agrícola.

Información y capacitación

La Unidad de Publicación produjo 25 publicaciones oficiales durante el año y nueve comunicados de prensa. También colaboró con la preparación y reproducción de otros 11 documentos oficiales. A fines de año, la Unidad organizó una encuesta entre sus lectores sobre materias de interés y actualizó la lista de direcciones que comprende cerca de 2,600 registros (de individuos y de instituciones).

La Unidad de Servicios de Computación comenzó a prepararse para los cambios profundos en la tecnología informática que tendrán lugar en 1995 en el sistema del GCIAI. En agosto, esta Unidad comenzó a reemplazar los computadores modelo-386 por los computadores modelo-486, que cuentan con mayor capacidad, más memoria y mejores monitores. Los precios de los nuevos computadores son menores que los antiguos. Tomará cerca de un año el proceso de reemplazo de estos computadores.

La Unidad de Servicios de Computación brindó asesoramiento técnico y ayuda a los SNIA de Egipto y Uganda, con respecto a los servicios de computación para los investigadores.

Durante el año la Biblioteca y el Centro de Documentación aumentó nuevos volúmenes a su colección, ahora con un total de 18,000 libros y documentos no publicados. A esta Unidad se le conectó el sistema Internet, que permite acceso directo a vastas cantidades de información, incluyendo catalógos bibliográficos de las principales universidades y bibliotecas de Europa y Norteamérica.

La capacitación se integra con el trabajo de asesoramiento y de investigación realizado por el personal de los dos programas de ISNAR. La Unidad de Capacitación ayuda a que estos profesionales preparen material didáctico en una variedad de temas relacionados con la gestión y el manejo de la investigación. Al mismo tiempo asesora y apoya a los SNIA en el desarrollo de sus propios programas de capacitación.

En 1994 el trabajo de la Unidad de Capacitación de ISNAR se enfoca en la región del Africa — en Kenia con KARI; en Uganda con NARO; y con los países del SADC en colaboración con el Instituto para la Gestión del Africa del Este y del Sur (ESAMI).

Se prepararon módulos de capacitación para probarlos en varios talleres organizados por el Proyecto de Capacitación Gerencial KARI-ISNAR, financiados por la Unión Europea. En Uganda, el jefe de la Unidad de Capacitación de ISNAR organizó un equipo con directores nacionales de investigación y el personal de ISNAR con sede en ese país para evaluar las necesidades de capacitación de NARO, a través de talleres en los que participaron 122 investigadores. La evaluación formó

formation à la gestion, mis en oeuvre au Kenya sur une période de cinq ans grâce à un financement de l'Union européenne. En Ouganda, le chef de l'Unité de formation a collaboré avec les experts de l'ISNAR détachés dans ce pays et avec des responsables nationaux à une évaluation des besoins de formation de la NARO, par le biais d'une série d'ateliers auxquels ont participé 122 agents de recherche. Cette évaluation s'inscrivait dans le cadre d'un programme conjoint à long terme de développement institutionnel global au sein de la NARO. L'Unité de formation a également fourni un appui à des experts de l'ISNAR qui ont animé plusieurs des ateliers de formation à la gestion organisés dans le cadre du projet de formation SADC-ISNAR-ESAMI financé par l'USAID.

Personnel

L'ISNAR comptait un effectif de 82 employés à la fin de 1994, contre 85 une année auparavant. La composition en était la suivante : 36 cadres internationaux, 15 cadres locaux (assistants de recherche et techniciens) et 31 employés locaux des services généraux assurant le secrétariat et les tâches administratives. Parmi ce personnel, les femmes étaient au nombre de 37, dont neuf cadres.

Consultants

L'ISNAR a fait appel durant l'année aux services de 70 consultants ou firmes de consultation externes.

Situation financière

En 1994, le budget de fonctionnement total de l'ISNAR s'est élevé à 10,121 millions de dollars EU. Sur ce montant, 6,293 millions étaient financés par le budget central non restreint, et le reste par le budget central restreint, des financements de projets spéciaux, des remboursements de services rendus et des revenus divers. Par rapport à 1993, cela représente une baisse du montant global des dépenses de l'ISNAR. Tandis que le budget central non restreint a augmenté d'un peu plus de 5 %, l'ensemble du budget central restreint et des autres ressources a diminué de quelque 2,3 %.

الملخـــص التنفيـــــذى

مركز الخدمة الدولية للبحوث الزراعية الوطنية " إسنار " هو أحد ستة عشر مركزا دوليا تساندهم المجموعة الاستشارية الدولية للبحوث الزراعية. بدأ هذا المركز أعماله في عام ١٩٨٠ ويقع مقره الرئيسى بمدينة لاهاى (هولندا). ويقوم مركز " إسنار " بمعاونة البلدان النامية في تحقيق ارتقاء مستديم فى أداء الأنظمة الوطنية للبحوث الزراعية (NARS) والمنظمات الأساسية ذات العلاقة. لذلك فإن مركز " إسنار " لايجرى أبحاثا بيولوجية أو فيزيائية، لكنه معنى أساسا بقواعد سياسات وأنشكال إدارة البحث على المستويين الوطنى و الاقليمى وبالارتقاء بمؤسسات البحث القادرة على الاستمرار. ويسعى مركز " إسنار " أساسا من خلال التفاعل مع الأنظمة الوطنية للبحوث الزراعية، إلى إفادة المنتجين والمستهلكين الزراعيين بالبلدان النامية والحفاظ على البيئة الطبيعية.

يلقى هذا الملخص التنفيذى الضوء على الانشطة والأحداث الرئيسية، كما يوجد المزيد من المعلومات عن نشاط مركز " إسنار " لعام ١٩٩٤ بالتقرير الرئيسى باللغة الانجليزية.

مجلس الأمناء :

تم انتخاب تشارلز هيس (من الولايات المتحدة) رئيسا لمجلس أمناء " إسنار " وقد بدأت فترة رئاسته فى شهر أكتوبر. والدكتور هيس هو مدير البرامج الدولية بكلية الزراعة وعلوم البيئة بجامعة كاليفورنيا (وهو عضو فى مجلس أمناء "إسنار" منذ عام ١٩٩٣). وكان سابقا مديرا مساعدا لشئون البحث الزراعى بوزارة الزراعة الأمريكية. وقد تولى هيس رئاسة مجلس الأمناء خلفا للسيدة/ نيكولز سيتيكان نائبة الرئيس (الفرع متعدد الاطراف) بالوكالة الكندية للتنمية الدولية.

وقد تم كذلك تعيين ثلاثة أعضاء جدد بالمجلس خلال العام هم : اليساندرو بوزينى (ايطاليا) وجوست فالاند (النرويج) ومارتن بيرو (الارجنتين). كما انتهت فترة عضوية كنزو هيمى (اليابان) من المجلس لانتهاء فترة عضويته. وسوف يبلغ عدد أعضاء مجلس أمناء " إسنار " فى عام ١٩٩٥

اثنى عشر عضوا بما فيهم المدير العام، إضافة الى ممثل دائم بصفة مراقب لمنظمة الأغذية والزراعة التابعة للأمم المتحدة (فاو).

المقالة الرئيسية للتقرير (استمرارية مؤسسات البحث) :

تعد المنظمات الوطنية للبحوث الزراعية حاسمة لزيادة الانتاج مستقبلا ولحماية الموارد الطبيعية، ويولى مركز " إسنار " اهتماما كبيرا لاستمراريتها التى تشكل واحدا من ثلاثة موضوعات بارزة حددت كمجالات عمل فى استراتيجية " إسنار " لعقد التسعينيات. وتبحث المقالة الرئيسية للتقرير السنوى لعام ١٩٩٤ هذه القضية من وجهة نظر الفعالية والكفاءة بصفة أساسية أى من حيث امكانية أية منظمة تحقيق تدفق منتظم للمعطيات ذات العلاقة لصالح عميل محدد من المتعاملين مع المركز. وفيما يختص بمنظمات البحث الزراعى فان هذه المعطيات هى تكنولوجيا خاصة بتوفير بذور أو عينات جديدة أو محسنة، وممارسات خاصة بالفلاحة.. بالاضافة الى المعلومات والمعارف.

فبعد الاشارة الى المعوقات الرئيسية -الداخلية منها والخارجية- لاستمرارية العطاء المؤسسى، فإن المقالة تركز على وظيفتين رئيسيتين للادارة لازمتين لتحقيق استمرارية الآداء : الاولى هى تخطيط وادارة الموارد من أجل البحث، والثانية هى الأعمال البحثية المشتركة مع شركاء وبخاصة المستثمرين والمنظمات الاخرى ذات الصلة بالزراعة.

إن التحكم الفردى للأشخاص القائمين على عمليات البحث فى إجمالى الاستثمارات المخصصة لذلك والمقدمة من قبل الحكومة الوطنية والجهات المانحة و مؤسسات الإقراض، محدود للغاية. وينطبق ذات الأمر - وإلى حد بعيد - على التفاوت بين مخصصات التشغيل ورواتب الموظفين وهى سمة مميزة لكثير من أنظمة البحث. كل ما يستطيعه رؤساء البحث هو حسن ادارة المخصصات المعطاة لهم، شأنها فى ذلك شأن الموارد البشرية والمادية التى تم توفيرها باستخدام تلك المخصصات مثل: الاخصائيين العلميين المدربين والمبانى والارض والمعدات،.. إذ بوسع الادارة السليمة للموارد - المقترنة بأساليب تحقيق مستوى علمى رفيع والالتزام ببرامج ومشروعات الأبحاث - الاسهام فى الارتقاء بالانجازات (مبدأ الكفاءة والفعالية). وتحتاج إدارة الموارد والبرامج هذه إلى أسلوب مؤسسى للتخطيط والاشراف والتقييم استنادا الى ادارة جيدة للمعلومات والتغذية الاسترجاعية من قبل مستخدمى الأبحاث وبخاصة أصحاب المزارع والقائمون بالارشاد الزراعى. وتتمثل بعض الموضوعات التى يقوم فيها مركز " إسنار " بمساعدة الأنظمة الوطنية للبحوث الزراعية فى شكل مشورات، وأدوات للادارة، وتدريب.

المهمة الرئيسية الثانية للادارة هى ادارة الانشطة المشتركة والحفاظ على الروابط مع الشركاء وممثلى الجهات المانحة. فالعلاقات مع المستثمرين ذات أهمية خاصة ليكون لمؤسسات البحث صفة الديمومة. وقد قدم المستثمرون (الحكومات الوطنية – مؤسسات الإقراض الخارجية – الوكالات المانحة)، خلال العقود الثلاث الاخيرة، اسهامات كبرى فى تكوين بنية أساسية للبحث الزراعى بالعالم النامى،.. وشملت هذه الاسهامات توفير التسهيلات البحثية وتقديم المعونة الفنية وتدريب عشرات الآلاف من العلماء والفنيين .

ومع ذلك، فالجهات المانحة والمتبرعة غالبا ما تكون غير مدركة لحقيقة الأوضاع المؤسسية فى الدولة المتلقية للمعونة، ففى معظم الاحيان يقوم الاستشاريون الاجانب بتصميم برامج ومشروعات الابحاث دون أن يعطوا اهتماما يذكر للأولويات الوطنية ودون مراعاة لقدرة المؤسسات على الاستيعاب. وباختصار فقد تتحكم اهتمامات المستثمرين ومصالحهم فى التصميم المؤسسى وجهود البحث. وكذلك قد يفرض المستثمرون شروطا صارمة لتحديد كيفية صرف الأموال، بالاضافة الى أن أجانب يعملون بعقود قصيرة الاجل هم الذين يقودون النشاط البحثى الفعلى خاصة فى افريقيا.

إن المؤسسات الوطنية للبحث والمعينة لتنفيذ برامج المستثمرين لا تمتلك، بالضرورة الموظفين المدربين المهرة مما يساعد على استمرار العمل، أو التمويل المحلى اللازم لمواصلة جهود البحث بعد انسحاب المستثمر. لذلك، فتخطيط المشروعات القائم على اشتراطات الجهات الممولة يمكن ان يشكل تهديدا واقعيا للتطوير المؤسسى الحقيقى، ويقوض الانجازات طويلة المدى.

يتطلب الحفاظ على استمرارية الانجازات أن تكون ملكية برامج البحث وما تم تحقيقه من خلالها، ملكية وطنية... ومعنى ذلك أنه ينبغى أن يكون الباحثون والمدراء المحليون هم أصحاب القرار عندما يتعلق الأمر بتصميم الأبحاث وتنفيذها وأن يقوم المستثمرون بدور المساندين فقط.

هناك شركاء آخرون للأنظمة الوطنية للبحوث الزراعية فى مجال الابحاث الوطنية، فى مقدمتهم: الجامعات، والشركات الخاصة، والمنظمات غير الحكومية، والمنظمات الاقليمية والدولية. والروابط مع أولئك الشركاء وثيقة الصلة بصورة متزايدة باستمرارية الانظمة الوطنية.. ويرجع السبب الرئيسى فى ذلك الى إتساع قائمة القضايا المطروحة للبحث (نظرا للتركيز الكبير على ادارة الموارد الطبيعية على سبيل المثال) على نحو يفوق القدرة المباشرة لعدد كبير من أنظمة البحوث الزراعية الوطنية فى الوفاء بالمطلوب منها، فى وقت يتزايد فيه تقليص المخصصات. إن التعاون الاقليمى وشبه الاقليمى، والاشتراك فى ما يعرف باسم مبادرات الإيكولوجية الإقليمية للمجموعة الاستشارية الدولية للبحوث الزراعية (CGIAR)، نموذجان لما يمكن للشراكة

المصحوبة بتخطيط مشترك ملائم أن تحققه من تخفيف للأعباء الملقاة على عاتق "الأنظمة الوطنية للبحوث الزراعية" من خلال المشاركة فى كل من المهمات البحثية والموارد والمعلومات. وبدون مثل هذه المشاركات سيعجز العديد من الأنظمة الوطنية للبحوث الزراعية عن مواصلة جهود البحث المطلوبة لخدمة الاحتياجات المتنوعة للمتعاملين معها. إن قيام " ثقافة تعاون " - فيما بين الانظمة الوطنية للبحوث الزراعية وشركائها فى الابحاث، والمستثمرين - أمر مطلوب ليضمن للبحوث الوطنية تحقيق انجازات طويلة المدى.

تغيير فى الهيكل التنظيمي لمركز الخدمات الدولية للبحوث الزراعية الوطنية (إسنار) :

اتجه مركز الخدمة الدولية للبحوث الزراعية الوطنية " إسنار "، خلال هذا العام (الذى لم تكن الاوضاع المالية فيه مزدهرة)، الى إعادة تنظيم الهيكل الداخلى له.. تحقيقا لمزيد من التكامل بين الخدمات الثلاث التى يقدمها المركز وهى المشورة، والبحث (حول السياسات والتنظيم والادارة)، والتدريب.

ولقد تم تنظيم الانشطة فى برنامجين موجهين لخدمة العملاء، وهما:

- تطوير السياسات والانظمة.
- الادارة.

يعالج البرنامج رقم (١) -على مستوى الانظمة- المشاكل التى يواجهها كل من وزراء الزراعة، وزراء المالية والتخطيط، والمنظمات الاقليمية، والجهات المانحة،... بينما يتصدى البرنامج رقم (٢) للإهتمامات اليومية لمدراء المنظمات القائمة بالأبحاث.

تحظى أنشطة هذين البرنامجين بمساندة أربع وحدات متخصصة هى: (خدمات النشر - خدمات الحاسب الآلى - وحدة التدريب - خدمات المكتبة والوثائق). ولهذه الوحدات مهام على الصعيدين الداخلى والخارجى، ومن ثم فإنها لاتخدم الاحتياجات الداخلية لموظفى مركز "إسنار " فحسب، وإنما تقدم مساندة محدودة للأنظمة الوطنية للبحوث الزراعية فيما يتعلق بمجالات تخصصها .

برنامج إعداد السياسات والانظمة :

يختص هذا البرنامج بسياسات البحث وإعداد الانظمـة والروابط التى يتعين علـى الانظمـة الوطنيـة للبحـث الزراعيـة الحفـاظ عليهـا علـى الصعيديـن الخـارجى والداخلـى. ونـورد هنـا وصفـا موجـزا للموضوعات والأنشطة الرئيسية :

- يـعـد مـركـز الـخـدمـات الـدوليـة للـبحـوث الـزراعيـة الـوطنـية " إسـنار"، مـن خـلال "سلسلة مؤشراته "، مصدرا للمعلومات المقارنة - على مستويات المصـادر (البـاحثون والموارد المالية)- للأبحاث الزراعية الوطنية فى العالم أجمع.

وقد واصل مركز " إسـنار " هذا النشـاط مـن خـلال مشـروع قـام بـه - بتعضيـد مـن ايطاليـا، والبرنامج الخاص بالبحوث الزراعية الافريقية (SPAAR) المقدم من البنك الدولـى، وكذلك ميزانيته الخاصة - حول الدول الإفريقية شبه الصحراوية،.. والذى تضمن بيانات عام ١٩٩٢. وقد نشرت احصائيات موجزة عن تسع دول أفريقية فى عام ١٩٩٤، فى حين اعدت مسودات عن خمس أخر.

- كان مشروع "SARMAC" لتدعيم البحوث الزراعية بالبلدان العربية، حصيلة جهد مشترك لمركز الخدمات الدولية للبحوث الزراعية الوطنية " إسنار " والمنظمة العربية للتنمية الزراعية.

وقد نظم مركز " إسنار " ورشة عمل ببيروت لعرض ومشاركة خبرات مشروع دعم البحوث الزراعية بالبلدان العربية "SARMAC" على قادة البحث باثنى عشـر بلدا عربيـا، حيث تم عرض ومناقشـة الخبرات والـدروس المستفادة مـن عمليـات سـابقة أجرتهـا الأنظمـة الوطنيـة للبحوث الزراعية بالجزائر والعراق والسودان واليمن.

- تم استكمال مجموعة من أوراق البحث، ودراسات الوقـائع، والـدروس المستفادة مـن خـبرات الأنظمـة الوطنيـة للبحـوث الزراعيـة والمقترنـة بـاجراءات خاصـة بـالاصلاح الهيكلـى. وقـد استعرضت الدراسات الثنائية النهائية(مابين دولتين) الروابط بين البحوث الزراعية والاصـلاح الهيكلى فى بوركينا فاسو وشرق أفريقيا. وقد وفرت الحكومة الايطالية، والوكالة الكندية للتنمية الدولية (CIDA)، ومعهد التنمية الاقتصادية التابع للبنك الدولى، مخصصات إضافـية لـهذا الـمشـروع المـنفذ مـن قبل مركز الخدمات الدولية للبحوث الزراعـية الوطنية " إسـنار".
- شهد عام ١٩٩٤ انتهاء المرحلة الأولى من البحث حول تكامل دورى القطاعين العام والخاص فى البحوث الزراعية، والتى اختتمت باستكمال "دراسات الحالة" الخاصة بكولومبيا والاكـوادور وجامايكا. وهناك دراسة أخرى خاصة بشيلى من شأنها تعزيز هـذا الاسلوب فـى العمـل علـى

نحو يحوله الى جزء من مجموعة آليات مركز الخدمات الدولية للبحوث الزراعية الوطنية " إسنار " الخاصة بفحص الانظمة وغير ذلك من الأعمال.

* استكمل مركز الخدمات الدولية للبحوث الزراعية الوطنية " إسنار "، خلال هذا العام، كتابا طال انتظاره عن تقييم البحوث الزراعية وتحديد الاولويات.. والذى تصدره مطابع " جامعة كورنل " فى أوائل عام ١٩٩٥ تحت عنوان " العلم فى ظروف ندرة الموارد ". وسوف يكون هذا الكتاب مرجعا قيما معترف به للأكاديميين والمستشارين – بالوزارات المعنية بالتخطيط والبحث – ذوى الدراية المتميزة فى مجالات الاقتصاد. كما عقد مركز الخدمات الدولية للبحوث الزراعية الوطنية " إسنار " ندوة استشارية دولية حول الأولويات الاقليمية، وواصل العمل المشترك حول تقييم الأبحاث بشرق أفريقيا من خلال ثلاثة مشروعات شارك فيها " معهد كينيا للأبحاث الزراعية (KARI) "، و"جامعة هامبولت " ببرلين، و" المركز الدولى لبحوث استزراع المناطق الغابوية (ICRAF)".
* تقوم خدمة التكنولوجيا الحيوية الوسيطة بتزويد البلدان النامية بالمعلومات والمشورة حول تداخل السياسات وقضايا التخطيط المحيطة بالتكنولوجيا الحيوية الزراعية. وقد قام مركز" إسنار " بنشر وتوزيع تقرير لخدمة التكنولوجيا الحيوية (البيوتقنية) الوسيطة، يحدد الخطوط العريضة لأسلوب رباعى المراحل.. ولإطار عمل، من أجل اتخاذ القرارات حول البحوث الزراعية القائمة على التكنولوجيا الحيوية. كما نظم أيضا ورشة عمل اقليمية كبيرة بسنغافورة لواضعى السياسات البحثية ومدراء البحوث بالقطاعين العام والخاص، والذين قدموا من ستة دول آسيوية.
* استعان مركز " إسنار " بخدمات إثنين من الاستشاريين لمراجعة دراساته القديمة ومشوراته حول الأنماط التنظيمية للبحوث الزراعية، وقد تم نشر بحث موجز حول هذا الموضوع.
* شهد عام ١٩٩٤ قرب اكتمال مشروع – استغرق سنوات عديدة – لدراسة أولويات البحث والاستراتيجيات التنظيمية لخمسين دولة صغيرة. وسوف يشهد عام ١٩٩٥ نشر مؤلف تم فيه تجميع الخبرات والدروس المستفادة من العديد من الدراسات المتعمقة التى أجريت عن البلدان.
* بدأ مركز " إسنار " مشروعا مشتركا للبحث مع معهد تنمية ماوراء البحار (بريطانيا)، حول الارتقاء بدور منظمات المزارعين والاحتفاظ بتأثيرهذا الدور فى تحديد برامج البحث أولوياته. وتجرى فى الوقت الراهن "دراسات حالة " فى زيمبابوى، ومالى، وبوليفيا. وبمساندة من الحكومة الهولندية، قام المركز بتعزيز وتحسين مشروعه حول الروابط بين البحث ونقل التكنولوجيا. كذلك استكملت دراسات وقائعية حول "العلاقة بين الأبحاث

ومنظمات المزارعين" فى بوركينافاسو وغانا وكينيـا. وقد شكل ذلك قاعدة لاجراء ابحاث عملية (تطبيقية) لتعزيز قدرة مدراء الأبحاث ورؤساء منظمات المزارعين على تقوية الروابط بينهم. كما جرى تخطيط اجراء دراسات وقائعية أخرى بواسطة فرق محلية فى كل من مالى وزيمبابوى والسنغال وتنزانيا.

* تواصل خلال عام ١٩٩٤ اجراء مشروع مدته عامين، يستهدف تدعيم دور الجامعات فى الانظمة الوطنية للبحوث الزراعية فى المناطق شبه الصحراوية بأفريقيا. وقد بدأ تنفيذ "دراسات حالة " فى بنين ونيجيريا بواسطة باحثين وطنيين. ويتم تنفيذ هذا المشروع بالاشتراك مع جامعة هوخنهايم بألمانيا.

برنامـــج الادارة :

يهدف هذا البرنامج الى تحقيق ارتقاء مستمر بقدرات المنظمات الوطنية للبحوث الزراعية وفى مقدمتها منظمات القطاع العام. وهناك ثلاثة موضوعات تقود توجه أسلوب عمل البرنامج: إدارة برامج البحث، وإدارة موارد البحث، والتغيير التنظيمى (الهيكلى).

يتصل الموضوعان الأولان بقدرات منظمات البحوث الزراعية من حيث الفعالية (المستوى النوعى الرفيع – البرامج ذات الصلة)، والكفاية (الاستخدام الاقتصادى للموارد). ويتصل الموضوع الثالث بعملية نقل التكنولوجيا والمعلومات الى المنظمات الوطنية للبحوث الزراعية، لتقييم جهود " إسنار" التوسعية الهادفة، وايجاد سبل جديدة لنشر المعرفة وتقنين الابتكارات الادارية. وفيما يلى أبرز منجزات برنامج ١٩٩٤:

* تم استكمال مشروع للارتقاء بتخطيط الأبحاث والاشراف عليها وتقييمها ببلدان أمريكا اللاتينية ومنطقة البحر الكاريبى. وقد تم تمويل ذلك المشروع عن طريق التشارك بين وكالات وطنية واقليمية ودولية، مع اسهام كبير من قبل بنك التنمية عبر أمريكا (IDB). هذا، وقد تمت ترجمة مواد التدريب المستمدة من تجارب امريكا اللاتينية الى اللغة الانجليزية، ويجرى الآن تكييفها مع البيئة الافريقية.
* واصل " إسنار " تنفيذ نظامه لادارة المعلومات "إنفورم". وكنتيجة لتصميم " إسنار " لهذا النظام وفقا للبيئة الأسيوية، كوسيلة تستعين بها البرامج فى التخطيط ووضع الميزانيات، فقد تم توسيع تطبيق نظام إدارة المعلومات خلال هذا العام، ليشمل العديد من الدول الافريقية مثل : غانا، وكينيا، والسنغال، وأوغندا. كذلك، تمت ترجمة مواد التدريب الى اللغتين الفرنسية

والاسبانية. وبتقييم نظام ادارة المعلومات " انفورم " من قبل استشاريين من خارج المركز، فقد أوصوا باحداث المزيد من التطوير فيه، ليصبح الوسيلة الأكثر تفضيلا لمستخدميه فى مجالات الاشراف والتقييم.

- شهد عام ١٩٩٤ تقدما فى نشاط إدارة الماليات. وقد جرى تقييم الاجراءات المعمول بها بالأنظمة الوطنية للبحوث الزراعية فى بنين. كما تم بالمغرب مراجعة اجراءات اعداد الميزانيات. كذلك، عقد فى " إسنار " أول لقاء للمدراء الماليين لعدة منظمات وطنية للبحوث الزراعية. وقد تضمن تقييم لأوضاع مركز البحث العلمى فى بنين توصيات خاصة بالاشراف على محتويات المخازن وصيانة الاجهزة والتسهيلات المتاحة.
- عقدت فى سوازيلاند ورشة عمل حول التخطيط الاستيراتيجى لتنمية الموارد البشرية حضرها مدراء من بوتسوانا وليسوتو، وسوازيلاند. وقد بدأ العمل من جديد فى تقدير أداء الباحثين فى المغرب وانجازاتهم، كما بدأ البرنامج أيضا فى البحث فيما يربط بين ادارة الموارد البشرية بالمنظمات الوطنية للبحوث الزراعية، وبين اتساع نطاق البحث حول ادارة الموارد الطبيعية.
- تم استكمال ورقة مفاهيم (ورقة تعريفية) تحدد الخطوط العريضة لوسائل استحساس القدرات التنظيمية، تستند أساسا الى ماسجلته البحوث من نتائج. وفى شهر ديسمبر أقيمت ورشة عمل بمقر المركز قام فيها رؤساء المنظمات الوطنية للبحوث الزراعية، من تسع دول، بدراسة النموذج ووافقوا على تجربته بواسطة منظماتهم.
- أعدت للنشر أول دراسة قياسية (ارشادية) للوسائل التى اتبعها المعهد الوطنى المستقل للأبحاث الزراعية (INIA) بالارجنتين لانتقاء مدراء البحث. ويأمل " إسنار " فى أن توفر مثل هذه الدراسات الارشادية لمدراء المنظمات الوطنية للبحوث الزراعية نماذج موثوقا بها للتغيرات، ومأخوذة من بيئات مماثلة.

مبادرة لتبادل البرامج حول ادارة الموارد الطبيعية :

واصل "إسنار" دراسة الجوانب التنظيمية والادارية للاهتمام المتزايد الذى توليه البلدان النامية والجهات المانحة لأبحاث ادارة الموارد البشرية. وهناك برنامجان لإسنار يغطيان هذا الموضوع. وقد استضفنا فى شهر ديسمبر، ورشة عمل دولية حول سياسة البحث وإدارته، بهدف تحقيق النمو الزراعى والاستخدام القابل للاستمرار للموارد الطبيعية. وقد شمل حضور هذه الورشة مدراء الأبحاث الوطنيون وواضعو السياسات والجهات المانحة وممثلو منظمات الابحاث الاقليمية والدولية. وقد كان ذلك اللقاء نتيجة جهد مشترك بين " إسنار " والمؤسسة الألمانية

للتنـمية الدولية (DSE). كما واصل مركز " إسنار" مساعدته لـ " بوتان " فى تنظيم وادارة الابحاث الخاصة بادارة الموارد الطبيعية، فى إطار المتابعة لتدريب سابق على عملية التخطيط.

أخبار قصيرة من خمس دول :

- **فى بنين**.. عمل " إسنار " مع مجموعة وطنيـة لاعداد مسودة لسياسة وطنية جديدة للأبحاث الزراعية. وقد حصلت هذه الوثيقة على موافقة مجلس الوزراء فى شهر ديسمبر،.. وهى مجرد خطوة أولى على درب مشروع رئيسى لتخطيط البحث.
- تواصل العمل فى برنامج " التنمية المؤسسية الشاملة " بالاشتراك مع المنظمة الوطنية للبحوث الزراعية **بأوغندا** – بمساندة من إثنين من الأخصائيين بعث بهما " إسنار " الى هناك – وقد غطى ذلك العمل مجالات عديدة، كتكوين الرواتب، والتوصيف الوظيفى، واحتياجات التدريب والتعيينات، وهيكلة التنظيم والادارة، وأولويات وبرامج البحث، والمعلومات العلمية والادارية بما فى ذلك تطوير نظام إدارة المعلومات " إنفورم " والتدريب عليه، والروابط بينه وبين أجهزة الارشاد الزراعى والوزارات الاخرى وجامعة ماكيريرى.
- **فى الهند** لعب اسنار دورا رائدا فى إعداد مشروع استراتيجية لإقامة نظام معلومات للبحوث الزراعية يغطى البلاد بالكامل، ويربط حوالى ٢٤٠ موقعا.. حتى يتنسى بذلك تبادل المعلومات العلمية والادارية. وقد وافق المجلس الهندى للبحوث الزراعية (ICAR) – وهو الوكالة الرئيسية لتنسيق البحث الزراعى– على قبول هذه الاستراتيجية.
- وقع " إسنار " مذكرة تفاهم مع أكبر معاهد البحوث الزراعية **بالإكوادور** وهو "المعهد الوطنى المستقل للبحث الزراعى (INIAP)"، وذلك لإقرار برنامج – مدته ثلاث سنوات – للتنمية المؤسسية الشاملة. وقد اشترك " إسنار" والمعهد الوطنى المستقل للبحث الزراعى بالإكوادور فى إعداد برنامج متكامل للأنشطة من أجل تدعيم البحوث الزراعية.
- واصل " إسنار " تعاونه مع **مصر** من خلال برنامج يسانده "برنامج كندا–مصر–ماكجيل للتجاوب الزراعى (CEMARP) "، والذى تم من خلاله إعداد مشروع استراتيجية وطنية للبحوث مصحوبة بخطط لبرامج سنوية وخمسية للأبحاث ذات الصلة بالواحات. كذلك قام " إسنار" بتدريب موظفى مركز البحوث الزراعية وكليات الزراعة بالجامعات على انشاء قاعدة للبيانات تحوى معلومات عن الباحثين، والعاملين الاكاديميين، وطلبة الدراسات العليا، والأنشطة البحثية.

التعـاون الاقليمي:

كـان " إسـنار " نشـطا علـى الصعيـد الاقليمـى خـلال هـذا العـام وبخاصـة فـى منـاطق أفريقيـا شـبه الصحراوية، فقد أسهم فى انشاء اتحاد اقليمى جديد بشرق ووسط افريقيا تحت إسم "اتحاد دعم البحوث الزراعية بشرق ووسط افريقيا" (ASARECA). وقد تركز العمل فى صياغة دستور هـذا الاتحاد وتشكيل أجهزة اتخاذ القرار به. وفى شهر ديسمبر وقع "إسـنار" مذكـرة تفاهم مـع "مؤتمر مسؤولى البحث الزراعى الافارقـة" (CORAF)، وهـو اتحـاد اقليمـى لمدراء البحـوث الزراعيـة. ويستهدف الاتفاق دعم التعاون بين الانظمـة الوطنيـة للبحـوث الزراعيـة بالمنطقـة بعضهـا البعـض، وأيضا فيما بينها وبين الهيئات الدولية والاقليمية. وفى امريكا اللاتينية، قام "إسنار" بتدعيم روابطـه مع "معهد التعاون الزراعي لأمريكا الشمالية وأمريكا اللاتينية" (IICA).

يشمل التعاون المتبادل لصالح الانظمة الوطنية للبحـوث الزراعيـة بالمنطقـة : الاستشـارات والبحوث والانشطة التدريبية، فى اثنى عشر مجالا للسياسات والادارة. ولاتمثل هذه الانشطة سـوى غيض من فيض الأنشطة الاقليمية لعام ١٩٩٤، والتى قام " إسنار " من خلالها إما بتوثيق الروابـط فيما بين الانظمة الوطنية للبحوث الزراعيـة أو بالعمـل علـى مضاعفـة قوتـه التأثيريـة مـن خـلال الحوار والتدريب.

التعاون مع مراكز أخرى للمجموعة الاستشارية الدولية للبحوث الزراعية:

تعاون " إسنار " خلال هذا العام مع مراكز أخرى للمجموعة الاستشـارية الدوليـة للبحـوث الزراعية، فى ستة أنشطة منفصلة. تمثل أحد أبرز هذه الأنشطة المتميزة فى اسـهام " إسـنار" فـى إعداد استراتيجية مشتركة بين المراكز -فى مجال المعلومـات- جـرت صياغتها فـى لقـاء عقـد بمقر " إسنار " وحضره ممثلون من خمسة عشـر مركـزا. كمـا صـادق هـذا اللقـاء -ضمـن أشـياء أخرى- على انشاء شبكة اتصالات متكاملة وفائقة السـرعة لنقـل الأصـوات والبيانـات لصـالح نظـم المجموعة الاستشارية الدولية للبحوث الزراعية.

تعتبر مشاركة " إسنار " فى بعثة البنك الدولى الاستكشافية الى الاتحـاد الفيدرالـى الروسـى، ثانى أبرز نشاطات المركز خلال هذا العام، فى مجال التعـاون المشـترك بيـن المراكـز. وقـد دعـم ذلك إسهامات من المركـز الدولـى للبطاطـا (CIP)، والمركـز الدولـى للبحـوث الزراعيـة بالمنـاطق الجافة (ICARDA)، والمعهد الدولى لموارد الجينات الوراثية للنبات (IPGRI). وقد كـانت هـذه البعثة تمهيدا لمشروع كبير للبنك الدولى بغرض تدعيم البحوث الزراعية والتدريب.

المعلـومات والتدريـب :

أصدرت خدمات المطبوعات -خـلال هذا العام- ٢٥ مطبوعـة رسمية " لإسنار " وتسـع بيانـات إخبارية، كما عاونت فى إعداد أو إعادة انتـاج إحدى عشـرة وثيقـة رئيسية أخـرى. أيضـا قـامت الوحدة باستطلاع رأى القراء حول الموضوعات التى تحظى باهتمامهم،.. وعليه، تم تحديث قائمـة المراسلات التى ضمت -حتى نهاية عام ١٩٩٤- حوالى ٢٦٠٠ جهة (أفرادا ومنظمات).

بـدأت خدمـات الحاسـب الآلـى اسـتعداداتها لمواجهـة التغـيرات العميقـة فـى تكنولوجيـا المعلومـات، والمتوقعـة خـلال عـام ١٩٩٥، فـى نظـام المجموعـة الاستشـارية الدوليـة للبحـوث الزراعية.. وما أبعد من ذلك. وقد بدأت الوحـدة، فـى شـهر أغسـطس، فـى إحـلال حاسبات آليـة (كمبيوترز) طراز ٤٨٦ SX ذات سعة أكبر {مما يعنى كبر السعة التخزينية (الذاكرة)} وشاشـات أفضل، محل الحاسبات طراز ٣٨٦ SX المستخدمة بمركـز الخدمـات الدوليـة للبحـوث الزراعيـة الوطنيـة " إسنار". والحاسبات الجديدة أقل تكلفة من الحاسبات السابقة،... وسـوف تسـتغرق عمليـة الإحلال حوالى عام واحد.

وقد قدم رئيس قسم خدمات الحاسب الآلى المشورة الفنيـة والمسـاندة الـى الأنظمـة الوطنيـة للبحوث الزراعية بمصر وأوغندا، فيما يختص بتوفير خدمات الحاسب الآلى للباحثين. وقـد شـارك إثنان من موظفى " إسنار" فى اعداد مشروع لاستراتيجية معلومات لشبكة المراكز الدولية للمجموعـة الاستشارية الدولية للبحوث الزراعية بالإضافة الى اقتراح باقامـة شـبكة اتصـالات شـاملة للأصـوات والمعلومات.

أضـافت خدمـات المكتبـة والوثـائق بمركـز الخدمـات الدوليـة للبحـوث الزراعيـة الوطنيـة "إسـنار"، خـلال هـذا العـام، مطبوعـات جديـدة الـى مجموعـة مقتنياتهـا، جاعلـة بذلـك اجمـالى تلـك المقتنيات نحو ١٨ ألف كتاب ووثيقة (أوراق نقاش). كذلك تم تزويد المكتبة بنظام التعامل الكـامل مـع الشـبكة الداخليـة عـن طريـق التليفـون، ممـا يفتـح الطريـق نحـو الحصـول علـى كـم كبـير مـن المعلومات بما فيها كتالوجات المكتبة.. والتى تضـم أهـم الجامعـات والمكتبـات فـى أوروبـا وأمريكـا الشمالية.

تكاملت المعونة التـى قدمهـا مركـز " إسـنار" الـى الانظمـة الوطنيـة للبحـوث الزراعيـة مـع أعمـال المشـورة والبحـث التـى نفذهـا موظفـوا برنـامجى " إسـنار". وتسـاعد وحـدة التدريـب أولئـك المتخصصين فى إعداد مـواد تختـص بعلـم أصـول التدريـس وتتنـاول العديـد مـن موضـوعات علـم الادارة. غير أنها أيضا تقدم المشورة والمساندة الـى الانظمـة الوطنيـة للبحـوث الزراعيـة مـن أجـل تطوير برامجها الخاصة عن التدريب والادارة.

تركز نشاط وحدة التدريب فى عام ١٩٩٤ على أفريقيا -بالتعاون مع "المعهد الكينى للبحوث الزراعية" فى كينيا، ومع "المنظمة الوطنية للبحوث الزراعية" فى (أوغندا)، وأيضا بالتعاون مع بلدان "جماعة تنمية الجنوب الافريقى".. بالاشتراك مع "معهد الادارة لشرق وجنوب افريقيا".

تم اعداد نماذج تدريبية قياسية، للتجربة فى ورش عمل عديدة أقيمت فى إطار مشروع الارتباط الخمسى للادارة والتدريب بكينيا.. بالتعاون بين "المعهد الكينى للبحوث الزراعية" و"إسنار"، وبتمويل من الاتحاد الاوروبى. وفى أوغندا، قام رئيس وحدة التدريب بمركز " إسنار" بتشكيل مجموعة ضمت موظفين موفدين من " إسنار " ومدراء وطنيين وقامت بإعداد تقييم لاحتياجات التدريب اللازمة للمنظمة الوطنية للبحوث الزراعية (NARO)، استنادا الى سلسلة من ورش العمل التى شارك فيها ١٢٢ من المشتغلين بالبحوث. كان هذا التقييم جزءا من برنامج تعاونى طويل الأجل " للتطوير المؤسسى الشامل " بالمنظمة الوطنية للبحث الزراعى. كما قدمت وحدة التدريب أيضا مساندتها لموظفى " إسنار " الذين عملوا ككفاءات متخصصة فى العديد من ورش العمل الخاصة بالتدريب على الادارة، والتى عقدت فى إطار مشروع التدريب المشترك بين جماعة تنمية الجنوب الافريقى (SADC)، ومركز الخدمات الدولية للبحوث الزراعية الوطنية (إسنار)، ومعهد الادارة لشرق وجنوب افريقيا (ESAMI)... بتمويل من الوكالة الامريكية للتنمية الدولية (USAID).

قوة العمالة بـ "إسنار":

بلغ عدد موظفى " إسنار " (فى ختام ١٩٩٤) ٨٢ موظفا، مقابل ٨٥ موظفا فى العام السابق: منهم ٣٥ متخصصا فنيا معينون دوليا، و ١٥ متخصصا فنيا معينون محليا (باحثون مساعدون، واخصائيون فنيون)، و ٣١ موظفا محليا متخصصون فى مجالات الخدمات العامة يضطلعون بأعمال السكرتارية والخدمات المكتبية. ويوجد ضمن الموظفين ٣٧ من النساء منهن تسع متخصصات فنيات.

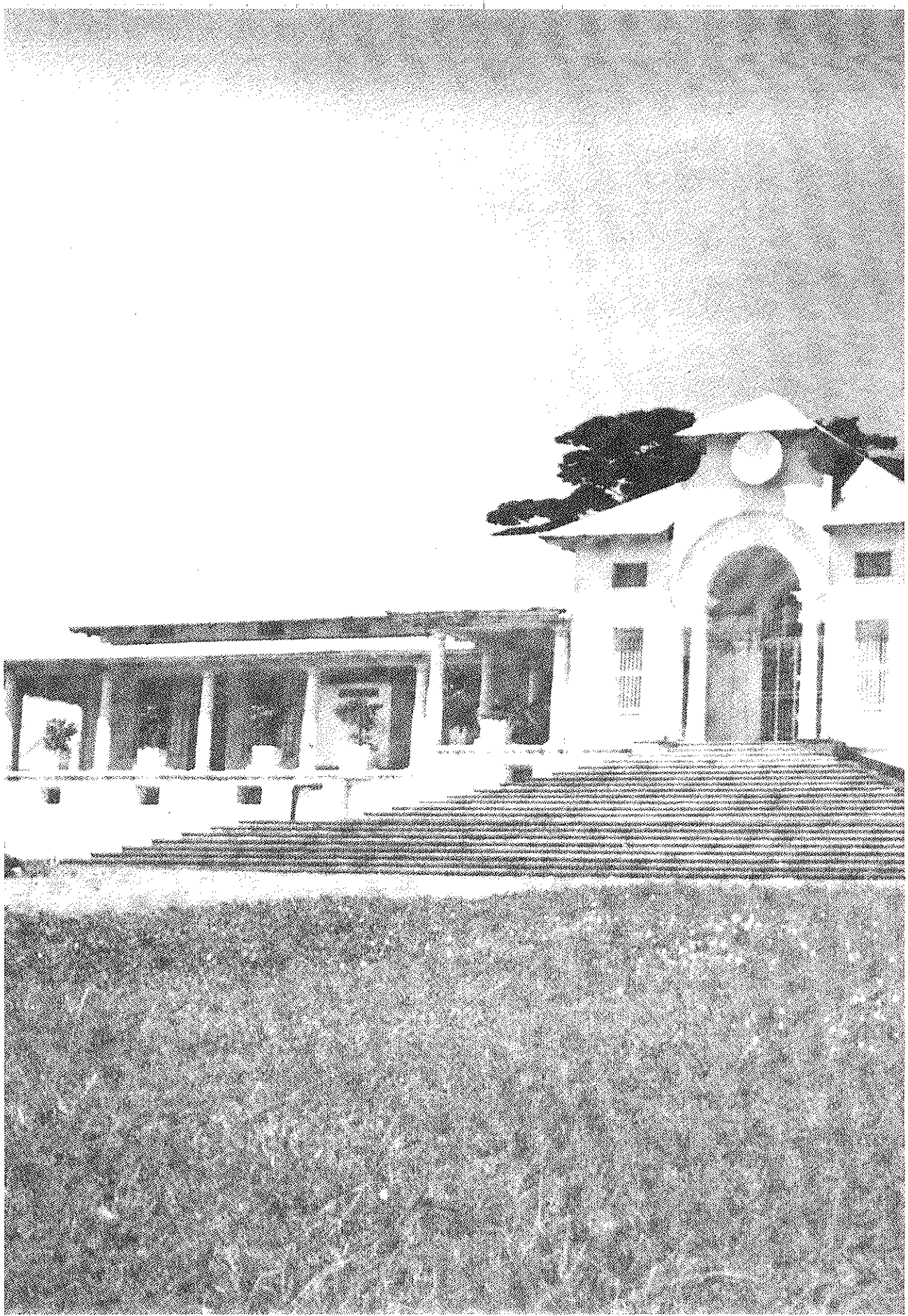
الاستشاريون :

استعان مركز "إسنار" خلال هذا العام بخدمات سبعين استشاريا أو مجموعة استشارية من خارج المركز.

الموقـــف المـــالى:

بلغ إجمالى رأس المال العامل لمركز " إسنار " خلال عام ١٩٩٤، مبلغ عشرة ملايين ومائة وواحد وعشـرون ألف دولار أمريكى (US$ ١٠,١٢١,٠٠٠,٠٠)، تم تمويل ستة ملاييـن ومائتـان وثلاثة وتسـعون ألف دولار (US$ ٦,٢٩٣,٠٠٠,٠٠) منها كمنح غير مشروطة بينما تم تمويل الباقى كمنح مشـروطة أو تمويل لمشروع خاص أو مبالغ مدفوعة نظير خدمات أديت أو عائدات الاخرى. ويمثل الجزء الأخير انخفاضا فى معدل الإنفاق الشامل لمركز " إسنار " مقارنة بعام ١٩٩٣. وبينما زاد التمويل غير المشروط بنسبة تخطت الـ ٥٪ قليلا، فإن مجموع مبالغ المنح الغير مشروطة والموارد الأخرى، قد انخفض بنسبة ٢,٣٪ تقريبا.

The Arabic translation was done by the Public Authority for Agriculture Affairs and Fish Resources (PAAFR), Kuwait, courtesy of ISNAR board member, Naima al-Shayji, who also revised the Arabic text.



Theme Essay

Produce, Protect, Prosper: Sustainable Institutions for Agricultural Research

Despite economic and social progress in many Third World countries over the last three decades, the list of development failures is disturbingly long. In taking stock of past successes and failures, the international community now more than ever recognizes the key role of institutions in development.

The issue of institutional sustainability is double-barreled. It has, of course, to do with survival, adapting to a changing world. But more important, it relates directly to performance of organizations — their ability to deliver the goods. Unless organizations produce a steady stream of relevant outputs, any discussion of their sustainability is largely irrelevant.

Weak performance by national institutions is considered by many to be the most important impediment to development, an unfortunate bottleneck in the flow of benefits to people. In recent years, much of the blame for poor results has been placed on national public-sector institutions themselves. Investors — lenders, multilateral and bilateral donors, and governments — are asking whether and at what level they should continue to support these institutions. Management problems and inexperience contribute heavily to failure. But it also needs to be recognized that the actors asking these questions, particularly donors and lenders, are themselves part of the problem. One commentator points to the "lack of capacity of those very institutions whose business it is to provide technical assistance in institution building." There is a clear case to be made, he says, "for the 'healers' first to heal themselves."[2]

Sustaining institutional performance of public-sector agricultural research is critical to national development. This is because farmers are the economic backbone of many developing countries. In many instances, they are also the poorest and, ironically, the hungriest people. The question is what can governments and the international development community do to promote result-oriented agricultural research institutions, and what can the organizations themselves do to improve their performance?

Defining institutional sustainability

Various definitions and descriptions of institutional sustainability stress different factors, such as survival, responsiveness to change, continuity, secure funding and staffing, or quality performance. Here are a few examples, either generic or specific to agricultural research:

- "Sustainability suggests an organization's ability to perform after the external support or technical assistance has been withdrawn."[3]
- "[A]bility of a system to produce outputs that are sufficiently well-valued so that enough inputs are provided to continue production."[4]
- "A sustainable NARS [national agricultural research system] has the abil-

ity to mobilize domestic political support to pay the salaries and operating costs of the core scientific staff from *national resources.*"[5]

- " [A] sustainable NARS/institute operates under conditions that facilitate long-term continuity in its personnel and operations."[6]
- "A sustainable NARS is defined as an autonomous system with a permanent capacity to render efficient and effective services to meet the evolving and growing technological and informational needs of its clients and stakeholders through domestic funding and by employing national and, if required, international scientific staff."[7]
- "*Institutional sustainability* refers to the ability of an entity or system to maintain performance over time, implying the capacity to adapt to changing circumstances."[8]

ISNAR's job is to help bring about lasting improvements in national agricultural research systems (NARS) and organizations in developing countries. Institutional sustainability is one of three overriding themes identified in ISNAR's strategy for the 1990s. In this context, the key element in defining the concept is the capacity to steadily produce technology and information — products that benefit a wide range of farmers, other users, and consumers, and that build an enduring constituency of support for the national organization. Sound management practices are among the basic ingredients of this kind of performance. Much of ISNAR's day-to-day work with research organizations, as recorded in this annual report, centers on improving those practices in national organizations.

Influences on sustainability

What are the threats, external and internal, to the performance and therefore the sustainability of national agricultural research organizations?

External and internal factors are tightly intertwined. The major external ones are political support, levels of research investment, shifts in government and donor policies and practices, political change, the domestic and international economic climate, competition for research resources, civil strife, and war. There is no doubt that the capacity to adapt to such changes is a precondition of sustainability.

Major internal threats and influences are lack of coordination and cooperation with research partners, inadequate scientific and management training, poor condition of equipment and buildings, dispersion of research effort over too many commodities and themes, and lack of relevance of technological outputs for farmers. Inadequate budget allocations, an external factor, can trigger a chain reaction of internal problems: low salaries and operating budgets leading to low morale and high staff turnover.

While many problems are beyond the reach of research leaders, others that clearly stem from poor management practices can be solved. Sustainability seems to be especially affected by the quality of planning, monitoring, and evaluation of research activities and how resources are managed.

Institutional sustainability is also affected by the interactions between research organizations and their partners. In a sense, organizations are like individuals. They function best as members of a community, accepting the reality of interdependence and managing it for the common good.

The rest of this essay focuses on the rational planning and use of resources for research and on the nature of interactions between research organizations and their partners. These are two broad management domains in which improvements would have a substantial payoff for institutional performance and sustainability.

The resource base: minding the store

People, buildings, equipment, and land — and the money to pay for them — are the main tangible ingredients of agricultural research. The availability of these resources, as well as how they are planned and managed, strongly condition institutional performance. What are the patterns of their supply and use?

First consider the global funding picture. The developing world spends almost US $4 billion a year on agricultural research. For most countries, the investment is between 0.3 and 0.9 percent of the agricultural gross domestic product. In the industrial countries, the figure ranges from two to five percent. Some may think this difference demonstrates that developing countries assign low priority to agricultural research. But it is really a problem of tight government budgets rather than lack of commitment. In fact, as a share of total public expenditure, developing countries spend two to three times more on agricultural research than do the developed countries.

Budgetary weakness is heavily rooted in the narrow fiscal base typical of the economies of low-income countries and is aggravated by heavy debt burden, low and fluctuating commodity prices, and uncertain aid flows. As policymakers struggle to restore growth, sometimes under the belt-tightening measures of structural adjustment, they have sacrificed or postponed long-term investments — including agricultural research — in favor of more immediate expenditures. Even basic maintenance of research buildings and equipment has suffered.

It is popular these days to look to private organizations, both commercial and nonprofit, for help with the research funding crisis. Many advocate a greater role for them, both in conducting research and in sharing the costs of the research effort. While such support is beneficial and likely to grow in the coming years, the sober reality is that less than three percent of agricultural research financing in the developing world is currently provided from private-sector sources.[9] And the private sector has few incentives to do research that benefits resource-poor farmers.

Weak economic growth has been a problem in industrial countries too. This has led to reductions in foreign aid, aggravating the overall research funding problem in developing countries. At the same time, donors have been shifting their development agendas to focus more on environmental issues, often at the expense of agriculture and conventional agricultural research.

But the research funding problem is not simply a matter of absolute levels of expenditures. There have clearly been reasonably high levels of commitment and expenditure in the past. Equally clear is the fact that, overall, these have not yielded the expected results. The problem lies mainly in how the money has been spent.

Who pays for what is a key factor. Foreign investments have often gone for infrastructure, technical assistance, and training. Those of national governments have tended to be used for salaries and operating costs. However, depending on how fast the pool of research employees grows and on the distribution of their ages, pay and benefit levels may go up, eating into operating funds. Allocating 60

percent of the budget for personnel costs and 40 percent for operating costs has been suggested as a suitable rule of thumb.[10] Yet in some national research organizations only five percent of the budget goes to operating costs, "which is indicative of a totally paralyzed system."

Unless the research organization relies more and more on borrowed funds, which are unsustainable, there is little money for transport, subsistence allowances, essential meetings, utilities, and agrochemicals and fuel for experiment stations. Valuable equipment may lay idle for lack of maintenance. Technology production may nose-dive, threatening the long-term performance of the institution. Fortunately, some research organizations have begun to pay attention to the problem of operating costs.

Staffing and other human resource matters, some of them closely tied to funding levels, also profoundly affect the viability of national research institutions, in part because research is highly labor- and knowledge-intensive. ISNAR investigations indicate that, during the 1980s, the number of scientists in the national agricultural research organizations of the developing world doubled, while expenditures increased by less than 50 percent. As a result, spending per researcher fell, on average, by close to 30 percent.[11] Figures for 16 African countries show a particularly discouraging trend: real spending per scientist in 1991 averaged less than half the 1961 level.[12] With an increasing proportion of the research budget being spent on salaries, less is spent on actually getting the research done.

But while the salary envelope expands, individual salaries are too low and usually cannot compete with those in the private sector. Combined with lack of operating funds, this makes for low morale. Frustrated scientists, unable to make ends meet either at home or in their research work, look for jobs elsewhere — with NGOs, private companies, universities, and regional and international organizations. Or they moonlight. The result, in either case, is that scheduled work does not get done or is postponed.

High turnover of managers is an especially serious blow to institutional performance. Lack of continuity and experience in leadership usually creates major internal difficulties. Young scientists brought in to fill the void often have no interest or training in management. Although they would rather be working in the experiment plots than "pushing paper," taking on an administrative job may be the only way to boost their salaries and benefits.

The state of physical resources can also be a major constraining factor on the day-to-day conduct of agricultural research. Equipment and buildings are favored investment areas for government and international development agencies. From a government perspective these are large and essential expenditures; from a donor perspective they are relatively easy to cost, implement, and account for. From both viewpoints, buildings and equipment are tangible, long-lasting, and easy to justify.

Despite the importance of infrastructure investments, they present some serious pitfalls that can threaten institutional sustainability. Governments and donors may overestimate the numbers of research stations and substations needed for adequate coverage of the various agroecological zones in a country. At the same time, they frequently underestimate the funding required to maintain or replace research station buildings, housing, and equipment, or even fail to plan for these expenses. Managers facing this predicament are scientists at heart. They will be tempted to spend what little money is available on a variety trial rather than up-

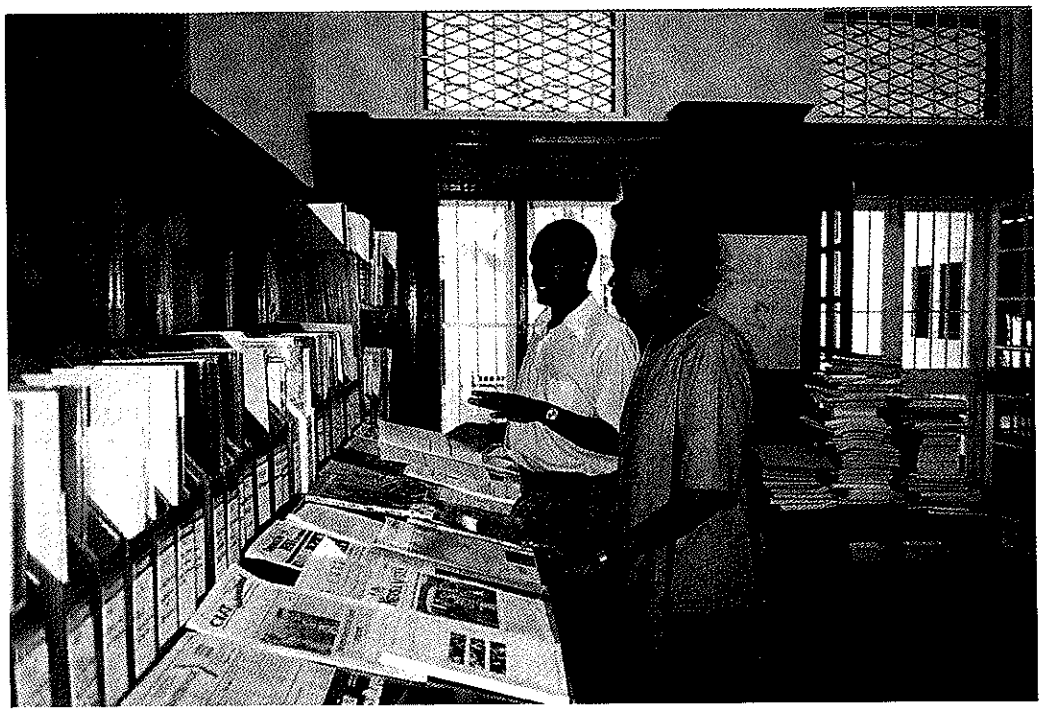
grade office plumbing. In many instances, NARS have been unable to sustain all their facilities and have been forced to downsize their station network to a number consistent with current resource flows.

Important social dimensions of sustainability also come into play. There is no point in building research facilities if they cannot be staffed and maintained. National staff and their families may be reluctant to move to rural areas where living and working conditions are difficult. Services, such as electricity, water, schools, and clinics, may be marginal or even nonexistent. The same goes for job prospects and recreation options for spouses and children. Researchers and technicians often resist assignment to such posts, especially when morale is already a problem because of low pay.

In short, infrastructure needs, including maintenance, must be carefully projected to match the organization's financial capacity over the long term and to meet the human needs of those assigned to live and work in the facilities. How long buildings and equipment will be useful and the expense burden they represent are sustainability issues that should be weighed early in the investment process.

All this simply underscores the need for careful planning of financial, human, and physical resources. Planning decisions about resource inputs should be guided by a continuous flow of information about two things: where and how resources available for research are being

How long buildings and equipment will be useful and the expense burden they represent are sustainability issues that should be weighed early in the investment process. Here, the library at the headquarters of the National Agricultural Research Organization (NARO) of Uganda is a good example of appropriate, easy-to-maintain infrastructure.



used, and the relevance of research outputs to the needs of farmers and to the development goals of government. Information on resource use is often collected and analyzed through a management information system. Information on the relevance of research can be collected through monitoring and evaluation practices, which attempt, among other things, to determine how farmers have actually benefitted.

Unfortunately, in many research organizations management information systems and monitoring and evaluation are weak. These are functions that investors in research, especially foreign ones, are keen to see improved, not only to ensure better accounting of financial flows but also to identify concrete results. The connection between a sound cycle of planning, monitoring, and evaluation at the organization level and a continuous flow of appropriate and useful technology is at the heart of institutional sustainability.

Us and them: interactions with partners

Agricultural research organizations have a broad range of partners. The main ones are investors, such as technical assistance agencies, extension agencies, international and regional research bodies, commercial firms, NGOs, universities, and government ministries. In recent years, the nature of their interactions has changed and become more complex. This has a major bearing, both positive and negative, on the sustainability of national research organizations.

The positive effects are seen in more clearly defined research goals, coordination and sharing of research tasks, and better access to funds, information, outside technical expertise, the latest research technologies, and genetic material. For example, the countries of Southern Africa cooperate on crop research via their regional organization SACCAR, in collaboration with several international centers of the CGIAR. This arrangement can lessen the scientific burden on individual national research organizations, especially for crucial research on major commodities. The research benefits can be shared among member countries, research costs reduced, and the degree of national ownership increased. On the down side, the interactions with multiple partner organizations can complicate planning and increase the managerial workload and related costs.

With the added emphasis that developing countries are now giving to natural resource management issues, public agricultural research organizations are expanding their research agendas. The nature of this research requires them to work with a larger number of interested parties — new ministries and NGOs, land and water management authorities, community groups, local governments, universities, and other organizations involved in research. This taxes the resources of research organizations and complicates research projects. But it also helps to ensure that research is relevant to the needs of the people affected by environmental degradation.

The "ecoregional" approach to research is one partnership mechanism now being attempted by several CGIAR centers. It is based on the formation of clusters or networks of national, regional, and international research bodies and other interested parties. Together they define and execute research on natural resource and production problems that can be defined around agroecological zones, which often cross national boundaries. The main advantage to this approach is that it enables national organizations to participate in large-scale projects too expensive and complex for any single developing country. An explicit aim of the ecoregional approach is to strengthen cooperation

between national and international research organizations and to develop transnational mechanisms of collaboration. Taking the burden off single research organizations by sharing scientific tasks would go a long way to helping them successfully meet the growing demand for research on environmental topics.

However, a word of caution is in order. At a meeting at ISNAR headquarters in 1994, national research managers said that such multi-organization projects could have high "transaction costs." They also thought there was a risk of increased national dependency and distortion of national research priorities. These are just a few of the institutional sustainability issues that organizers of ecoregional projects must address.

Other actors in developing-country agricultural research are private-sector commercial companies and NGOs. They often make significant contributions in production technologies, usually for a certain category of farmers or in a specific area of a country. With the performance of public-sector research organizations being called into question, these private organizations are attracting growing investor interest. The changes are part and parcel of new attitudes and approaches by the international development community — for example, ones that favor democratization, environmental concerns, privatization, transparency, and good governance.

The situation has positive and negative implications for public-sector research organizations. On the positive side, private-sector organizations can help reduce workloads and serve clients able to pay for their results, thus freeing government budgets to serve other target groups. On the negative side, public organizations can be weakened by the loss of funds previously earmarked for them and by the migration of the best scientific and managerial staff to the NGOs and private sector where salaries are much higher.

Such losses can deeply affect the capacity of national agricultural research organizations to produce a sustained flow of benefits for society. Ultimately, adequate coverage of technology needs for a broad base of farmers is the issue. The private sector is more suited for geographically intensive coverage on a narrow range of topics rather than the extensive coverage on many topics demanded of the public sector. The scale of resources being channeled to NGOs is out of proportion to the scale, though not necessarily the quality, of their development impact. Unlike publicly funded agricultural research organizations with national mandates, NGOs are not always bound to take national interests into account in their efforts.

As investors explore the capabilities of NGOs and private firms to generate technology, they should not lose sight of the critical role of public organizations. Investments must be carefully balanced. But in attempting to find that balance, there is a risk that the pendulum will swing too far away from public-sector research, endangering the sustainability of the institutions into which so much has been invested. As one of the architects of the CGIAR system put it, "One cannot successfully run a research enterprise on a 'stop and go' basis. Continuity of effort is required not only to sustain previous gains (maintenance research) but also to make further advances."[13]

For their part, different actors in agricultural research, whether public or private, can improve coordination and cooperation by means of formal agreements and better mechanisms for information flow.

The question of balancing support between public and private research raises a more fundamental question about investor-research relations. As two management specialists have said, criticism of weak public-sector management in developing countries "should be placed in a context which recognizes that external agencies themselves can contribute to development failures, and their persistence."[14]

This highlights the influence of external investors on the sustainability of agricultural research organizations. On the one hand, donors and lenders have been instrumental in building a modern base for agricultural research in the developing world. They have provided research organizations with funds for buildings, equipment, and access to information. They have enabled tens of thousands of scientists and technicians to be trained. And they have provided technical assistance in the form of scientific and management expertise.

However, some of the advice given, both technical and management, has not been sound. Despite good intentions, donors and lenders have often planned their investment programs and imposed management conditions with insufficient attention to the institutional realities of the recipient country or to the availability of local expertise. For example, an investor-funded program of research designed by outside consultants may not fit with the stated aims and priorities of the research organization assigned to execute it. Or, once the external assistance ends, local resources may be insufficient to sustain the effort. Or the investment may have been too large for the organization to absorb with its current budget and pool of trained staff. As agricultural economist Carl Eicher has said, "[O]ne can make a convincing argument that there is overinvestment in some countries relative to their current stage of institutional maturity, absorptive capacity, scientific leadership, political support for research, and projected government revenues."[15]

One strategy aimed at better coordination of investments is "consolidated funding." This is the pooling of external and national resources for the implementation of a research plan developed jointly by national scientists and investors. There have been mixed results with this approach. One problem is that some donors, particularly bilateral agencies, find it impossible to join because of the accountability requirements imposed on them by their own governments. They are not able to pinpoint what the money was spent on or what the results have been. Despite such problems, consolidated funding mechanisms are under continuous discussion in efforts to make them feasible.

One final point about partnerships and sustainability needs to be made. While the dynamics of financial investment are important, research also requires long-term national political support to survive and prosper. In many developing countries, the key players in agricultural innovation — research, extension, and education — do not have a high profile in the eyes of the public or government leaders. Their crucial role in national development is not fully recognized or understood. Research and extension leaders and educators all need to do a better job of public relations. Otherwise, in difficult times there will be no defenders of these essential institutions. And over the long term they will be unable to attract the best and brightest young people to the cause of agricultural development.

Promoting a culture of cooperation

At the beginning of this essay, a question was posed about what the interna-

tional development community and research organizations can do to promote institutional performance.

Part of the answer is for foreign investors and national authorities to approach institution building differently. Among other things, this means accepting and promoting the idea that it is the national scientists and managers who should take the lead in planning and running research. For only then do they feel the sense of ownership of research that sustains good institutional performance. External investors should play a supporting role.

As for national research leaders, they need to understand their investors' interests, development philosophies, and procedures if there is to be genuine cooperation. The same applies to their interactions with other partners in research, whether public or private, international or local. What is required is a culture of cooperation in which all parties work toward common ends and share the workload according to the strengths each has to offer. In the increasingly complex world of agricultural research, this is a fundamental condition that research organizations must meet if they are to sustain a stream of benefits to producers and consumers.

Footnotes

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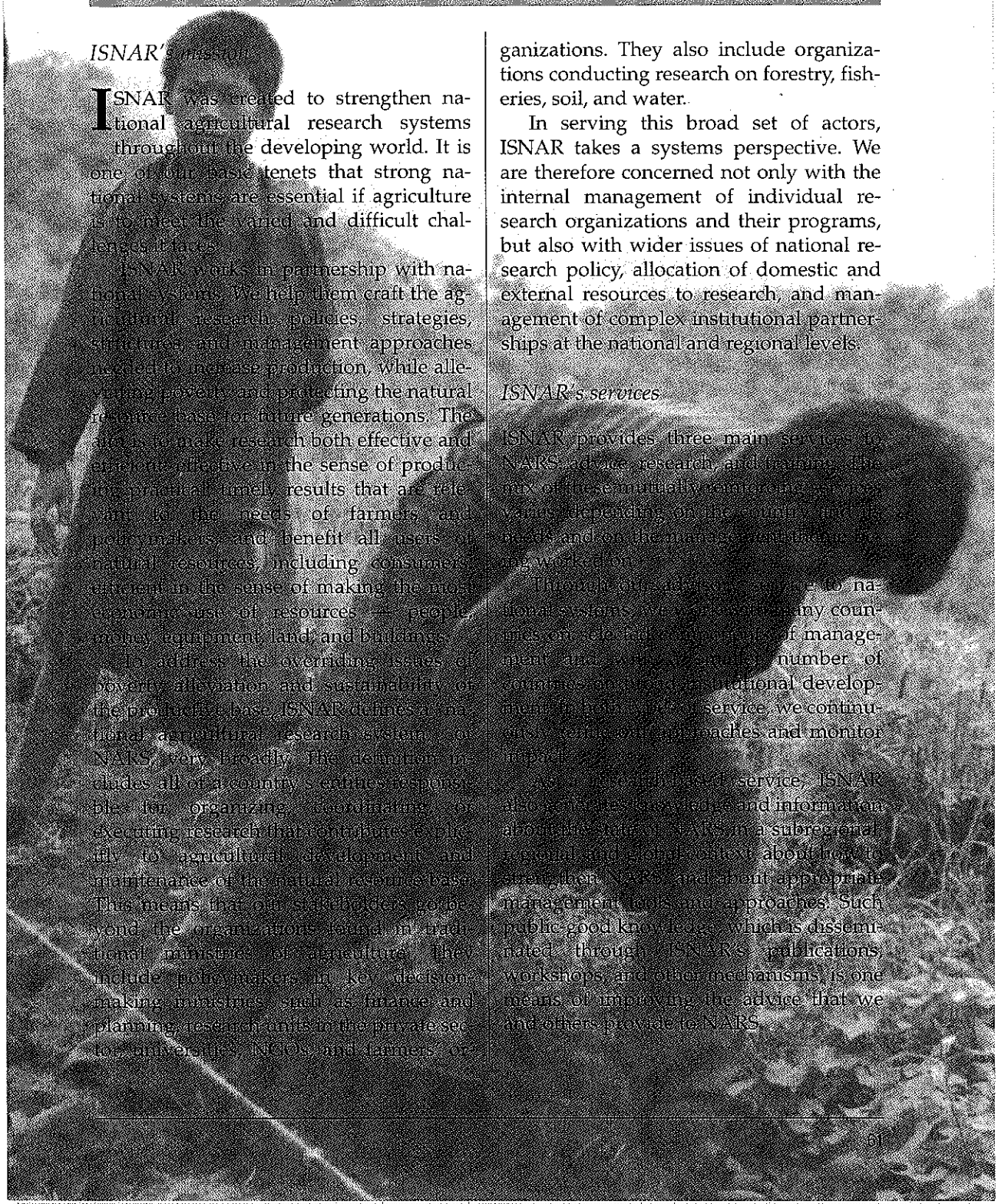
Activities and Programs

Introduction



ISNAR's mission

ISNAR was created to strengthen national agricultural research systems throughout the developing world. It is one of our basic tenets that strong national systems are essential if agriculture is to meet the varied and difficult challenges it faces.

ISNAR works in partnership with national systems. We help them craft the agricultural research policies, strategies, structures, and management approaches needed to increase production, while alleviating poverty and protecting the natural resource base for future generations. The aim is to make research both effective and efficient. Effective in the sense of producing practical, timely results that are relevant to the needs of farmers and policymakers and benefit all users of natural resources, including consumers. Efficient in the sense of making the most economic use of resources — people, money, equipment, land, and buildings.

To address the overriding issues of poverty alleviation and sustainability of the productive base, ISNAR defines a national agricultural research system, or NARS, very broadly. The definition includes all of a country's entities responsible for organizing, coordinating, or executing research that contributes explicitly to agricultural development and maintenance of the natural resource base. This means that our stakeholders go beyond the organizations found in traditional ministries of agriculture. They include policymakers in key decision-making ministries, such as finance and planning; research units in the private sector; universities; NGOs; and farmers' organizations. They also include organizations conducting research on forestry, fisheries, soil, and water.

In serving this broad set of actors, ISNAR takes a systems perspective. We are therefore concerned not only with the internal management of individual research organizations and their programs, but also with wider issues of national research policy, allocation of domestic and external resources to research, and management of complex institutional partnerships at the national and regional levels.

ISNAR's services

ISNAR provides three main services to NARS: advice, research, and training. The mix of these mutually reinforcing services varies depending on the country, and on the needs and on the management [illegible] doing work [illegible].

Through our advisory service to national systems, we help many countries to do [illegible] of management and [illegible] number of countries to [illegible] institutional development in [illegible] service, we continuously [illegible] approaches and monitor [illegible] ...

... research-based service, ISNAR also [illegible] tools and information about [illegible] NARS on a subregional, regional, and global context about how to strengthen NARS and about appropriate management tools and approaches. Such public good knowledge, which is disseminated through ISNAR's publications, workshops, and other mechanisms, is one means of improving the advice that we and others provide to NARS.

Tools and approaches developed by ISNAR are widely used by other agencies, consultants, and NARS themselves. Implementation is reinforced by ISNAR-led training of managers in individual national research organizations. Training of trainers at the regional level — for example, under our Latin American project on planning, monitoring, and evaluation and under the Agricultural Research Management Training Project with the SADC countries — helps to multiply the impact of our work.

Organizing for effective delivery

In 1994, ISNAR moved toward an internal organizational structure that reconciles its double mandate: to strengthen national agricultural research systems directly and to produce and disseminate knowledge and tools for this purpose.

ISNAR's activities are now organized into two client-oriented programs: (1) Policy and System Development and (2) Management. Each program is responsible for integrating advisory service, research, and training in support of its identified client group.

The Policy and System Development program responds to the system-level problems faced by ministers of agriculture, ministers of finance and planning, regional organizations, and donors. It aims to help them answer key questions regarding the overall nature and organization of agricultural research. How large a research system is sustainable? What scientific scope should it have? How can it be financed? How should it be structured? What should be its overall priorities? Who are its most appropriate partners and collaborators? What linkages need to be created? ISNAR research into these issues, often done in partnership with developing-country research managers and other experts, provides ideas and alternatives for policymakers. Advice and training help NARS leaders fulfill their role in research system development.

The Management program responds to the daily concerns of the agricultural research manager. Obviously, senior managers of research organizations interact with the policy environment and are reached in conjunction with ISNAR's policy program. However, research managers need tools and approaches to solve a host of recurring problems and questions: What resource allocations should be made among commodities and research themes falling within the mandate of this institute? What information do we need for decision making within the organization and how do we collect, organize, and analyze it? What are the best staff-management strategies to ensure effective research? What research strategies need to be developed and partnerships forged? How can we monitor and evaluate the outcomes of our research? How does one plan and manage change within an organization?

The activities of the two programs are supported by four specialized units: Publications Services, Computer Services, Library and Documentation Services, and the Training Unit. Not only do these units provide and enhance information as an input to ISNAR's programs, they also add value to information as an output and provide direct assistance to NARS in their areas of expertise.

The demands of ISNAR's clients are many. But ISNAR is a small organization and its resources are limited. Therefore, the two programs are attempting to focus on clear objectives in developing international public goods for their various partners and to be flexible in the way they deliver those goods through a mix of advice, collaborative research, and training.

Highlights from the Four Regions

In its role as a provider of international public goods, ISNAR attempts to maintain a regional balance in its activities according to guidelines set out in our medium-term plan. In terms of overall ISNAR staff time, the regional breakdown is as follows: sub-Saharan Africa, 42 percent; Asia, 24 percent; Latin America and the Caribbean, 23 percent; and West Asia and North Africa, 11 percent. In this section, we provide a snapshot of key ISNAR activities in the four major regions of the developing world. Further details are found in the reports of ISNAR's two programs beginning on page 70 and in the "ISNAR around the World" section beginning on page 93.

Sub-Saharan Africa

It was a strategic choice by ISNAR to allocate the largest share of its efforts to sub-Saharan Africa. The region has a recognized need for better management, can benefit from direct assistance from a relatively small organization like ISNAR, and welcomes the adaptation of knowledge gained from other parts of the world. ISNAR works in partnership with African NARS to diagnose research system weaknesses, to plan improvements, and to put in place management mechanisms and approaches needed to carry out the plans.

Moïse Houssou, director general of Benin's INRAB, Ange Aclinou, head of INRAB's Service des Études et des Programmes (the unit in charge of studies and programs), and Françoise Atigossou, head of the institute's administrative secretariat, discuss the set of tasks to be carried out before seeking cabinet approval of the national agricultural research policy statement.

Benin: a new policy on agricultural research

As in many developing countries, agriculture is the economic backbone of Benin. It accounts for 40 percent of this small West African country's gross domestic product and 80 percent of the government's export earnings. The livelihood of three out of every five people depends directly on agriculture.

The Benin government recognizes the importance of research in agricultural and rural development. In December the cabinet approved a new national policy that will guide agricultural research for the next decade. The policy calls for increased government financial support for agricultural research. Among other things, it also outlines a new structure for research that will add agroecological and regional dimensions to the current efforts. The new approach is intended to ensure that research is relevant to farmers' needs and that it leads to improved management of natural resources.

A national working group formulated the agricultural research policy with support from an ISNAR advisory team. It was a cross-sectoral group, composed of scientists, officials from various government ministries, and representatives of the private sector, the national university, and farmers' organizations.

Studies and analyses leading to the formulation of the policy were funded by the Government of Benin through a World Bank loan. UNDP and FAO also played a key role by getting the policy discussion started in 1993. Some of the earlier groundwork was laid by a FAO review of agricultural research in 1989 and a follow-up ISNAR mission in 1990.

Here are a few of the key provisions of the new policy:

The national agricultural research program will be organized along two axes: regional subprograms strongly oriented toward small farmers and natural resource management, and national "sectoral" subprograms encompassing more traditional commodity and thematic research. The three regional subprograms will receive 60 percent of the research budget, with the rest going to six sectoral subprograms: staple crops (e.g., maize and cassava), postharvest technology and processing, industrial crops (mainly cotton), export crop diversification, development policy analysis, and an agricultural information service.

The scientific content of programs is to be defined by regional and sectoral commissions, which will have strong representation from research users, including farmers. The National Committee on Agricultural Research, composed of delegations from the commissions, will be responsible for giving broad direction to the national research program, for monitoring and evaluating the programs, and for allocating resources.

The mandate of INRAB, the lead agricultural research institute in Benin, will be to ensure the execution of government research policy as well as conduct a large part of the actual research. It will be accountable to government for all funds spent on

the national agricultural research program by the various research bodies that make up the NARS.

Government financial support to agricultural research as a fraction of GDP will go up from 0.2 to 0.54 percent over 15 years. (Currently, Benin's contribution level is less than average for countries at a similar level of development.) Most of the government's annual contribution is currently spent on salaries. Only about 10 percent is reserved for research operations. This proportion will gradually increase to 40 percent.

The feasibility of a national agricultural research fund will be examined. According to the current proposal, 10 percent of the annual government contribution would be diverted into it. Other revenues, such as those from donations and taxes on agricultural imports and exports, would also be sought to build the fund. Withdrawals from the fund to finance research would not exceed the fund's net revenue from investment. Over the long term, as the fund builds and the NARS becomes more financially self-sufficient, the government will be able to reduce its contributions to agricultural research and yet maintain a sustainable research effort.

With the national policy now in place, Benin can proceed with planning the scientific content of its regional and sectoral programs. ISNAR will continue to assist the NARS in this important exercise.

In Benin, ISNAR worked with a team composed of senior officials from several government ministries as well as university and private-sector representatives to draft a new national agricultural research policy. The document received cabinet approval in December. This is just the first step in a master-planning exercise that will reform the NARS and set out its long- and short-term research programs. The box on page 64 provides more details. ISNAR also contributed resource persons to national master-planning exercises in Namibia and Mauritania.

In 1994, ISNAR had outposted staff in Kenya, Tanzania, and Uganda supporting the implementation of earlier planning activities. In Uganda, ISNAR continued a multiyear program of comprehensive institutional development with the National Agricultural Research Organization (NARO).

ISNAR also supported the emergence of regional coordination. During the year, we worked closely with ASARECA, whose geographical domain is Eastern and Central Africa, on the creation of its constitution and governance structures. (See box on page 66.) In Southern Africa, where regional research coordination has a longer history, ISNAR helped SACCAR and its partners take over functions we previously carried out ourselves. For example, management of the SADC-ISNAR-ESAMI project on agricultural research management training passed to ESAMI, the participating African management institute, with the departure from Arusha, Tanzania, of the ISNAR training advisor in mid-1994.

In West Africa, ISNAR gave technical assistance and logistical support to two subregional networks aimed at building research management capacity in 10 coun-

Consolidating regional research in Eastern and Central Africa: the creation of ASARECA

The Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) is the most recent example in Africa of the strong trend toward formal regional cooperation in agricultural research. ISNAR played an important advisory role in its creation during 1994.

ASARECA emerged from the desire of research directors in the region to improve cooperation. Two separate but related initiatives supported by major donors provided a platform from which the new association was launched. The first of these began in 1992, when the World Bank and SPAAR proposed setting up a "framework for action" for agricultural research in several countries of Eastern Africa and the Horn. The second initiative, in 1993, was a move to strengthen four USAID-funded research networks by consolidating their planning and management. The networks link international and national research centers allowing them to carry out collaborative projects on agroforestry, beans, root crops, potatoes, and sweet potatoes. USAID provided ISNAR with a US $80,000 grant to help put in place priority-setting and management mechanisms, to streamline coordination, and to shift network management from the international to the national programs.

In late 1993, NARS leaders, donors, and IARC representatives met in Kampala to participate in meetings related to the SPAAR and USAID programs. The meetings resulted in a convergence of the two initiatives and plans for the creation of a new regional association. In early 1994, ISNAR consulted with research directors in the region to get their views on the requirements of the new organization. It presented its findings in a report covering the full spectrum of issues to be addressed in creating a regional body — everything from the rationale for the effort, to research planning and evaluation requirements, to budgeting, finance, organizational structure, and governance. In April the network directors endorsed the report and a memorandum of understanding to create ASARECA was drafted with ISNAR's help. ISNAR was also asked to provide further assistance in setting regional priorities, planning human resources, establishing management information systems and communication channels to link the participating institutions, and working with national research leaders to manage the change.

Research directors from the participating countries signed the memorandum of agreement in September. ISNAR then worked with a small group of them to turn the memorandum into a legally binding document, complete with a constitution and bylaws, to allow ASARECA to formally begin operations.

The association's membership comprises research institutions in the following countries: Burundi, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Sudan, Tanzania, Uganda, and Zaire. (Rwanda and Somalia are expected to join later.) The executive secretariat is located in Uganda.

tries. The networks, launched by NARS leaders partly in response to waning government and donor support for research, provide a forum for joint development of management tools and models. Through them, ISNAR hopes to optimize its services to West Africa's NARS.

Burkina Faso, Niger, Mali, and Togo participate in the first network, which was founded in 1993. Four management themes are addressed: programming and budgeting, physical resource management, technology transfer, and information management. Cameroon, Côte d'Ivoire, Guinée, Nigeria, Ghana, and Sierra Leone are involved in the second network, which covers six management components: technology transfer, information management, funding and financial management, environment and natural resource management, research management training, and priority setting.

Two other regional-level activities merit mention. A senior ISNAR staff member served on the SPAAR task force charged with preparing a "framework for action" for agricultural research in West and Central Africa. And in December ISNAR signed a memorandum of understanding with CORAF, a regional association of agricultural research directors. The agreement aims to promote cooperation among the NARS of the region, as well as between the NARS and international and regional bodies. CORAF is an appropriate partner for ISNAR for several reasons. It directly represents NARS' interests, covers a large number of countries, cuts across several major agroecological zones (dry, humid, and subhumid), and acts as a bridge across linguistic barriers. As such it can help to multiply the impact of ISNAR's work.

Asia

ISNAR is moving to focus more of its resources on Asia in the coming years. In absolute terms, Asia has the largest number of poor people who are potential beneficiaries of improved agricultural research. ISNAR's strategy recognizes that many Asian research systems are large, have gone through their first round of planning, and have personnel trained and experienced in disciplines relevant to research management. In such countries, ISNAR works to bring local knowledge and skills to bear on management issues in a way that generates lessons, approaches, and management tools adaptable for use elsewhere.

ISNAR's intervention in Asia tends to focus on themes for which our own expertise fits well with the advanced skills found in the NARS. Work on information systems and strategies, biotechnology management, and development of models for priority setting have been important aspects of our work. In India, ISNAR played a lead role in drafting a strategy to set up a nationwide agricultural research information system. The strategy was accepted by ICAR, the main coordinating agency for agricultural research. The system will link some 240 sites in India via a mix of land-line and satellite technologies, allowing for the exchange of both scientific and management information among Indian researchers. ISNAR also received a request from the Philippines to undertake a similar assignment there.

ISNAR also works with small research systems in Asia. Our most intensive involvement in the region in 1994 was with the mountain kingdom of Bhutan. We completed the third phase of a major project to help the Ministry of Agriculture improve the management of its natural resource research, which is organized around key land-use patterns. Assistance

was given in the areas of planning, priority setting, resource allocation, monitoring and evaluation, project budgeting, and management information systems.

Latin America and the Caribbean

In the region of Latin America and the Caribbean, the country with which ISNAR has the most comprehensive partnership is Ecuador. This is a medium-sized country where planning institutional change and improvements in a holistic way has been an effective approach for INIAP, the national institute. ISNAR collaboration with INIAP in 1994 focused on human resource management, research planning, information management, and the integration of production-oriented research with research on natural resource management. In addition, we carried out a number of exploratory missions to several smaller countries in Central and South America with a view to diagnosing constraints and assisting with planning.

During the year, ISNAR moved on three fronts to promote regional cooperation. First, it strengthened its links with the Latin American agricultural organization, IICA, in support of the NARS of the region. Advisory, research, and training activities in 12 areas of policy and management were identified for mutual collaboration. This arrangement will help multiply the impact of ISNAR's and IICA's work and avoid duplication of effort.

Second, ISNAR has been very prominent in training research managers in planning, monitoring, and evaluation. This has been done through a large project funded by participating national, regional, and international agencies, with the largest contribution coming from IDB (see page 78.)

Third, ISNAR also worked with IICA, IDB, and several national research organizations to develop methods for setting research priorities using an agroecological framework that cuts across national boundaries. A global roundtable discussion on regional priority setting that was hosted by ISNAR in April included the participation of Latin American countries.

West Asia and North Africa

In this region, ISNAR has attempted to act as a catalyst for change by taking a three-stage approach in its support for national research systems. We begin by advising the NARS on how to set up data bases on researchers and their activities and we help train staff in their operation and use. The collection and organization of this critical management information paves the way for strategic planning at both the national and institute level. This, in turn, guides the formulation of five-year and annual research programs that identify specific projects and specific experiments or studies.

During the year we worked with the NARS of eight countries of West Asia and North Africa. Progress in Egypt, under a program supported by CEMARP, was particularly encouraging. Data base development and training advanced, a national research strategy was drafted, and an oasis research program to improve sustainable agriculture under desert conditions was formulated.

In Morocco, ISNAR joined forces with GTZ to strengthen research management and organization at INRA, the lead agency responsible for agricultural research. The shaded text on page 69 highlights this new, two-year project, which builds on earlier collaboration between INRA and ISNAR.

One final note about ISNAR's role in the region: in past years we advised and

Strengthening research management in Morocco

During the year, Morocco's Institut National de la Recherche Agronomique (INRA) began a project, with assistance from ISNAR and GTZ, to strengthen its organization and management. This two-year effort, which will cost about US $750,000, will help put INRA in a better position to benefit from a World Bank loan to improve its agricultural research. It will also complement current GTZ assistance to Morocco's commodity research and build on earlier ISNAR-INRA collaboration.

The management improvement work aims to better equip INRA to manage agricultural technology generation and transfer. A number of results are expected:

- clear mission statements formulated for all INRA's work units and well-defined links between the units;
- resource allocation that takes into account research priorities;
- a budgeting system adapted to the needs of agricultural research;
- measures to improve the qualifications and motivation of staff;
- measures to reinforce the role of end users in the planning, execution, and evaluation of research;
- formulation and implementation of a strategy to improve INRA's image.

The project's 1994 activities fall into four main areas:

First, a questionnaire was circulated to researchers and managers in INRA's various departments, programs, and regional centers. Their feedback — including perceptions and expectations of unit operations — will help define the current roles of units and the links between them, as well as identify organizational problems.

Second, INRA scientists and managers decided on an approach and criteria for setting priorities between programs, and data collection was initiated.

Third, an INRA-ISNAR working group on human resources fine-tuned a new performance evaluation system, which includes provisions for monetary rewards for good performance. It also initiated a communication and training program for senior staff to ensure smooth implementation of the first evaluation cycle in 1995. Work also began on a career planning and management system.

Last, in the area of finance, ISNAR advised and supported INRA on the design of a new commercial-type financial management system and the selection of accounting and budgeting software.

worked with the NARS of Algeria, Iraq, Sudan, and Yemen to develop methods to help them systematically review their own agricultural research efforts in a kind of self-diagnosis. The SARMAC project, as it was called, was a joint effort of

ISNAR and the Arab Organization for Agricultural Development (AOAD). In June, the lessons learned from the national reviews and subsequent improvements in management were shared at a meeting in Beirut attended by research leaders from 12 Arab countries. The experiences of the project were then published in July in ISNAR's Country Report series. Given the small size of ISNAR compared with its global mandate, such meetings and published materials are an important way to multiply the impact of our country work.

Program 1: Policy and System Development

The Policy and System Development program was conceived as a response to system-level concerns of national policymakers. It deals with research policy, structures, and the linkages that a NARS must maintain with both its external and internal environments. These include the physical, economic, commercial, and policy environments.

Before NARS have had a chance to adapt fully to the troubled era of structural adjustment and to exploit opportunities created by liberalization, other concerns are taking on new importance. In particular, protection of the natural environment and alleviation of poverty are being pushed to the top of their agenda by both internal and external forces. Partly as a result of this expansion of responsibility, NARS are now being defined more broadly. This is happening at a time when donor resources are declining. New models of organization are therefore needed — and being recommended — to increase efficiency and effectiveness.

The Policy and System Development program recognizes that understanding the past offers only limited lessons for the future. It is for this reason that it attempts to gain experience with new approaches to research system development while documenting and drawing lessons from past organizational models and policies.

In 1994, the program identified three areas of concern that reflect ISNAR's broad systems approach:

- research policy at the global and national levels;
- system structure and organization;
- system linkages.

In each of these areas, the program has included several themes covered by past ISNAR work. For some of these, the investment in field research and case studies was brought to a close and efforts were shifted to the synthesis of results, publication of outputs, and development of related training materials. For other themes, research will continue into 1995.

Research policy: global and national

Through its **Indicator Series**, ISNAR has tried to be a reliable source of comparable information on the state of NARS throughout the world. Beginning in 1985, ISNAR collected data going back to 1960 on human and financial resources invested in research. Comparable data for all parts of the developing world were processed up to 1985. With support from Italy, ISNAR has now collected data for sub-Saharan Africa up to 1992. Part of this updating work is the preparation of statistical briefs on 19 African countries. Briefs on nine of these countries were released

in 1994 and drafts were prepared on five others. Partial funding was provided by SPAAR.

A preliminary analysis of the data covering three decades of African development highlights important trends in the nature of funding, differences in expenditures on salaries and research operating costs according to the nature of the research organization, and the high variability within and among countries. A detailed analysis will be carried out in 1995 with support from USAID, the Danish government, and SPAAR.

During the year, ISNAR completed a collection of conceptual papers, case studies, and lessons from NARS experience with **structural adjustment.** The final two country case studies examined links between agricultural research and structural adjustment in Burkina Faso and in East Africa. This project was financed by ISNAR's core budget and special funds provided by the Italian government, CIDA, and the World Bank's Economic Development Institute (EDI). The resulting book will be published in early 1995 by ISNAR and EDI. The book highlights lessons for NARS coming from successful and less successful cases of adjustment. While in the long run, structural adjustment is generally favorable to agriculture, the process itself may be very difficult for agricultural support services, which may require special measures. However, it is not always to the long-term advantage of agricultural research to postpone or avoid the adjustment process.

The first phase of research into the complementary roles of the **public and private sectors** in agricultural research ended in 1994 with the completion of case studies on Colombia, Ecuador, and Jamaica. This work, along with related papers presented at international meetings, highlights the conditions under which the private sector has emerged as an important actor in research and the areas in which it is active. It also suggests ways to maximize the complementarity between the public and private sectors. A further study in Chile will serve to validate the approach so that it becomes part of ISNAR's tool kit for system review and for use in special projects such as the Intermediary Biotechnology Service.

ISNAR completed a long-awaited book on agricultural **research evaluation and priority setting.** It will be published by Cornell University Press in early 1995 under the title *Science under Scarcity.* The book lays out the conceptual issues underlying formal approaches to priority setting and demonstrates the need to choose the approach most suited to answering the questions being asked. It also gives guidance on how to avoid the most frequent errors in applying formal approaches. The book will be a standard reference for academics and for advisors in planning and research ministries who have a sound knowledge of economics. Training materials, being developed based on chapters of the book, will help bring the techniques into the mainstream work of ISNAR and its partners. These will begin to appear in 1995.

Several strands of ISNAR's work on research evaluation and priority setting are coming together. During the year, ISNAR held an international consultation on regional priority setting that highlighted the difficulties in moving from a national to a transnational level. The problems relate to both the institutions involved and the priority-setting instruments used.

In 1994, ISNAR continued collaborative work on research evaluation in East Africa in several related projects. The first, supported by the Rockefeller Foundation, is with Kenya's lead agricultural research organization, KARI. The project aims to institutionalize a priority-setting

process within KARI and to develop the data and models from which the benefits of research that are likely to accrue to target groups can be calculated with the help of geographic information systems (GIS). The second project, in cooperation with KARI and Humboldt University of Berlin and with support from the German government, looks at priority setting in livestock research, with special emphasis on factors determining adoption of research results. Finally, in association with ICRAF, ISNAR worked on the prioritization of research associated with multipurpose trees.

The **Intermediary Biotechnology Service** (IBS) is a special project with its own steering committee and special donors. It is hosted by ISNAR and linked to the work of its Policy and System Development program. As such, IBS is part of ISNAR's response to the demands of national research systems for information and assistance in understanding complex policy, management, and planning issues surrounding agricultural biotechnology.

Early in the year, ISNAR published and disseminated an IBS report that outlines a four-stage process and framework for making decisions about biotechnology-based agricultural research. The four stages are setting biotechnology policies and priorities, formulating research programs, implementing and monitoring the work, and transferring technologies to end users. The framework is aimed at national policymakers, administrative managers, and directors of research. It guides them in evaluating the potential costs and benefits of biotechnology investments in light of key factors such as national devel-

Singapore's Minister of State for Trade and Industry, Goh Chee Wee, delivers the opening speech of the regional policy seminar on agricultural biotechnology that IBS organized for Southeast Asian countries in September 1994.

Turning priorities into feasible programs: biotechnology for Southeast Asia

A four-day regional seminar in Singapore last September, organized by the Intermediary Biotechnology Service (IBS) based at ISNAR, addressed issues of biotechnology policy, program, and management. Six Southeast Asian countries participated: Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam. All have agricultural biotechnology programs in place, but at different stages of development. The country delegations included policymakers (from finance, agriculture, and planning), public- and private-sector research managers, and representatives of farmers and other end users. There were 43 participants, including international resource persons.

The seminar aimed to strengthen national capacity to determine biotechnology priorities, to set policies, and to plan research programs and their financing. The discussions focused on biotechnology for food crop production. Participants were introduced to an IBS-developed decision-making framework for biotechnology research. Country teams reviewed key policy and structural issues affecting the practice of biotechnology in their countries and prepared action plans for improving planning and management of biotechnology research. Here are a few of the key recommendations from the seminar:

- **Increase regional and international cooperation in biotechnology.**
- **Explore innovative modes of funding, especially joint funding through a consortium of private-sector agencies.**
- **Emphasize biotechnology training, including policy and management training at the senior levels and technical training for mid-career scientists and technicians.**
- **Strengthen intellectual property rights or plant breeders' rights for research, but also respect farmers' rights to enhance the spread of benefits.**
- **Form a "consortium of users" to negotiate the transfer of proprietary technology to developing countries.**

Funding for the Asian seminar, the first in a series that will cover several regions, was provided by Swiss Development Cooperation, the Government of the Netherlands, and the Singapore local organizing committee. A report of the meeting will be published in early 1995.

opment goals, efficiency, equity, biosafety, and concern for the environment.

In September, IBS organized a major regional workshop in Singapore for research policymakers and public- and private-sector research managers from six Asian countries. Among other things, the meeting provided an occasion to introduce the decision-making framework to participants. The box above describes the workshop. In 1995, IBS will proceed with similar workshops in Latin America and sub-Saharan Africa.

System structure and organization

It goes without saying that questions about the structure and organization of research derive from the choices made concerning the size, scope, and priorities of the research system. Much of ISNAR's work on structure and organization takes place in the context of system reviews and master planning.

As already discussed, several trends in the external donor and trading environments have important implications for the way research is structured at the national level. Reductions in donor support, changes in scientific priorities, and subregional economic integration have major consequences for the way NARS are structured and how they relate to research elsewhere.

In its strategy and work for the 1990s, ISNAR is giving special attention to the organizational and management implications of the growing emphasis that developing countries are putting on **natural resource management** (NRM) research. This is a subject that cuts across ISNAR's two programs in the sense that the impact of NRM on national research will be felt not only at the national system level (for example, in policies, linkages, and the structure of research), but also at the institute level (for example, in research planning, information management, and human resource development).

The question of how a country organizes its research to deal with natural resource management topics has been broached by ISNAR in its work with countries such as Bhutan, Bangladesh, and Benin. Whether research is organized around agroecological zones, political-administrative boundaries, or production factors is an organizational choice that can be decided only in the light of specific circumstances and goals. ISNAR's work with such countries has been useful in assessing the problems that NARS face as they integrate natural resource management research into their agendas.

What is also of importance to NARS in the context of the growing emphasis on natural resource management is how they interact with regional organizations and participate in so-called ecoregional initiatives and other multicountry, coordinated efforts promoted by international centers, donors, and networks. This was one of numerous policy, organizational, and management issues discussed at an international workshop in December on agricultural growth and sustainable use of natural resources. The meeting was a joint effort by ISNAR and Germany's DSE. (See box page 75.) In 1995, ISNAR will continue to assist NARS and their partners in this important area of change.

Several years ago, ISNAR began to look at the advantages and disadvantages of different **organizational models** for agricultural research. Whether to centralize or decentralize research operations, whether to create autonomous institutes or ministerial departments — such structural choices depend on the goals of research and the available resources. The same applies to choices about the role to be accorded to new actors on the research scene. In 1994, ISNAR summarized in a briefing paper some of the lessons from its many research system reviews and studies of organizational structure.

A multiyear project to study the priorities and organizational strategies of **small countries** came near to conclusion in 1994. A number of questions were raised: Should a small country concentrate its scientific human resources in one institute or coordinate the diversity that exists in multiple entities? Should small countries concentrate on a few principal commodities or find new ways to do research on a variety of commodities? Following a common conceptual framework, collaborating sci-

Promoting dialogue on natural resource management

The burden of finding new technologies and practices to increase agricultural production in a sustainable way falls mostly on the shoulders of national researchers, particularly those in developing countries. As NARS continue to integrate natural resource management (NRM) and sustainability perspectives into their scientific programs, they are confronted with policy, organization, and management issues, some of them very complex and requiring major institutional adjustments. Donor and technical cooperation agencies, as well as regional and international organizations, must also deal with some of these problems, both in their internal operations and in the assistance they provide.

To address these issues, a major international workshop was organized by ISNAR and the German Foundation for International Development (DSE), December 7–9 in The Hague. The nearly 50 participants included national research managers from developing countries, international resource persons, and representatives of donor agencies, international centers, and regional organizations. The event was the third international meeting on which DSE and ISNAR have collaborated as a way of advancing the international dialogue on the future of agricultural research.

The workshop enabled participants to consider various strategies for dealing with NRM — strategies related to research financing, organization, planning and priority setting, monitoring and evaluation, the use of natural resource information, human resource development, and cooperation among organizations and countries. It also allowed for national, regional, and international organizations to share their experiences with managing NRM research.

Here are a few of the recommendations from the workshop:

- Research organizations should not set up separate units responsible for conducting NRM research. Integration of NRM research within existing structures and activities is key.
- Donors should ensure that support for NRM-related work is compatible with NARS priorities and complements other initiatives, including those on a regional and international scale.
- ISNAR should continue to work with NARS to formulate guidelines for managing the institutional changes required by the emphasis on NRM, and assessing the costs and benefits of such changes.
- ISNAR should identify human resource needs for conducting NRM research, help NARS produce comprehensive human resource development plans, and assist with management training.
- Regional organizations should play a key role in NRM training, building consensus among countries, and facilitating supranational research activities.

A summary report of the meeting is scheduled for publication early in 1995 and will be available from ISNAR.

entists from a number of small NARS prepared case studies that highlighted choices of organizational structure and research strategy that had been made in the light of both their smallness and their particular circumstances. A synthesis of these experiences and certain provocative challenges to the common wisdom about strengthening small countries will be published in 1995.

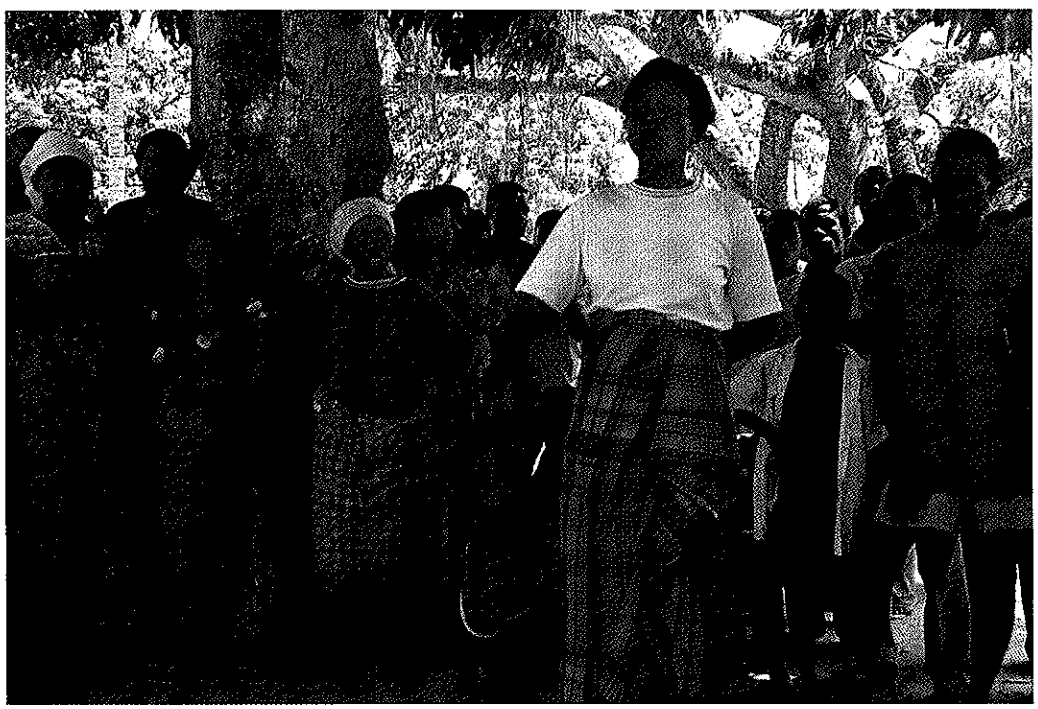
System linkages

Having already looked at the policy and structural elements of a research system, we complete the system view by examining the way research links to its clients and stakeholders.

In previous years, ISNAR reported on the results of its studies of on-farm client-oriented research and of research's links with technology-transfer agents. In 1994, progress was made on improving understanding of two additional sets of linkages that research maintains: those with farmers' organizations and those with universities.

ISNAR began work on a joint project with the UK-based Overseas Development Institute (ODI) entitled "Research and Farmers' Organizations: Prospects for Partnership." The study is funded by the UK's Overseas Development Administration and by ISNAR's core budget. A conceptual framework for conducting case studies of different types of **farmers' organizations** in developing countries was formulated. The studies aim to improve our understanding of these organizations' current and potential roles as advocates for their members, as a means for helping farmers gain access to services and inputs,

Improved linkages between research and farmers' organizations can result in more appropriate production technologies. Here a member of a farmers' organization in Darso, Ghana, talks with researchers about her production problems.



and as partners with public-sector research. A practitioners' workshop in June identified the critical issues to be addressed in the case studies, and several months later ISNAR issued a briefing paper on this topic. Case studies in Zimbabwe, Mali, and Bolivia are currently in progress.

Research for a parallel set of three country studies on farmers' organizations was completed. The research — covering Burkina Faso, Ghana, and Kenya — is supported by the Government of the Netherlands and is expected to be published in 1995. These case studies differ from those in the ODI-ISNAR project in that they focus more heavily on farmers' organizations' links with agricultural research institutes rather than on their roles as advocates for farmers.

Also in 1994, and again with the support of the Dutch government, ISNAR extended its work on linkages between research and technology transfer to an action phase. This effort aims to improve the capacity of NARS managers and leaders of farmers' organizations to strengthen links between research, technology transfer, and farmers. Case studies by local teams — in Mali, Zimbabwe, Senegal, and Tanzania — are planned or under way. The output will be improved linkages, scientists trained in implementing and monitoring linkages, and a validated training approach for introducing the issue to other countries. The International Federation of Agricultural Producers (IFAP) and ISNAR have signed an agreement providing for collaboration in two countries and the development of training materials aimed at strengthening farmers' organizations.

A two-year project aimed at strengthening the **role of universities** in NARS in sub-Saharan Africa made good headway during the year. Work was completed on a conceptual framework for examining the subject and in April ISNAR organized a workshop in Cotonou, Benin, to launch two country studies. The project is a joint effort by ISNAR, the University of Hohenheim in Germany, and research teams from the two countries involved — Benin and Nigeria. Data collection and analysis started during the second half of the year. Once completed in 1995, the country reports and associated action plans will be discussed at the national level and a synthesis report documenting lessons will then be prepared. A second phase to extend the project to other countries has been planned.

Program 2: Management

While Program 1 works at the national research system level, that is with NARS, Program 2 — the Management program — works at the level of the individual components of NARS, namely national agricultural research organizations, or NAROs.

The goal of ISNAR's Management program is to bring about sustained improvements in the performance of NAROs in developing countries, primarily those in the public sector. Under the old ISNAR structure, this work was divided between two programs. The new structure unifies efforts under one program, allowing for better coordination of ISNAR's services.

Three themes give direction to the program's work:

- management of research programs;
- management of resources for research;
- organizational change.

The first two themes relate to the performance of agricultural research organizations. ISNAR designs and tests management techniques and tools ultimately aimed at helping NAROs do a better job of producing research outputs — new varieties, improved farming practices, natural resource management methods, knowledge, and information. In effect, we aim to make research organizations more effective and efficient. These qualities in turn help to build long-lasting support for the organization among its constituents, thereby promoting institutional sustainability.

Under the third theme — organizational change — ISNAR attempts to ensure that its management "technologies" are accepted and adopted by the client organization and have the intended effect. Work under this theme, then, has to do with technology transfer from ISNAR to NAROs — assessing the impact of our outreach efforts and finding new ways to disseminate knowledge and institutionalize management innovations.

Managing research programs

Two prime measures of institutional sustainability are the extent to which financial resources continue to flow to an organization and the capacity of an organization to retain its most important assets, especially people. Maintaining funding and holding onto assets requires a strong constituency of support. In recent years there appears to have been a shift in the relative power of various constituencies. Political pluralism favors more popular support than in the past. In the future, the views of farmers and their organizations will have greater influence on how resources are allocated to agricultural research. This emphasizes the necessity for well-targeted research activities with a clear concern for producing a steady stream of tangible benefits for farmers. This is why the Management program's first theme, management of research programs, stresses effectiveness.

The effectiveness of a NARO relates to the quality of its research, the relevance of the resulting technologies, and the adoption and use of the technologies in farmers' fields. To be effective, a NARO must be strongly committed to serving the farmer community. In fact, impact at the farm level is an important measure of a research organization's effectiveness. The level of commitment is reflected in the presence or absence of certain attributes and mechanisms within the NARO:

- a mission statement that clearly identifies target groups;
- planning mechanisms that include farmer participation where necessary and that ensure appropriate coverage of geographical areas, agroecological zones, and scientific themes;
- careful design of research projects and experiments to guarantee the scientific quality of the results;
- a monitoring system that follows the research to its successful completion;
- evaluation of research to determine whether it has indeed produced the technology or information required by the target group.

The main achievements under this theme in 1994 were the conclusion of a major **planning, monitoring, and evaluation** (PM&E) project in Latin America and the Caribbean, and the continued **implementation of INFORM** and its evaluation.

An important part of the PM&E project was the preparation of training materials based on experiences in Latin America. Modules for trainers and manuals for trainees were produced originally in Spanish, in cooperation with CIAT in Colombia, and translated into English. In

addition, a book summarizing the status of PM&E in the region and priorities for improvement was published in cooperation with PROCADI, a Colombian NGO.

As one of the project's final training events, a workshop in English was held in Trinidad & Tobago for 30 research managers from 12 Caribbean countries. Later, the entire PM&E project was reviewed in a workshop that brought together some 70 participants from both Latin America and the Caribbean. This end-of-project meeting was held in Costa Rica in cooperation with IICA and CATIE. Among those attending were two consultants, an economist and a specialist in adult education, who had been contracted to evaluate the overall project. They interviewed many project participants and reviewed project documents and impact, submitting a Spanish-language report with an English summary.

The evaluation team concluded that the project addressed a high priority — improving management — for the region's agricultural research organizations. The team also said that the participatory approach fostered a sense of regional ownership of the project and that project outputs (publications, training materials, and a group of experienced trainers) had much potential for improving planning, monitoring, and evaluation in the region.

Work also began on the adaptation of the PM&E training materials for the African context. In November, ISNAR conducted a training workshop in Kenya for senior managers of KARI. This was the first step toward institutionalizing a monitoring and evaluation system across KARI institutes.

One final highlight of the program's PM&E work in 1994 was the translation into Spanish of the ISNAR sourcebook *Monitoring and Evaluating Agricultural Research*, originally published in English in cooperation with CABI.

INFORM, designed in the Asian context by ISNAR as a program planning and budgeting tool, was extended during the year to several African countries — Ghana, Kenya, Senegal, and Uganda.

In Ghana, a refresher course was provided to 16 scientists from all research institutes as a follow-up to earlier training.

In Kenya, implementation of INFORM, supported by European Union funding, began at KARI. It will eventually be operational in all of KARI's 31 research centers. In a first two-week workshop, INFORM practitioners from eight centers and headquarters were trained. These staff are to participate in the training of other practitioners as implementation proceeds in the remaining centers.

INFORM training modules for research managers and INFORM practitioners were prepared in French in collaboration with ISRA (Senegal) with World Bank funding. Six ISRA research managers were trained in the use of INFORM, while 11 practitioners received training in the operation and maintenance of INFORM. Spanish translations of training modules were also produced in cooperation with IBTA (Bolivia).

Progress was also made in institutionalizing INFORM in Uganda. All six centers of NARO are now provided with useful research planning and monitoring information.

The internal review of INFORM done in 1993 was followed up in 1994 with an external evaluation that recommended further development of the management information system to make it more user friendly and to extend its capabilities for monitoring and evaluation (see box page 81).

Managing organizational resources

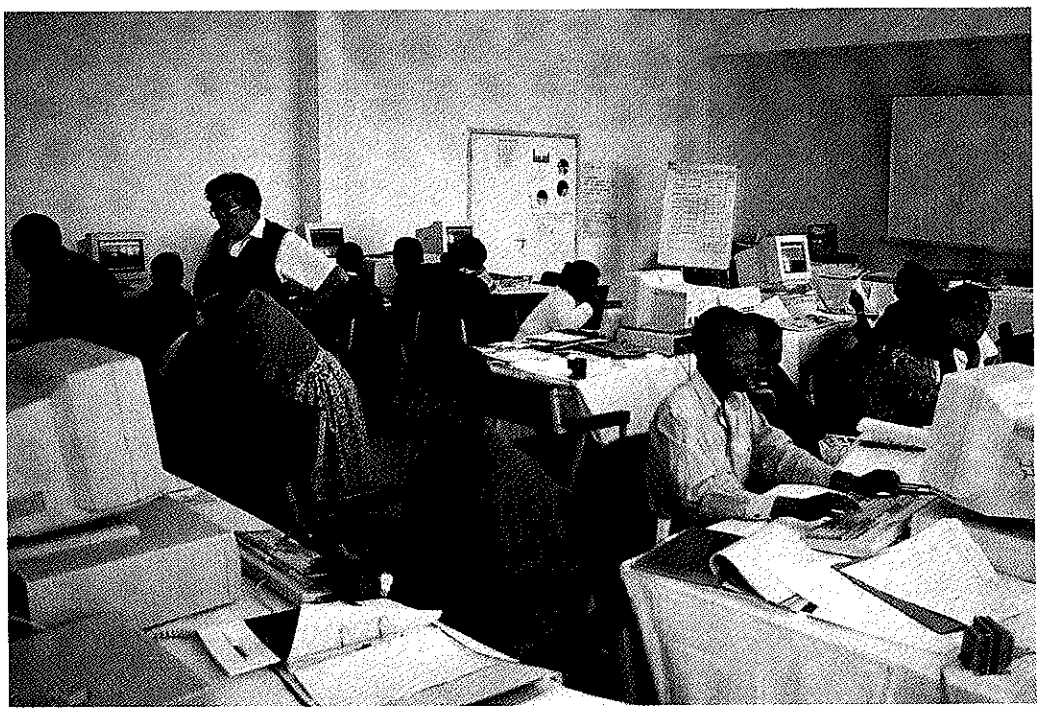
While farmers push for research results they can use in their fields, national and

donor governments are demanding much greater accountability for the funds allocated to research. Competition for these resources is becoming much greater and research organizations must show they are making the best use of them. Greater institutional sustainability will be achieved through better management of the external environment — securing scarce resources, detecting new opportunities, and avoiding threats. It will also be achieved by good management of the organization — protecting physical assets, providing attractive conditions of service for trained staff, and building financial reserves. Most of these issues form the core of the second program theme, managing organizational resources, which is concerned mainly with efficiency.

Organizational efficiency is measured by input-output ratios for research activities. Apart from broad measures provided by policy work conducted by ISNAR in past years, there is little information on the costs of research on crop and animal production, soil and water management, forestry, fisheries, and other areas. Similarly, data on the relative costs of on-farm versus on-station research and on economies of scale regarding on-station research are scant. Such information would be useful to ISNAR and NARO staff in national planning exercises and to allow the comparison of efficiency of NAROs.

Reliable measures of efficiency will be possible only with the introduction of accounting procedures that can cost re-

The external review team recognized INFORM as one of ISNAR's most important management tools for helping NARS do cost-effective research. Here the ISNAR team guides participants during a hands-on training workshop in Kenya.



Taking stock of INFORM

INFORM (Information for Agricultural Research Managers) is a system for collecting, organizing, and analyzing information about past, present, and future research activities, including the human, financial, and physical resources allocated to them. As such it serves as a tool for planning, monitoring, and evaluating research. In November, ISNAR invited a team of four consultants, two of them from developing countries, to evaluate INFORM and make recommendations for improvements and further development.

ISNAR began designing INFORM in the late 1980s. Several Asian NARS, notably that of Sri Lanka, collaborated with ISNAR in testing and fine-tuning the management information system. Today, INFORM has been introduced in 16 countries in the developing world. Some of these are making good use of the system for program planning and monitoring. Others have yet to integrate it into such core management processes.

The original designers of INFORM conceived the system as a computer-based tool for managing research programs. They recognized that many NARS and their component institutes did not yet have mechanisms in place for systematically collecting and organizing detailed information on personnel and finances — key data for managing research activities. They therefore included in the architecture of INFORM a large number of data fields to cover these two resource categories.

The consultants said that INFORM concentrates too heavily on personnel and finances and this makes the system overly complex. They recommended that ISNAR develop a separate but associated "personnel" system compatible with INFORM so that data could be transferred between the systems. They also recommended the creation of separate information systems for data on financial and physical resources, also linked to INFORM.

Among other key recommendations were the following:

- More information on the quality of research should be available through INFORM, including appraisals of planned research projects (what they are likely to achieve) and summaries of the results of completed and ongoing research.
- The system should be adjusted to capture direct costs, monetary values rather than only scientists' time, to give more accurate results in project budgeting. As countries decentralize accounting responsibilities from the treasury or ministry of finance to individual institutes, this will become increasingly feasible.
- Intensive INFORM training should be targeted to middle management, such as program leaders and station directors, because these are the primary users of INFORM. As measures are taken to make the system more user friendly, its operation will become less time-consuming.
- ISNAR should concentrate on fully implementing INFORM in a small number of NARS. Once it is fully integrated into their regular cycles of program planning,

monitoring, and evaluation, practitioners from such "sites of excellence" can then be trained by ISNAR to train managers in other countries.

- **It is not possible to motivate NARS personnel to use INFORM solely by demonstrating its value to them. There must be pressure from senior management, that is, demand for the information that INFORM can generate. ISNAR should therefore ensure there is high-level support for introducing a management information system within the NARS before moving ahead with intensive training.**

The external review team recognized INFORM as one of ISNAR's most important management tools for helping NARS do cost-effective research. Their evaluation and ISNAR's own analysis of the status of INFORM provide a solid base for further development and fine-tuning in the years to come.

search at the project level rather than program or institute level — procedures few NAROs have at the moment. As institutes merge and various scientific disciplines are integrated, it becomes harder to distinguish the costs of, say, crop research from those of livestock or natural resource management research. Without improved accounting systems, controlling research costs is very difficult. ISNAR has no comparative advantage in setting up accounting systems but can provide useful advice to NARO managers in selecting such systems.

There are a number of areas of research management in which cost control measures can be introduced or improved for greater efficiency:

- human resource management;
- mechanisms for budgeting and budget control;
- inventory control;
- use of labor and equipment on research stations;
- maintenance of physical resources, such as equipment and buildings.

Cost recovery by selling research services and products is another way to enhance efficiency. And borrowing scientific knowledge from other organizations or countries can help avoid costly duplication of research.

Activities in **financial management** were stepped up in 1994. In the NARS of Benin, financial management methods were assessed and budgeting procedures were reviewed. An assessment of station management conditions included recommendations on inventory control and on the maintenance of equipment and facilities. In Morocco, ISNAR assisted INRA in the selection of accounting software. A first meeting of several NARO financial managers was also held at ISNAR to explore avenues of further cooperation in this important area.

A workshop on strategic planning for **human resource development** involving 25 middle managers from Southern Africa was held in Swaziland in collaboration with ESAMI. Work on the assessment of researcher performance resumed in Morocco. Finally, in collaboration with Program 1, the Management program started investigations into how the increasing emphasis on natural resource management will affect the planning and management of human resources in NAROs.

Organizational change

ISNAR's work on research program management and resource management is based on the assumption that organizational performance will improve if three conditions are met. The first is that NAROs have the right management techniques and tools to manage resources and scientific programs. The second is that ISNAR is able to provide sound advice on the installation and use of these "management technologies." The third is that ISNAR helps train the people involved.

But, like a NARO, ISNAR is accountable to its investors and clients and, therefore, must be able to measure the impact of its work. To satisfy its donors and to hone its services, it needs to know how the management techniques and tools it has developed or borrowed have improved the performance of its NARO clients. For this, a set of organizational performance yardsticks or indicators is needed — measures of the appropriateness of management technologies and of the success or failure of ISNAR's transfer effort. Such indicators, of course, are just as important to NARO managers as to ISNAR. NARO managers need feedback to see how the process of institutional change that they are leading is unfolding and to demonstrate organizational performance to investors.

In 1994 a conceptual paper outlining a scoring model for measuring research outputs and **assessing organizational performance** was revised. At a workshop in December at headquarters, NARO managers from nine countries examined the model and agreed to bring it to their organizations for testing.

ISNAR also investigates avenues of transferring improved management techniques to NARO leaders beyond the more traditional avenues of advice and training. One such method is **benchmarking**, documenting particularly successful management practices in individual organizations and sharing the experience with other NAROs. This South-South transfer of management expertise requires identification of the successful management practices, a description of the key steps and resources to achieve these "benchmarks," and dissemination of the information to NARO managers.

The first benchmark study, an examination of methods used by INTA in Argentina for selecting research managers, was initiated. ISNAR hopes such benchmarks will provide NARO managers with credible models for change drawn from similar environments.

More generally, ISNAR aims to understand better the process of change in research organizations. Only with such understanding can we provide NAROs with methods and guidelines for institutionalizing management innovations. ISNAR's project on **management of change** developed a conceptual model to guide work in this area. The model is based on ISNAR's standard approach to strengthening NAROs, namely diagnosis of constraints followed by planning and implementation of change. It incorporates nine critical steps that can assure successful change in NAROs. The model was presented to Latin American NARO managers and to an international workshop of management specialists. It now needs to be field-tested.

Finally, working jointly with the ISNAR Training Unit, the program began an assessment of the training needs of senior managers of the National Agricultural Research Organization of Uganda. These men and women are the principal agents of change in their organizations. With proper guidance, they can significantly improve institutional performance.

Training, Information, and Administration

Training Unit

Training assistance to NARS is integrated with advisory work and research carried out by ISNAR's two programs. The Training Unit has a double mandate. First, it assists the ISNAR program professionals with the preparation of pedagogical materials to be used by them in the field. Second, it works directly with NARS to help strengthen their capacity to design and conduct management-training programs. This is an important task for ISNAR because it is generally acknowledged that management deficiencies are a root cause of the weak performance of many agricultural research organizations in developing countries.

In collaborating directly with a national research organization, ISNAR's Training Unit encourages the creation of a national training unit if one does not already exist. It also assists with the development of management-training skills through a train-the-trainer approach. In an effort to help sustain a NARS capacity to develop its human resources over the long term, ISNAR also helps to put in place a regular cycle of training activities. The cycle has six stages: assessing training needs; developing a training plan and curriculum; drafting basic training modules and materials; training trainers; monitoring the implementation of training; and evaluating the results.

During the year, the ISNAR Training Unit's work focused on Africa — in Kenya with KARI, in Uganda with NARO, and with the SADC countries in collaboration with ESAMI, a management institute serving Eastern and Southern Africa. The box on page 87 highlights collaboration with Uganda's NARO in assessing training needs. This work was just one component of an overall multiyear program of comprehensive institutional development being carried out at NARO with direct ISNAR support.

In Kenya, the five-year KARI-ISNAR Management and Training Linkage Project staged five workshops on the following subjects: managing linkages between research, extension, and farmers; monitoring and evaluating research; farming systems research; the INFORM management information system; and scientific writing and presentation. The overall project is supported by the European Union. ISNAR provided specialist resource persons to lead these training events. For several workshops, the Training Unit provided direct on-the-scene support or assisted with the preparation of training modules.

The linkages workshop, held in Mombassa in December, was attended by 30 soil and water management researchers, extension officers, and farmers. The event provided an occasion to test a draft training module prepared by ISNAR. Its content was grounded in results of earlier ISNAR studies on links between research and technology transfer. Feedback from the workshop participants will help ISNAR to revise the module during 1995.

The monitoring and evaluation workshop in November brought together 31 senior managers from various KARI centers. A key objective was to set the stage for institutionalizing a research monitoring and evaluation system throughout KARI.

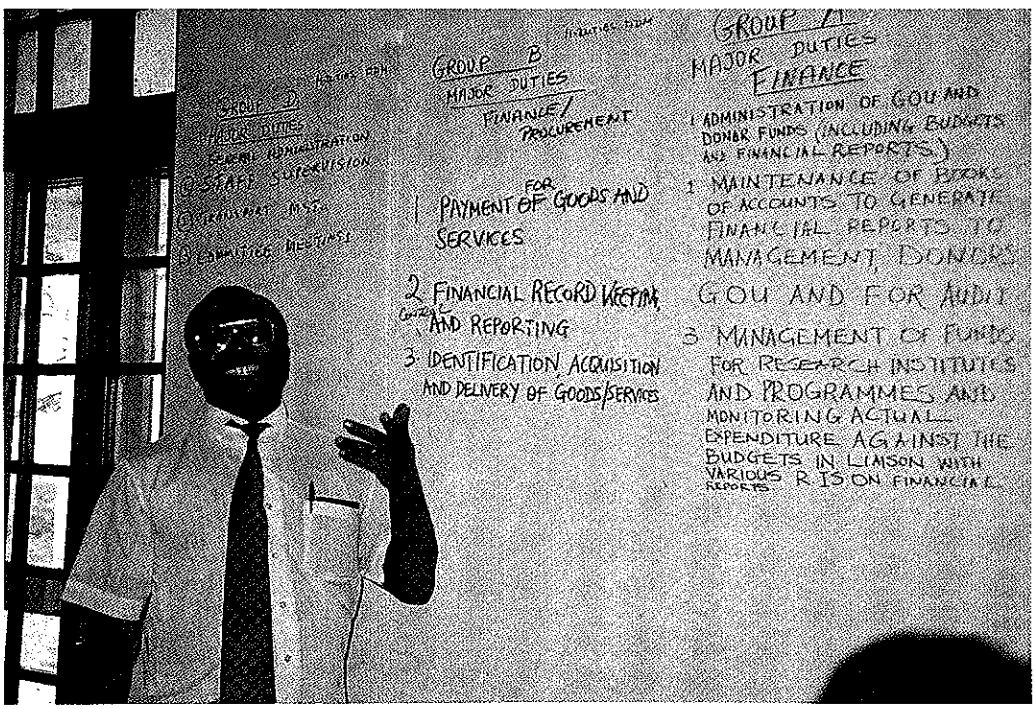
The workshop on farming systems research (FSR), led by an ISNAR staff member, was attended by senior KARI

managers, several FSR practitioners, senior extensionists, and a number of NGO representatives. The 30 participants reviewed KARI's experience with institutionalizing the farming systems approach and were introduced to key concepts and experiences in the management of linkages with technology users. Preliminary ISNAR training materials on the latter topic were tested.

The INFORM workshop in September, the first of three planned for KARI, trained 17 scientists and seven headquarters staff in the use of this ISNAR-developed management information system. It was followed by a two-day seminar for the directors of five KARI centers. Following the completion of training in mid-1995, all of KARI's centers are expected to have INFORM operational.

The training in scientific writing and presentation consisted of three workshops, one for Kenyan trainers called on to instruct KARI staff in this subject, the other two for KARI scientists and managers. Based on the training efforts of a KARI staff member and an ISNAR consultant earlier in the project, the ISNAR Training Unit produced a draft set of training modules for use by the KARI trainers. In April, these were tested at the workshop for trainers. This was a three-day refresher course that gave eight Kenyan trainers a chance to review the curriculum they would be called on to teach and to learn interactive techniques for motivating participants. The three resource persons were from ISNAR, KARI, and Egerton University (in Kenya).

One step in the Ugandan training needs assessment was job analysis, in which participants distinguished between their management duties and their more technical tasks. Here one of the rapporteurs presents the results of his working group's discussions.



Assessing training needs in Uganda

Uganda is one of two countries for which ISNAR provides in-depth services under its comprehensive institutional development (CID) approach to cooperation. During the year ISNAR staff worked with the lead agricultural research agency, NARO, to put in place a management training program based on a six-stage cycle.

The first stage was a training needs assessment conducted during the last two weeks of September. The assessment centered on a series of workshops with five core groups of staff and three resource groups. Workshop leaders introduced participants to key concepts in research management, institutional development, and training. The sessions were highly interactive. Participants were called on to identify organizational constraints on managerial performance, describe the main duties and tasks involved in agricultural research, and pinpoint gaps in staff members' skills and knowledge. The core groups were composed of research program leaders, scientists, administrative and finance officers, technicians, and administrative support staff — the personnel whose training needs were being assessed. The resource persons were drawn from top NARO management, extension officers, and trainers. A total of 122 NARO personnel — 36 percent of its staff — participated in the exercise.

The process and results of the needs assessment were recorded in a comprehensive report aimed at helping NARO to proceed with other stages of the training program, such as curriculum development, training trainers, and monitoring and evaluating the outcome. Here are three of the key findings and recommendations:

- **There is an urgent need to improve managers' knowledge in several critical areas, the most important being planning, monitoring, and evaluation of research; information management; and human resource management.**
- **Many NARO staff are not sufficiently aware of the mission and objectives of the organization as laid out in its official strategy and plan. Top management needs to disseminate this information so as to give staff more direction and improve their performance.**
- **NARO should formulate a training plan that reflects the priorities identified in the training needs assessment. This should be implemented as part of the organization's human resource development plan. Training programs covering basic managerial skills should be designed and implemented as soon as possible.**

This event was followed a week later by two five-day workshops in which the Kenyan trainers put their skills to the test by training others in scientific writing. One group consisted of 17 scientists from KARI's National Agricultural Research Centre in Mugaga. The other included 22 scientists from the Macadamia Agricultural Research Center in Thika. The resource persons from the first workshop observed the trainers in action, giving them feedback on their performance. The trainees' evaluation of the new trainers was very positive.

A key element of the training method promoted by ISNAR is the design of individual work plans by trainees. These specify what they will do to put their newly acquired skills to work once they are back on the job. The plans also enable trainers to monitor the impact of their training with a view to making improvements. This method, which is based on a technique developed by the US Office of Personnel Management called the Participant Action Plan Approach (PAPA), formed an integral part of the scientific writing training at KARI. ISNAR is now moving ahead to make PAPA a standard approach in all its training work.

During the year ISNAR also contributed resource persons to several workshops organized under the SADC-ISNAR-ESAMI training project, funded by USAID. The Training Unit assisted with production of some of the pedagogical materials. The project is managed by ESAMI in Arusha, Tanzania. The topics covered in the ESAMI workshops were human resource planning for small NARS; data base and information management; project proposal writing and resource mobilization; and gender issues in national development, including agricultural research and technology transfer.

Library and Documentation Services

ISNAR recruited a new head of its Library and Documentation Services during the year. New literature was added to the collection, bringing total holdings to 18,000 books and gray literature documents. A user survey led to some changes in the selection of journals to which ISNAR subscribes. In October, the computer unit arranged for the library to have full access to the Internet via a dial-up connection. This gives direct access to vast amounts of information, including the library catalogs of major universities and libraries in Europe and North America.

The library also hosted a visit by the head of documentation and information from NARO, the lead agricultural research organization in Uganda. This set the stage for NARO-ISNAR collaboration to draft a strategy for agricultural research information services in that country.

Publications Services

Publications Services produced 25 formal ISNAR publications during the year and assisted with the preparation or reproduction of 11 other major documents. The latter were either less formal in nature, had restricted circulation, or were produced on behalf of other organizations with which ISNAR collaborates. Formal ISNAR publications are listed on page 103. The unit also prepared and disseminated nine news releases.

Among the formal publications were 11 briefing papers. Demand for these short documents, most of which are only eight printed pages, has been strong. Briefing papers examine policy and management issues affecting agricultural research in developing countries. The target

readership is research managers, policymakers, donors, and academics.

Following the introduction of new address data base software in 1993, Publications Services conducted a mailing-list survey to update its distribution list and obtain better information on readers' interests. Much of the data-entry work was completed in 1994, and at year end the mailing list contained about 2600 records (individuals and organizations). With consolidation of the mailing list, ISNAR is now much better able to target its publications distribution.

Finally, the unit continued preparations for a publications training project aimed at helping the NARS of five Eastern African countries build a capacity to produce annual reports. The project, which will hold its first workshop in 1995, is a joint effort of ISNAR and the Technical Centre for Agricultural and Rural Cooperation (CTA).

Computer Services

Computer Services began preparations for the profound changes in information technology that are expected during 1995 in the CGIAR system and beyond. In August, the unit began replacing ISNAR's 386-type desktop computers with 486 PCs with bigger hard disks, more memory, and better monitors. The new computers cost much less than their predecessors.

The replacement cycle will take about one year. Completion will more or less coincide with the adoption of Windows software by all ISNAR staff, and the availability of desktop Internet access for all staff via the new CGIAR-wide integrated voice and data network being installed.

Computer Services provided technical assistance to the NARS of two countries. In Egypt the unit helped to set up an e-mail network to link agricultural researchers in national institutes and universities. Technical backup to the network was provided by e-mail from ISNAR headquarters in The Hague. In Uganda, the unit reviewed computer services within NARO. Finally, the head of the unit participated in drafting an information strategy for the CGIAR system and a proposal for a global integrated voice and data communications network for the system. (See text below.)

Global connections: the CGIAR centers adopt a common information strategy

During the year, the CGIAR approved a systemwide information strategy for its centers. The strategy defines information in the broadest sense, to include administrative, scientific, and bibliographic information in various formats: electronic, visual, or on paper. It also refers to technologies for manipulating and preparing information.

The strategy sees improved management of information and making use of up-to-date technology as an opportunity for promoting greater unity, effectiveness, and efficiency in international agricultural research.

The major components of the strategy were conceived during an information workshop held at ISNAR in June at the request of the CGIAR center directors. This meeting brought together information officers from most CGIAR centers as well as resource persons from the CGIAR Secretariat and specialized institutions. Two ISNAR staff served on the seven-member drafting committee, which subsequently wrote the detailed strategy.

The strategy recognizes the profound changes going on both inside the CGIAR system and in the outside technological environment. Within the CGIAR, greater emphasis is now being given to system-wide initiatives as opposed to the center-specific efforts typical of the CGIAR since its inception. This shifting approach demands better coordination of information flows.

At the same time, the centers are launching programs involving stronger partnerships with NARS, NGOs, and other actors. Also, among some of the large, specialized organizations, such as FAO and CABI, there is a move to collaborate with CGIAR centers on information activities. Reinforcing information management offers an excellent chance to improve internal CGIAR operations and links, in particular, to expand the system's responsiveness to the needs of NARS.

The CGIAR information strategy sets out three overarching goals for the system's information activities:

- to enhance the quality and relevance of research and decision making of CGIAR staff, their clients, and partners;
- to disseminate effectively the results of the research of the IARCs and their partners;
- to contribute to the development of an efficient and effective global information system on agricultural research.

A stated corollary of the first goal is that the CGIAR should facilitate the access of NARS and other IARC clients to information needed for their research.

Along with the three goals, the strategy identifies three strategic principles to guide changes in CGIAR information management: connectivity within the CGIAR and with outside partners; technological compatibility, but without limiting a center's flexibility to accommodate new and emerging technologies; and partnership whereby the CGIAR fosters new modes of collaboration and joint action with partners inside and outside the system.

The strategy calls on the CGIAR to move toward joint information products, common policies and standards in areas where collective or collaborative action is necessary, greater sharing of each other's facilities, and a common communication infrastructure.

Integrated voice and data network

The creation of a systemwide integrated voice and data network (IVDN) was proposed and agreed on in principle late in 1994. A dedicated IVDN will enable the CGIAR to install systemwide information applications on a common platform. It will ease voice and data communication among the centers, with cost savings on voice calls going toward the improvement of data communication. It will also provide full Internet connectivity. Installation of the IVDN will take about two years. ISNAR played a key role in the conception and design of this project.

Administrative Services

Administrative Services supports the day-to-day operations of ISNAR's two programs and various operational units. It comprises four units: accounts, central files and telecommunications, personnel and travel, and services and supplies.

On the personnel side, ISNAR's staff stood at 82 employees at the end of 1994, down from 85 a year earlier. Thirty-six are internationally recruited professionals, 15 are locally recruited professionals (research assistants and technical specialists), and 31 are locally recruited staff in the general services area. The latter provide secretarial and office service support. Thirty-seven employees are women, of which nine occupy professional-level positions. Of the seven internationally recruited staff members who left ISNAR in 1994, three retired.

The small staff reduction since 1993 reflects, in part, the caution exercised by ISNAR management in recruiting new staff due to the tight funding situation facing the institute.

ISNAR continued with its ongoing internal audit activities during the year with an examination of the system of inventory control and disposal of fixed assets. While the audit report gave no cause for concern over the way the overall system functions, it did make several suggestions for improvements. For example, it recommended speeding up disposal of surplus assets, particularly computer equipment, and using electronic equipment to streamline inventory tasks.

In the area of interinstitutional cooperation, ISNAR initiated contacts among international organizations based in the Netherlands, including the UN and UN-affiliated bodies. Regular meetings will allow participating organizations to share information and experience on common problems and issues. One advantage will be to provide better information on job opportunities for ISNAR staff members' spouses, particularly those who have professional qualifications.

A final highlight of Administrative Services' activities was collaboration with the Dutch government resulting in the clarification of two aspects of ISNAR's headquarters agreement: the tax status of ISNAR staff and the disposal of imported assets.

ISNAR around the World: Research, Advisory Service, and Training

The following pages present, in brief, ISNAR's 1994 activities around the world. Included are global, regional, and national activities and events that ISNAR either organized alone, conducted jointly with other organizations, or contributed to by providing resource people. ISNAR collaboration with other CGIAR centers is presented at the end of the country listings.

Global

- Organized and hosted a three-day international workshop on research policies and management for agricultural growth and sustainable use of natural resources, with the cooperation and support of Germany's DSE. See box page 75.
- Sponsored with IFAD and bilateral donors a three-day consultation in Rome with NARS leaders and CGIAR center directors to discuss the NARS vision of international agricultural research.
- Organized a three-day consultation at headquarters with research leaders from Cameroon, Costa Rica, Ecuador, Ethiopia, Fiji, Ghana, Mali, Morocco, and Uganda to review the design of a method for assessing organizational performance. The method, a model for scoring research outputs and management practices, will be tested by managers in-country.
- Organized and hosted a roundtable on regional priority setting for about 30 leaders from NARS, IARCs, regional centers, and donors. They reviewed the situation to date, identified constraints, and made proposals for future activities.
- Held a week-long meeting at headquarters to provide training for finance officers from Burkina Faso (INERA), Senegal (ISRA), Uganda (NARO), Tanzania (MA-NALRP), and Pakistan (DGARS) in financial management and the organization of finance departments.

Africa

REGIONAL ACTIVITIES

- Sponsored a one-day meeting of African NARS leaders with the Technical Advisory Committee to the CGIAR, representatives of several IARCs, and African regional organizations. Other sponsors of the meeting, which was called to examine the question of IARC-NARS partnerships, were WARDA (which hosted the meeting) and SPAAR.
- Provided technical assistance and logistical support to agricultural research leaders in 10 West African

countries who launched two initiatives to reinforce cooperation among their research systems. Two separate networks were established to facilitate joint efforts to develop tools and models for improved agricultural research management. Burkina Faso, Niger, Mali, and Togo participate in the first network; Cameroon, Côte d'Ivoire, Guinée, Nigeria, Ghana, and Sierra Leone are involved in the second.

- Collected and analyzed time-series data on funding and staffing of agricultural research in sub-Saharan Africa, as part of the on-going ISNAR Indicator Series project, funded by the Italian government and SPAAR. Finalized statistical briefs on Burkina Faso, Cape Verde, Ethiopia, Ghana, Madagascar, Mali, Namibia, Nigeria, and Senegal, and prepared drafts on Côte d'Ivoire, Lesotho, Sudan, Swaziland, and Zimbabwe, for review by officials in the respective countries.
- Joined the working group of the Eastern Africa framework for action (FFA) led by SPAAR and national agricultural research institutes in 10 countries. Participated in the creation of the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA), which evolved from the framework for action. See box page 66.
- Served on the SPAAR task force charged with preparing a framework for action for agricultural research in West and Central Africa.
- Participated in the fourteenth plenary session of SPAAR held in Paris. Presented a paper titled "Agricultural Policy Analysis in Support of Institution Building in NARS in Africa."
- Participated in a USAID-sponsored SPAAR workshop, held in The Gambia, on regionalization in agricultural research in West and Central Africa. Presented a paper to the plenary session titled "Coordination of Research: Issues, Experiences, and Lessons from Outside Africa."
- Pro vided assistance to the directors of Eastern and Central African national agricultural research institutes (Burundi, Ethiopia, Kenya, Madagascar, Rwanda, Sudan, Tanzania, Uganda, and Zaire) in developing joint mechanisms for managing USAID-supported collaborative agricultural research networks.
- Organized several training seminars with ESAMI as part of the SACCAR-ESAMI-ISNAR agricultural management training project for research managers from the SADC countries. Additional funding was provided by SACCAR and USAID. Themes of the seminars were strategic human resource planning for small NARS, project proposal writing and resource mobilization, gender analysis, and data base and information management.
- Collaborated with the University of Hohenheim, Benin, and Nigeria on the BMZ-funded project Strengthening the Role of Universities in NARS in sub-Saharan Africa. Set up national steering committees and organized a workshop jointly with national consultants in Nigeria and Benin.
- Collaborated with NATURA on drafting a project proposal for a European master's degree program in agricultural research management designed for African research managers, especially those in mid-career.

BENIN

- Collaborated with a national team on drafting a five-point policy on agricultural research, the contents of which were approved by the cabinet in December. See box page 64.
- Collaborated with a national working group on conducting a staff survey and establishing a human resource data base, and carried out a diagnostic review of INRAB's financial management procedures.
- Provided assistance with integrating natural resource management research with production research.
- Collaborated with the Université Nationale du Bénin to implement phase 1 of the "universities in NARS" project.

BURKINA FASO

- Completed research for a country study on existing and potential links between agricultural research organizations and farmers' organizations.
- Completed a country study for the structural adjustment and agricultural research project.
- Finalized a statistical brief for the ISNAR Indicator Series project.

CAPE VERDE

- Finalized a statistical brief for the ISNAR Indicator Series project.

CÔTE D'IVOIRE

- Completed data gathering and drafted a statistical brief for the ISNAR Indicator Series project.

ERITREA

- Held preliminary discussions with the government and attended a donors' meeting in anticipation of possible ISNAR assistance to the Ministry of Agriculture in the preparation of an agricultural research strategy and medium-term plan.

ETHIOPIA

- Finalized a statistical brief for the ISNAR Indicator Series project.

THE GAMBIA

- Advised on the creation of an autonomous institute for agricultural research. Helped prepare a plan to evaluate the performance of agricultural researchers working in government ministries and to reassign them to the new institute.

GHANA

- Organized and held a five-day workshop to train staff in the use of INFORM, in the context of the national agricultural research project funded by ODA.
- Finalized a statistical brief for the ISNAR Indicator Series project.
- Completed research for a country study on existing and potential links between agricultural research organizations and farmers' organizations.

GUINÉE

- With World Bank funding, assisted IRAG and the Ministry of Agriculture, Livestock, and Forestry with the identification of research projects.
- Completed research, begun in 1992 and funded by the World Bank, on the human resources in three institutes (IRAG, SENASOL, and LNPVDS). Produced a report that lays the groundwork for planning short- and long-term training events.

KENYA

- Collaborated with KARI and the Humboldt University of Berlin on a joint project on priority setting for livestock research.

- Worked with KARI scientists to develop and institutionalize a priority-setting process for agricultural research. An outposted staff member is funded by the Rockefeller Foundation.
- Participated in a World Bank mission to formulate a second national agricultural research project.
- Completed research for a country study on existing and potential links between agricultural research organizations and farmers' organizations.
- Helped organize and conduct training workshops as part of the KARI-ISNAR Management and Training Linkage project supported by the European Union. Topics covered were planning, monitoring, and evaluation; scientific writing and presentation; soil and water management research; links with extension; and farming systems approaches.
- Coached two KARI trainees who came to ISNAR headquarters to improve their skills in desk-top publishing and production of training materials, particularly videos.
- Organized two training workshops at KARI to implement INFORM, the ISNAR-developed management information system.

LESOTHO

- Completed data gathering and drafted a statistical brief for the ISNAR Indicator Series project.

MADAGASCAR

- Assisted FOFIFA in updating their master plan for agricultural research.
- Finalized a statistical brief for the ISNAR Indicator Series project.

MALI

- Finalized a statistical brief for the ISNAR Indicator Series project.

MAURITANIA

- Assisted the government and the national institutions for research and higher education with the establishment of a 10-year national agricultural research plan, to be finalized and adopted at a national seminar in February 1995.

MOZAMBIQUE

- Assisted INIA with finalizing an operational plan for agronomic research. Helped prepare a workshop to inform researchers, ministry officials, donors, and NGOs of the plan's content and to obtain feedback before the plan's final revision.
- Assisted the Ministry of Agriculture with preparations for a ministry-wide strategic planning exercise. This was done through an interinstitutional loan of an ISNAR staff member to the FAO Investment Centre. The work was a preliminary step in formulating a government framework for agricultural investments, including those in research.

NAMIBIA

- Collaborated with national working groups to prepare an agricultural research master plan following a review of the NARS. The lead agency is the Department of Research and Training in the Ministry of Agriculture, Water and Rural Development.
- Finalized a statistical brief for the ISNAR Indicator Series project.

NIGER

- Participated in a World Bank-funded project on research program design and management.

NIGERIA

- Finalized a statistical brief for the ISNAR Indicator Series project.
- Collaborated with the Ahmadu Bello University to implement phase 1 of the "universities in NARS" project.

RWANDA

- At the government's request, reviewed the post-war situation at ISAR regarding infrastructure, equipment, and human resources. Proposed priority areas for resuming on-station research and assessed what would be needed to carry it out.

SENEGAL

- Received a high-level delegation at headquarters to discuss the USAID-supported Natural Resource Based Agricultural Research (NRBAR) project and provided support and advice on the design of a new ISRA financial management system and linkages with the management information system, INFORM.
- Trained staff in five research departments and headquarters to collect, process, and present information on research activities and resources. Guided department managers in their role as supporters and users of INFORM. This was the third phase of a four-phase project to install INFORM at ISRA.
- Finalized a statistical brief for the ISNAR Indicator Series project.

SWAZILAND

- Completed data gathering and drafted a statistical brief for the ISNAR Indicator Series project.

TANZANIA

- Held a four-day workshop to train DRT staff in the use of INFORM.
- Assisted DRT with the implementation of the National Agriculture and Livestock Research Project, via an outposted staff member. Participated in a World Bank review mission of the project.

TOGO

- Conducted a diagnostic review of agricultural research and prepared the first phase of the agricultural research project, which consists of identifying the components to be integrated into a strategic plan.

UGANDA

Continued collaboration with NARO under the comprehensive institutional development (CID) program, supported by the World Bank and ISNAR's core budget. The following activities were supported by two outposted ISNAR staff and, in some instances, also by headquarters staff:

- Reviewed and updated the NARO "scheme of service" (conditions of employment, including salaries and benefits).
- Recruited staff both internally and externally.
- Developed an organizational and management structure.
- Updated research priorities and formulated guidelines for translating priorities into proposals.
- Organized a workshop to train researchers in the use of INFORM.
- Created INFORM-related data bases on both research activities and human resources.
- Assessed scientific and management information needs.
- Worked with the Research-Extension Linkages Unit (RELU) to set up link-

ages between NARO and the Extension Department, Makerere University, the Ministry of Natural Resources, and the Ministry of Trade and Industry.

- Assessed management training needs and presented the results to top management. See box page 87.

ZAMBIA

- Held a two-day consultation on the development of a management information system for the Research Branch of the Zambian Ministry of Agriculture, Food, and Fisheries.

ZIMBABWE

- Participated in a three-day research management workshop on agricultural research impact evaluation and policy analysis, jointly organized by the University of Zimbabwe and the University of Manitoba, with financial support from IDRC.
- Completed data gathering and drafted a statistical brief for the ISNAR Indicator Series project.

Asia

REGIONAL ACTIVITIES

- Organized and conducted a regional seminar on planning, priorities, and policies for agricultural biotechnology for representatives of public and private organizations in Southeast Asia (Indonesia, Malaysia, Philippines, Singapore, Thailand, Vietnam). See box page 73.

BHUTAN

- Completed phase three of a project to reinforce natural resource research, in collaboration with the Ministry of Agriculture and with the financial support of SDC. This implementation phase included work on research planning, priority setting, and resource allocation; monitoring and evaluation mechanisms; project budgeting; and a management information system.
- Provided INFORM training at ISNAR headquarters for two Bhutanese scientists who later served as trainers during a week-long workshop for scientists from the principal regional research centers.
- Provided the regional research centers with an integrated computer program linking a set of research management tools to major research management functions (planning, monitoring, and evaluation) and held a workshop to train scientists in its use.

INDIA

- Finalized and submitted a strategy for a national agricultural research information system (ARIS), which includes information for managers, for scientists, and on natural and physical resources. ICAR formally accepted the strategy in December. Initially, an information network consisting of some 240 sites will be created, based on a mixture of land-line and satellite technologies.

PHILIPPINES

- Established preliminary contacts with PCARRD following its request for ISNAR cooperation in developing a strategy for a national agricultural research information system, modelled on the work done in India. Planned a

two-phase strategy development process consisting of needs assessment and technology assessment phases.

SRI LANKA

- Collaborated with CARP to extend content and use of INFORM, which has been in operation in the NARS since 1988–89. The focus has been on data necessary for monitoring and evaluation. Preliminary fieldwork was carried out mainly at the Coconut Research Institute. Funding was provided by GTZ.

VIETNAM

- Developed plans for a diagnostic review of the NARS at the request of MAFI-DAST. Donor support is being sought and the review will likely take place in late 1995.

Latin America and the Caribbean

REGIONAL ACTIVITIES

- Held a regional training workshop on planning, monitoring, and evaluating agricultural research for CARDI and other Caribbean organizations. Participants included agricultural research officials from Antigua, Belize, Barbados, Dominica, Grenada, Guyana, Jamaica, Montserrat, St.Kitts/ Nevis, St. Lucia, St. Vincent & the Grenadines, Trinidad & Tobago, as well as representatives of the various ministries of agriculture and of WINBAN. Funding was provided by CTA and IDB.
- Organized, in cooperation with CATIE and IICA, the closing workshop of the project to strengthen agricultural research management in Latin America and the Caribbean. Various agricultural research organizations in the region were represented: INTA, Argentina; IBTA, Bolivia; EMBRAPA, Brazil; INIA, Chile; CORPOICA, Colombia; ICA, Colombia; PROCADI, Colombia; MAG, Costa Rica; MINAG, Cuba; SEA, Dominican Republic; INIAP, Ecuador; ICTA, Guatemala; MINAG, Guyana; MINAG, Jamaica; IDIAP, Panama; DIA, Paraguay; FEAS, Peru; INIA, Peru; INIA, Uruguay; FONAIAP, Venezuela; PROCIANDINO, Andean Region; CARDI, Caribbean; CIAT, international; CATIE, Latin America; IICA, Latin America; and PROCISUR, Southern Cone. Financial support was provided by IICA, CATIE, SDC, IFAD, IDB, CTA, PRIAG, and IDRC.
- Consolidated ISNAR's links with IICA by signing an agreement to strengthen cooperation between the two institutes.

ECUADOR

- Signed a memorandum of understanding to establish a comprehensive institutional development (CID) program for INIAP.
- Collaborated on the formulation of an integrated three-year project to strengthen agricultural research.
- Worked on the implementation and adjustment of a salary scale, the design of a planning system, and the establishment of an information management system.
- Provided assistance in integrating natural resource management research with production research.

GUATEMALA

- Made an exploratory visit to assess progress made in modernizing ICTA, to identify potential areas for ISNAR's intervention, and to share ISNAR's experiences in institutional development in Latin America and the Caribbean.

PARAGUAY

- Signed a memorandum of understanding with the Ministry of Agriculture and Livestock, following the design of a framework for a program to support the implementation of a new agricultural research institute.
- Held discussions with IDB concerning ISNAR participation in preparing a major project to create and develop a new decentralized semi-autonomous institute.

URUGUAY

- Collaborated with INIA on the continuing modernization of the institute by adapting and applying tools and organizational mechanisms developed with ISNAR's assistance.
- Participated in designing a simpler and more flexible planning system for INIA and prepared a proposal for its further implementation.
- Assisted with the integration of INFORM with INIA's project management information system by training an INIA staff member at ISNAR headquarters in The Hague.

West Asia and North Africa

REGIONAL ACTIVITIES

- Held a regional seminar in Beirut as the final phase of the joint AOAD-ISNAR Strengthening Agricultural Research Management in the Arab Countries (SARMAC) project, which was partially funded by UNDP. The seminar enabled 18 research leaders from 12 Arab countries, plus several resource persons, to exchange ideas and discuss lessons learned from studies of the agricultural research systems of Algeria, Iraq, Sudan, and Yemen.
- Cosponsored AARINENA's Fourth General Conference held in Cairo and participated in the conference's research management seminar.
- Served as a moderator at the Ismailia international cotton workshop, "Cotton Production and Prospects for the Next Decade."
- Participated in the synthesis workshop of a project titled "Promoting the Role of Universities in the NARS of Selected Near-East Countries" held in Morocco. The project was funded by FAO and executed jointly by FAO and AARINENA.

ALGERIA

- Jointly organized a national seminar with the Algerian Ministry of Agriculture and AOAD, to discuss the results of a diagnostic review of the Ministry of Agriculture. This was part of the UNDP-funded SARMAC project.

EGYPT

- Collaborated with CEMARP to train staff of ARC's 21 research institutes and central laboratories and of 16 faculties of agriculture in developing data bases on researchers, academic staff, and postgraduate students and their research activities.

- Assisted with drafting a national research strategy, as well as five-year and annual plans and programs for oasis-related research, which aims at improving sustainable agriculture under desert conditions.

IRAN

- Trained data base operators and users from AREEO and helped them to develop computerized data bases. The success of this exercise led AREEO to request ISNAR assistance with expanding data base coverage at the national and regional (intercountry) level.

KUWAIT

- Set up data bases on researchers and research at PAAFR and designed a collaborative program to improve PAAFR capabilities in research policy, organization, and management.

LEBANON

- Trained operators and users in the use and updating of data bases for agricultural research management.
- Held a national workshop in Beirut to introduce, discuss, and adapt concepts, methods, and tools for strategic planning and program design, including priority setting between and within research programs.

MOROCCO

- Launched a two-year project, funded by GTZ, to strengthen research management at INRA. See box page 69.
- Reviewed, with the staff of INRA's Aridoculture Centre, the task of formulating options for sustainable, rainfed agricultural production systems.

SUDAN

- Assisted ARC in updating its management data bases and in training data base operators and users.
- Completed data gathering and drafted a statistical brief for the ISNAR Indicator Series project.

YEMEN

- Provided training at ISNAR headquarters for a group of management data base operators from AREA.

Collaboration with Other CGIAR Centers

- Organized and hosted a five-day workshop on the information needs of the CGIAR system of international centers, resulting in a draft information strategy for the CGIAR centers. See box page 89.
- Served on a special task force on electronic communication that formulated a proposal for an integrated voice and data network linking the CGIAR centers. See box page 91.
- Collaborated with ICRAF and with the NARS of Cameroon, Ghana, and Nigeria to set priorities for research on the improvement of multipurpose trees in West Africa.
- Established an agreement with IFPRI for collaborating on collection and analysis of global information on human and financial resources invested in national agricultural research, as a continuation of the Indicator Series work begun by ISNAR.
- Contributed to ICARDA's work by carrying out an impact evaluation of the "Long-Term Trial Program" as part

of the second phase of ICARDA's Nile Valley Regional Program in Egypt, supported by the European Union.

- With funding from USAID, collaborated with ICARDA to help Jordan develop its agricultural research strategy.
- In collaboration with ICRISAT, conducted a two-day workshop in Botswana on program and project planning for the SADC countries' sorghum and millet research program.
- Participated in an exploratory mission to the Russian Federation along with three other international centers — CIP, ICARDA, and IPGRI. The mission, organized by the World Bank, was to prepare for the first phase of a project titled "Agricultural Research and Training in Transition." The project will be conducted in collaboration with the Ministry of Agriculture and Food and the Russian Academy of Agricultural Sciences.

ISNAR Publications and Other Major Documents

Publications about ISNAR

Annual Report 1993.

ISNAR Newsletter No. 24.

ISNAR Newsletter No. 25.

ISNAR Newsletter No. 26, including a four-page insert: Strengthening the Role of NARS in Improving the CGIAR system. Adapted from the presentation Christian Bonte-Friedheim made to the International Consultation on the Development of a NARS Vision of International Agricultural Research, held at IFAD in December 1994.

L'ISNAR en bref N° 6.

L'ISNAR en bref N° 7.

Catalog of Publications 1993–94.

Catalog of Publications 1993–94 Supplement.

Research Management Guidelines

No. 2. Guide d'élaboration de programmes et d'établissement de priorités. Marie-Hélène Collion et Ali Kissi.

No. 3. Guide pour le praticien d'INFORM, système d'information de gestion pour la recherche agricole.

Research Reports

No. 3. (REPRINT) Intellectual Property Rights for Agricultural Biotechnology: Options and Implications for Developing Countries. By Jeroen van Wijk, Joel I. Cohen, and John Komen.

No. 5f. Biosecurité: Maîtrise des risques dans l'application des biotechnologies à l'agriculture et à l'environnement. Par G.J. Persley, L.V. Giddings et C. Juma.

No. 6. Biotechnology Priorities, Planning and Policies: A Framework for Decision Making. By Joel I. Cohen.

Briefing Papers

No. 2 (REPRINT). Ecuador: Agricultural Research in the Public and Private Sectors. By Cesar A. Falconi.

No. 8f. Comment améliorer la liaison entre la recherche et le transfert des technologies agricoles en Afrique. Par Thomas Eponou.

No. 9. Structural Adjustment and Agricultural Research in Chile. By Eduardo Venezian and Eugenia Muchnik.

No. 10. Investigación Agrícola y el Sector Privado: Hacia un Marco Conceptual. Por César A. Falconi y Howard Elliott.

No. 11. Financing National Agricultural Research: The Challenge Ahead. By Christian Bonte-Friedheim, Steven R. Tabor, and Johannes Roseboom.

No. 12. Regional Priority Setting: Report of a Roundtable (ISNAR, 18–20 April 1994). By Declan Walton.

No. 13. Restructuring Agricultural Research: Some Lessons from Experience. By Lawrence Busch and R. James Bingen

No. 14. New Perspectives for Vulnerable Institutions: Agricultural Research Systems in the Small Countries of West Africa. By Elon Gilbert, Peter Matlon, and Pablo Eyzaguirre.

No. 15. Report of a Workshop: Strengthening the Role of Farmers' Organizations in Technology Development and Transfer.

No. 16. The Use of Systems Methods by NARS for Addressing Natural Resource Issues. By Peter Goldsworthy, Frits Penning de Vries, and Jan van Dongen.

No. 17. The Use of Systems Methods in International Agricultural Research Centers. By Peter Goldsworthy, Frits Penning de Vries, and Jan van Dongen.

Country Reports

R57. Management of National Agricultural Research Systems in Selected Arab Countries: An Overview.

Discussion Papers 1994

Discussion papers are preliminary reports of work in progress at ISNAR. They are neither

formally reviewed nor edited and their circulation is limited.

No. 94–1. Return to PAPA: Another training impact evaluation. By E.G. Brush.

No. 94–3. International agricultural productivity patterns. By B.J. Craig, P.G. Pardey, and J. Roseboom.

No. 94–4. Structural adjustment and agriculture. By G.M. Scobie and V. Jacobsen.

No. 95–5. Structural adjustment and agricultural research in Chile. By E. Venezian and E. Muchnik.

No. 95–6. Coordination of research: Issues, experiences, and lessons from outside Africa. By H. Elliott.

No. 94–7. Intellectual property rights and national agricultural objectives in developing countries. By J. Cohen.

No. 94–8. Public- and private-sector interactions in agricultural research in less-developed countries: The case of Jamaica. By C.A. Falconi and J.R. Reid.

No. 94–9. The institutional environment for regional research: Comparative experiences from small countries. By P.B. Eyzaguirre.

No. 94–10. The management of scientific information and corporate communications in Mali's Institut d'Economie Rurale (IER): An assessment of constraints and needs. By G. Toomey and N. Bosso.

No. 94–11. Structural adjustment and agricultural research in Sri Lanka. By S.R. Tabor and R.H.S. Samaratunga.

No. 94–12. Evaluation of ISNAR's implementations of INFORM (Agricultural Research Management Information Systems) to date and proposals for the future. By R. Vernon.

No. 94–13. Managing financial resources: Principles and recommendations for agricultural research managers. By H. Bruneau.

No. 94–14. Management of change for national agricultural research organizations. By S.H. Hobbs.

No. 94–15. Benchmark study: Recruitment of managers: Example from the National Institute of Agricultural Technology (INTA) Argentina. By S.H. Hobbs, R.M. Longobardi, and H.C. Julian.

No. 94–17. New perspectives for vulnerable institutions: Agricultural research systems in the small countries of West Africa. By E. Gilbert, P. Matlon, and P. Eyzaguirre.

No. 94–18. Public and private R&D in Latin America and the Caribbean. By C.A. Falconi and H. Elliott.

No. 94–19. A summary of selected characteristics of some current and planned ecoregional initiatives of the CGIAR. By S.W. Duiker and P.R. Goldsworthy.

Statistical Briefs

Statistical briefs are informal publications with limited distribution. Single copies are available on request, at no charge. Multiple copies are available at a small charge to cover photocopying, handling, and postage.

No. 7. Statistical brief on the national agricultural research system of Ethiopia. By J. Roseboom, N.M. Beintema, and P.G. Pardey.

No. 8. Statistical brief on the national agricultural research system of Ghana. By J. Roseboom and P.G. Pardey.

No. 9. Statistical brief on the national agricultural research system of Burkina Faso. By V. Mazzucato.

No. 10. Statistical brief on the national agricultural research system of Senegal. By V. Mazzucato and M.E. Ly.

No. 11. Statistical brief on the national agricultural research system of Mali. By V. Mazzucato.

No. 12. Statistical brief on the national agricultural research system of Madagascar. By J. Roseboom and P.G. Pardey.

No. 13. Statistical brief on the national agricultural research system of Namibia. By N.M. Beintema, P.G. Pardey, and J. Roseboom.

No. 14. Statistical brief on the national agricultural research system of Cape Verde. By N.M. Beintema, P.G. Pardey, and J. Roseboom.

No. 15. Statistical brief on the national agricultural research system of Nigeria. By N.M. Beintema, P.G. Pardey, J. Roseboom, and E.O. Oyedipe.

Other documents produced by ISNAR

Actualisation du plan directeur de la recherche agricole. FOFIFA, Madagascar.

Report of a Conference of Leaders of National Agricultural Research Systems in Sub-Saharan Africa: Cotonou, Benin, 8–10 September 1993.

Étude du système de recherche relevant du ministère de l'Agriculture de la République Algérienne Démocratique et Populaire.

International Initiatives in Agricultural Biotechnology: A Directory of Expertise.

Monitoring and Evaluation in Agricultural Research: Concepts, Organization, and Methods. By Josette Murphy.

Monitoring and Evaluating Agricultural Research: Report of a Workshop. Muguga, Kenya, October 25–29, 1993. Edited by D. Horton et al.

Planificación, Seguimiento y Evaluación de la Investigación Agropecuaria: Informe del Segundo Curso. Ibarra, Ecuador, 27 septiembre - 1 octubre, 1993. Douglas Horton et al. (editores)

Planning, Monitoring and Evaluation of Agricultural Research. Proceedings of a Workshop, April 11–15, 1994, Trinidad. Edited by D. Horton et al.

Proyecto para el Fortalecimiento de la Administración de la Investigación Agropecuaria en América Latina y el Caribe: Informe de Evaluación Final.

Training Needs and Organizational Constraints Assessment in Uganda. By Zenete França et al. NARO and ISNAR.

External publications by ISNAR staff

Alston J.M. and **P.G. Pardey**. 1994. Distortions in Prices and Agricultural Research Investments. In *Agricultural Technology Policy Issues for the International Community*, edited by J.R. Anderson. Wallingford, UK: CAB International: 58–83.

Alston, J.M., **P.G. Pardey**, and H.O Carter. 1994. Valuing UC Agricultural Research and Extension. Davis: University of California.

Anderson, J.R., **P.G. Pardey**, and **J. Roseboom**. 1994. Sustaining Growth in Agriculture: A Quantitative Review of Agricultural Research Investments. *Agricultural Economics* Vol. 10, No. 2: 107–123.

Bebbington, A.J., **D. Merrill-Sands**, and J. Farrington. Farmer and Community Organizations in Agricultural Research and Extension: Functions, Impacts, and Questions. ODI Network Paper No. 47. London, UK: Overseas Development Institute.

Bonte-Friedheim, C.H. and A.H. Kassam. 1994. The Challenges of the Future of the Land. In *The Future of the Land: Mobilising and Integrating Knowledge for Land Use Options*, edited by L.O. Fresco et al. Chichester, UK: John Wiley: 377–384.

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Brenner, C. and **J. Komen**. 1994. International Initiatives in Biotechnology for Developing Country Agriculture: Promises and Problems. Technical Paper No. 100. Paris: Organisation for Economic Co-operation and Development.

Carcamo, Julio A., Jeffrey Alwang, and **George W. Norton**. 1994. On-Site Economic Evaluation of Soil Conservation Practices in Honduras. *Agricultural Economics* Vol. 11: 257–269.

Cohen, J.I. 1994. Policy and Planning for Biotechnology — A Decision Making Analysis. Proceedings of the International Symposium on Applications of Plant In Vitro Technology and the Eighteenth Annual Conference of the Malaysian Biochemical Society. University Pertanian Malaysia, Selangor, Malaysia. 16–18 November 1993.

Cohen, J.I. 1994. Addressing the Social and Educational Needs for IPR: International Standards and Domestic Issues. In *Intellectual Property Rights. ABSP Workshop Series.* Lansing: Michigan State University.

Cohen, J.I. and **J. Komen**. 1994. International Agricultural Biotechnology Programmes: Providing Opportunities for National Participation. Conference Report. *AgBiotech News and Information* Vol. 6, No. 11: 257N–267N.

Craig, B.J., **P.G. Pardey**, and **J. Roseboom.** 1994. International Agricultural Productivity Patterns. Working Paper 94–1. St. Paul, U.S.A.: Center for International Food and Agricultural Policy, University of Minnesota.

Elliott, H. Research at National Level. 1994. *International Agricultural Development* Vol. 14, No. 6: 16–17.

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Eponou, T. 1994. Linking Research to Technology Dissemination. In *Setting Research Priorities: Towards Effective Farmer-Oriented Research*, edited by J.D. Meindertsma. Amsterdam, The Netherlands: Royal Tropical Institute: 77–93.

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Hariri, G. 1994. The Role of Networks in the Field of Agricultural Training and Research. *Options Méditerranéennes* Série A, n° 24: 121–134.

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Claude C. **Adandedjan**, Université Nationale du Bénin, Cotonou, Benin

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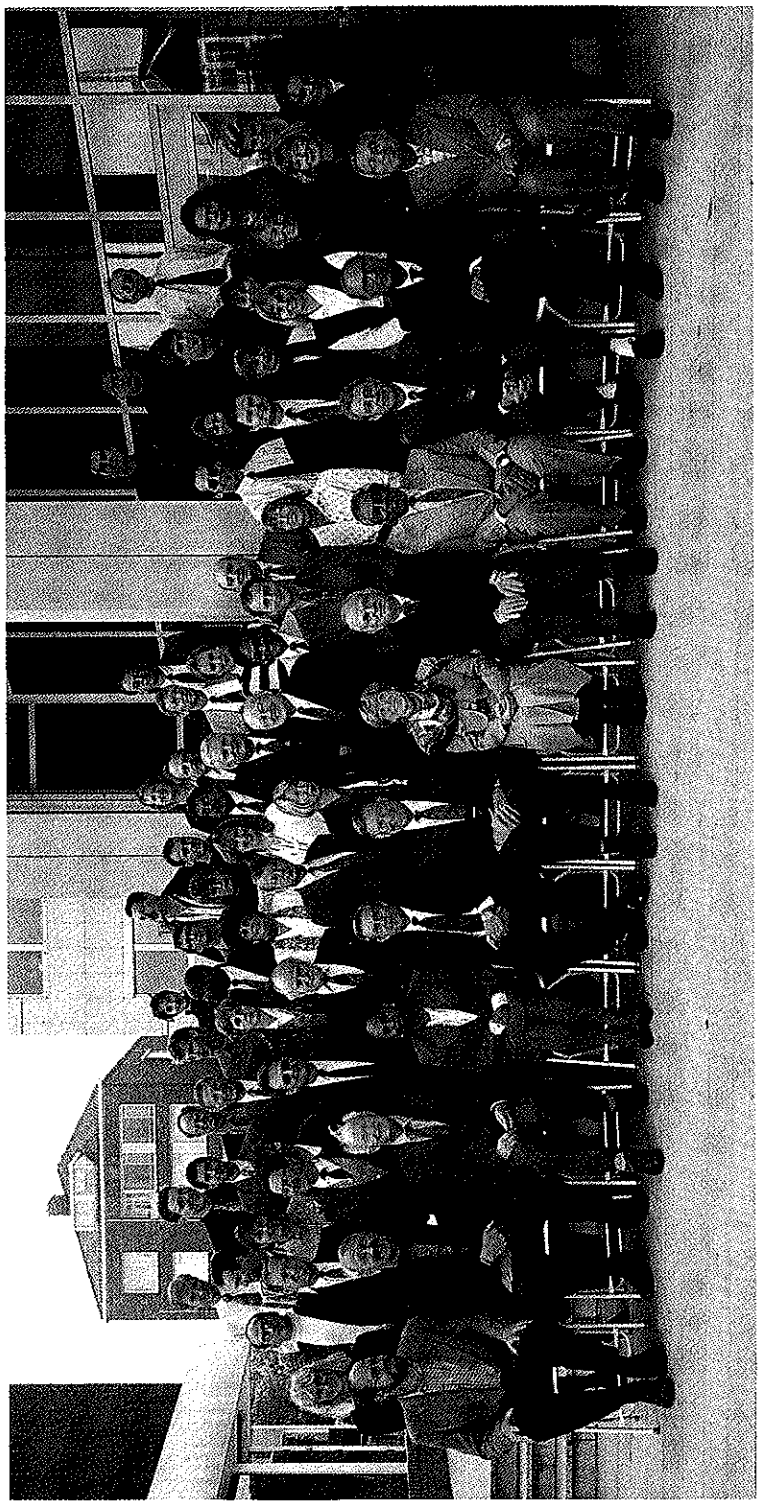

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ISNAR Financial Summary

MORET ERNST & YOUNG
ACCOUNTANTS

■ Wassenaarseweg 80
2596 CZ The Hague
P.O. Box 90636
2509 LP The Hague

■ Telephone 31-70-3 286 666
Fax 31-70-3 242 075

AUDITORS' STATEMENT

We have audited the Accounts of the International Service for National Agricultural Research ("ISNAR") for the year ended December 31, 1994 and have issued an unqualified opinion thereon.

The Statement of Financial Position and Statement of Activity included in the ISNAR Financial Summary on pages 116 and 117 of this Annual Report are extracts from these Accounts. The "piechart" of 1994 Operating Expenses by Program/Service, also included in the Financial Summary, is compiled from the accounting records of ISNAR and our review of this does not lead us to doubt that it has been properly prepared.

April, 1995

Moret Ernst & Young

Moret Ernst & Young Accountants

Statement of Financial Position

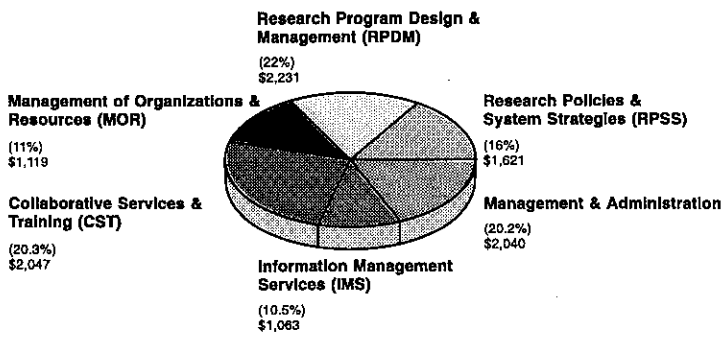
ISNAR's operating budget for 1994 was US $10.696 million, of which $6.293 million was core-unrestricted grants. The remainder was core-restricted grants and "complementary" (i.e., special-project) funding. The figures in the following tables and pie chart are as of December 31, 1994, and in thousands of US dollars.

Assets	Current Year	Prior Year
Current Assets		
Cash and Cash Equivalents	3,501	2,634
Accounts Receivable:		
Donors	1,558	1,522
Employees	55	52
Others	203	171
Prepaid Expenses	253	23
Total Current Assets	5,570	4,402
Fixed Assets		
Property, Plant, and Equipment	2,221	2,106
Less: Accumulated Depreciation	(1,925)	(1,809)
Total Fixed Assets—Net	296	297
Total Assets	**5,866**	**4,699**
Liabilities and Net Assets		
Liabilities		
Accounts Payable		
Donors	1,648	1,402
Employees	414	335
Funds In-Trust	327	126
Others	78	209
Accruals and Provisions	342	145
Total Liabilities	2,809	2,217
Net Assets		
Capital Invested in Fixed Assets		
Center Owned	296	297
Capital Fund	511	335
Operating Fund	2,250	1,850
Total Net Assets	3,057	2,482
Total Liabilities and Net Assets	**5,866**	**4,699**

Statement of Activity

Revenue Year	Core Unrestricted	Core Restricted	Complementary	Total	Prior Year
Grants	6,293	182	3,957	10,432	10,224
Other Revenues	264	-0-	-0-	264	236
Total Revenue	**6,557**	**182**	**3,957**	**10,696**	**10,460**
Operating Expenses					
RPSS Program	915	-0-	706	1,621	1,644
RPDM Program	1,030	163	1,038	2,231	1,809
MOR Program	998	19	102	1,119	1,250
Collaborative Services and Training	951	-0-	1,096	2,047	2,561
Information Management Services	1,017	-0-	46	1,063	1,144
Management and Administration	1,071	-0-	969	2,040	1,915
Total Operating Expenses	**5,982**	**182**	**3,957**	**10,121**	**10,323**
Excess of Revenue over Expenditure	575	-0-	-0-	575	137
Allocated as Follows:					
Capital Fund	175			175	37
Operating Fund	400			400	100
	575			575	137
Operating Expenses By Object of Expenditure					
Personnel Costs	4,474	13	1,151	5,638	6,007
Supplies and Services	922	63	1,777	2,762	2,702
Operational Travel	415	106	1,029	1,550	1,312
Depreciation of Fixed Assets	116	-0-	-0-	116	250
Write-off Grant	55	-0-	-0-	55	52
Total Operating Expenses	**5,982**	**182**	**3,957**	**10,121**	**10,323**

1994 Operating Expenses by Program/Service



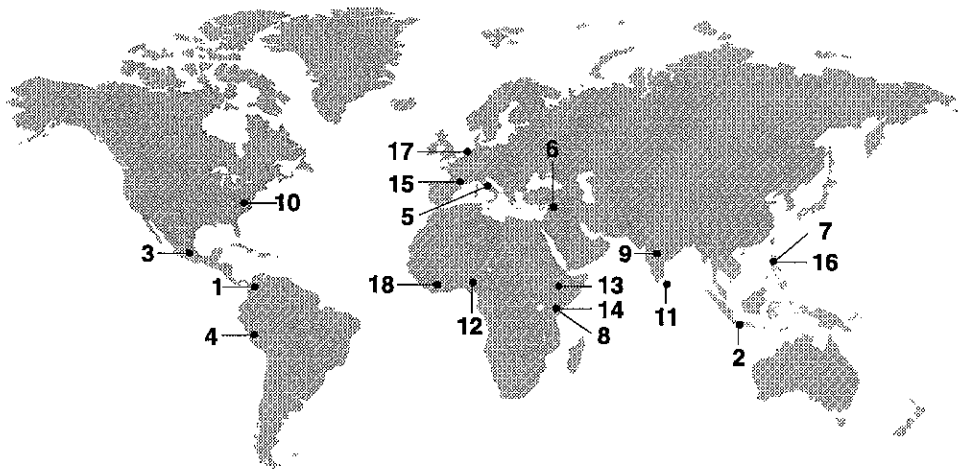
Abbreviations

AARINENA	Association of Agricultural Research Institutions in the Near East and North Africa
ACDI	Agence Canadienne de Développement International
AOAD	Arab Organization for Agricultural Development
ARC	Agricultural Research Center—Egypt
ARC	Agricultural Research Corporation—Sudan
AREA	Agricultural Research and Extension Authority—Yemen
AREEO	Agricultural Research, Education and Extension Organization—Iran
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
BID	Banco Interamericano de Desarrollo; Banque Interaméricaine de Développement
BMZ	Federal Ministry of Economic Cooperation—Germany
CABI	International Centre for Agriculture and Biosciences
CARDI	Caribbean Agricultural Research and Development Institute—Latin America
CARP	Council for Agricultural Research Policy—Sri Lanka
CATIE	Tropical Agriculture Research and Education Center
CEMARP	Canada-Egypt-McGill Agricultural Response Program
CGIAR	Consultative Group on International Agricultural Research
CIAT	International Center for Tropical Agriculture
CID	comprehensive institutional development program—ISNAR
CIDA	Canadian International Development Agency
CIP	International Potato Center
CORAF	Conférence des Responsables de la Recherche Agronomique Africains
CORPOICA	Corporación Colombiana de Investigación Agropecuaria
CTA	Technical Centre for Agricultural and Rural Cooperation—European Community and Lomé Convention members
DGARS	Directorate General Agricultural Research, Sindh—Pakistan
DIA/MAG	Dirección de Investigación Agricola/Ministerio de Agricultura y Granadería—Paraguay
DIG	développement institutionnel global—ISNAR
DRT	Department of Research and Training—Tanzania
DSE	German Foundation for International Development
EDI	Economic Development Institute—World Bank
EMBRAPA	Empresa Brasileira de Pesquisa Agropecuária—Brazil
ESAMI	Eastern and Southern African Management Institute
FAO	Food and Agriculture Organization of the United Nations; Organización de las Naciones Unidas para la Alimentación y la Agricultura; Organisation des Nations Unies pour l'Alimentation et l'Agriculture
FEAS	Proyecto de Fomento de la Transferencia de Tecnologia a las Communidades Campesinas de la Sierra—Peru
FOFIFA (CENRADERU)	Centre National de la Recherche Appliquée au Développement Rural—Madagascar
FONAIAP	Fondo Nacional de Asistencia y Investigación Agropecuaria—Venezuela
GCIAI	Grupo Consultivo para la Investigación Agrícola Internacional
GCRAI	Groupe Consultatif pour la Recherche Agricole Internationale
GRN	gestion des ressources naturelles
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit—Germany
IARC	international agricultural research center
IBS	Intermediary Biotechnology Service—ISNAR-based
IBTA	Instituto Boliviano de Tecnología Agropecuaria
ICA	Instituto Colombiano Agropecuario
ICAR	Indian Council of Agricultural Research
ICARDA	International Center for Agricultural Research in the Dry Areas
ICRAF	International Centre for Research in Agroforestry
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
ICTA	Instituto de Ciencia y Tecnología Agrícolas—Guatemala

IDB	Inter-American Development Bank
IDIAP	Instituto de Investigación Agropecuaria de Panamá
IDRC	International Development Research Centre—Canada
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IICA	Instituto Intermericano de Cooperación para la Agricultura; Inter-American Institute for Cooperation on Agriculture Institut Interaméricain de Coopération pour l'Agriculture
INERA	Institut d'Etudes et de Recherches Agricoles—Burkina Faso
INFORM	Information for Agricultural Research Managers—ISNAR-developed management information system
INIA	Instituto Nacional de Investigación Agropecuaria—Chile
INIA	Instituto Nacional de Investigaçao Agronómica—Mozambique
INIA	Instituto Nacional de Investigación Agraria—Peru
INIA	Instituto Nacional de Investigación Agropecuaria—Uruguay
INIAP	Instituto Nacional Autonomo de Investigaciones Agropecuarias—Ecuador
INRA	Institut National de la Recherche Agronomique—Morocco
INRAB	Institut National de Recherches Agricoles du Bénin
INTA	Instituto Nacional de Tecnología Agropecuaria—Argentina
IPGRI	International Plant Genetic Resources Institute
IRAG	Institut de Recherche Agronomique de Guinée
ISAR	Institut des Sciences Agronomiques du Rwanda
ISRA	Institut Sénégalais de Recherches Agricoles
IVDN	integrated voice and data network
KARI	Kenya Agricultural Research Institute
KIT	Royal Tropical Institute—The Netherlands
LNPVDS	Laboratoire National de Protection des Végétaux et des Denrées Stockées—Sénégal
MA-NALRP	Ministry of Agriculture, National Agricultural and Livestock Research Project—Tanzania
MAFI-DAST	Department of Agricultural Science and Technologies, Ministry of Agriculture and Food Industries—Vietnam
MAG	Ministerio de Agricultura y Ganadería—Costa Rica
MINAG	Ministry of Agriculture—Guyana
MINAG	Ministry of Agriculture—Jamaica
MINAG	Ministerio de la Agricultura—Cuba
MRN	manejo de los recursos naturales
MOR	Management of Organizations and Resources—ISNAR program
NARO	national agricultural research organization
NARO	National Agricultural Research Organization—Uganda
NARS	national agricultural research system(s)
NATURA	Network of European Agricultural (Tropically and Subtropically Oriented) Universities and Scientific Complexes Related to Agricultural Development
NGO	nongovernmental organization
NRM	natural resource management
ODA	Overseas Development Administration—United Kingdom
ODI	Overseas Development Institute—United Kingdom
ONG	organisation non gouvernementale
PAPA	Participant Action Plan Approach
PAAFR	Public Authority for Agriculture and Fisheries—Kuwait
PCARRD	Philippine Council for Agriculture, Forestry, and Natural Resources Research and Development
PM&E	planning, monitoring, evaluation
PRIAG	Programa Regional de Reforzamiento a la Investigación Agronómica sobre los Granos en Centro America
PROCADI	Programa Colombiano para el Avance de la Investigación
PROCIANDINO	Programa Cooperativo de Investigación y Transferencia de Tecnología Agropecuaria para la Subregión Andina

PROCISUR	Programa Cooperativo de Investigación Agrícola del Cono Sur
PS&E	planificación, seguimiento y evaluación
RPDM	Research Program Design and Management—ISNAR program
RPSS	Research Policies and System Strategies—ISNAR program
SACCAR	Southern African Centre for Co-operation in Agricultural Research
SADC	Southern African Development Community
SARMAC	Strengthening Agricultural Research Management in Arab Countries—AOAD/ISNAR
SDC	Swiss Development Cooperation
SEA	Secretaria de Estado de Agricultura—Dominican Republic
SENASOL	Service National des Sols—Senegal
SLB	Service de Liaison en biotechnologie—basé au siège de l'ISNAR
SNIA	sistema nacional de investigación agrícola
SNRA	système national de recherche agricole
SPAAR	Special Program for African Agricultural Research—World Bank
UN	United Nations
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
WINBAN	Windward Islands Banana Growers' Association
WARDA	West Africa Rice Development Association

CGIAR-Supported International Centers



1.	**CIAT**	Centro Internacional de Agricultura Tropical, Cali, Colombia
2.	**CIFOR**	Center for International Forestry Research, Bogor, Indonesia
3.	**CIMMYT**	Centro Internacional de Mejoramiento de Maíz y Trigo, El Batan, Mexico
4.	**CIP**	Centro Internacional de la Papa, Lima, Peru
5.	**IBPGR**	International Board for Plant Genetic Resources, Rome, Italy
		(International Plant Genetic Resources Institute, IPGRI, as of February 1994)
6.	**ICARDA**	International Center for Agricultural Research in the Dry Areas, Aleppo, Syria
7.	**ICLARM**	International Center for Living Aquatic Resources Management, Manila, Philippines
8.	**ICRAF**	International Centre for Research in Agroforestry, Nairobi, Kenya
9.	**ICRISAT**	International Crops Research Institute for the Semi-Arid Tropics, Hyderabad, India
10.	**IFPRI**	International Food Policy Research Institute, Washington, DC, USA
11.	**IIMI**	International Irrigation Management Institute, Colombo, Sri Lanka
12.	**IITA**	International Institute of Tropical Agriculture, Ibadan, Nigeria
13.	**ILCA**	International Livestock Centre for Africa, Addis Ababa, Ethiopia
14.	**ILRAD**	International Laboratory for Research on Animal Diseases, Nairobi, Kenya
15.	**INIBAP**	International Network for the Improvement of Banana and Plantain, Montpellier, France
16.	**IRRI**	International Rice Research Institute, Los Baños, Philippines
17.	**ISNAR**	International Service for National Agricultural Research, The Hague, The Netherlands
18.	**WARDA**	West Africa Rice Development Association, Bouaké, Côte d'Ivoire

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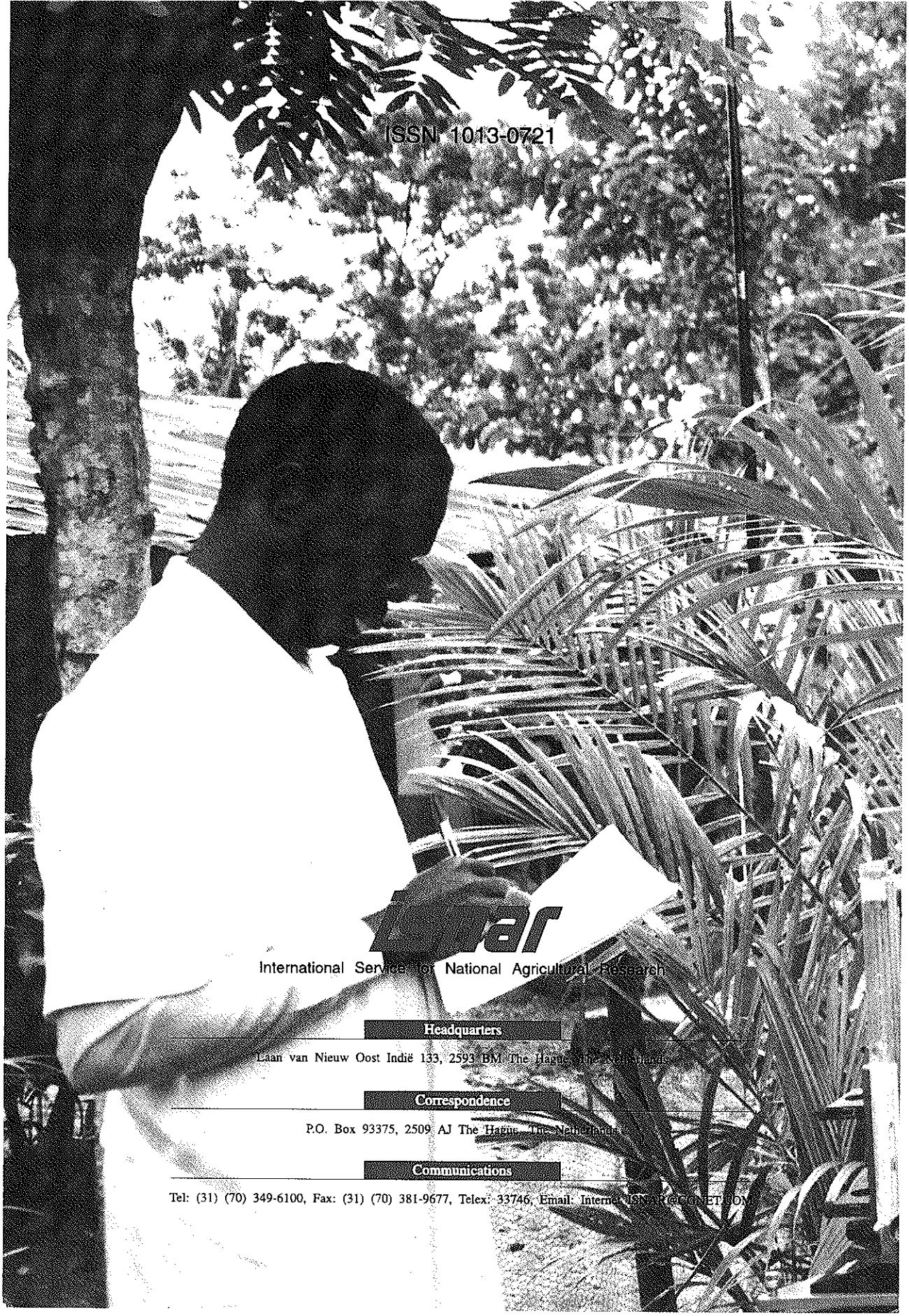

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International Service for National Agricultural Research

Headquarters

Laan van Nieuw Oost Indië 133, 2593 BM The Hague, The Netherlands

Correspondence

P.O. Box 93375, 2509 AJ The Hague, The Netherlands

Communications

Tel: (31) (70) 349-6100, Fax: (31) (70) 381-9677, Telex: 33746, Email: Internet: ISNAR@CGNET.COM