1988 Annual Report

International Service for National Agricultural Research

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

Of the thirteen centers in the CGIAR network, ISNAR is the only one that focuses primarily on national agricultural research issues. It provides advice to governments, upon request, on research policy, organization, and management issues, thus complementing the activities of other assistance agencies.

ISNAR has active advisory service, research, and training programs.

ISNAR is supported by a number of the members of CGIAR, an informal group of approximately 43 donors, including countries, development banks, international organizations, and foundations.

1988 Annual Report

April 1989

International Service for National Agricultural Research

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Foreword

The year 1988 for ISNAR was one of quickening momentum. Urgent requests from national systems, for example, caused us to go beyond our target of five or fewer diagnostic reviews each year. We carried out seven in 1988. Each is reported briefly in our report this year.

The year brought another increase in the breadth and depth of activity with National Agricultural Research Systems (NARS) in the stages of planning and of implementing actions. Implementation is the active stage, where our collaborators put into motion specific steps to remove constraints on their systems. Reports on these collaborations make up the largest section of our report this year.

Besides the amount of services implied in numbers, we responded to a range of special needs in implementation. For one example: at the request of the Madagascar NARS – with whom we had worked on strategic planning – we commissioned a team to convert plans into a project for external funding. In Senegal and Ecuador, as another example, we joined NARS managers in, first, studying needs and, second, working through management measures to build the human resource base needed to serve their mandates. Arrangements for resident research management specialists in two countries were completed this year: in Madagascar and Rwanda. Similar arrangements began in two others: Cameroon and Bangladesh.

Our collaborative efforts with about 40 NARS make a composite of many shapes and sizes. They are dynamic and continuous, and in discussing them at one point we seem to suspend action for a time. We could organize the presentation is several ways. For this report, which deals with a single year, we have chosen to use critical management factors as a base on which to organize the presentation. This does not properly give a chronicle of a country's moves over time to achieve goals – that would usually require much more than a one-year perspective. However, with this organization, we can highlight the range of activity this year in specific factors of research.

This framework for presentation has another advantage. It helps give context for the two major supporting services of ISNAR – research and training. Both focus on knowledge and tools that improve NARS managers' capacity to carry out research management functions.

In research in 1988, two projects were nearing completion and dissemination; two were building momentum; and a new project (on small-country NARS) was in development. Internal working groups also stimulated research on the management factors they stress. One innovation this year was what we called an expert consultation – eight NARS leaders from Africa consulted with us on our efforts to produce useful knowledge and tools on four key management factors.

Our training efforts for 1988 again brought activity at national, regional, and international levels. The Southern African training program (which we execute for SACCAR in the nine SADCC countries) more than doubled its numbers of NARS persons in training.

Altogether, 1988 was busy, challenging and, we believe, productive for us at ISNAR. We hope our report conveys some measure of the excitement we find in the tasks the CGIAR has assigned to us and which our generous donors make possible.

Henri Carsalade
Chairman, Board of Trustees

Alexander von der Osten
Director General

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From left: (front row) Carsalade, Rakotovao, von der Osten; (middle) Dillon, Sadikin, Mwandemere, Thomas, Lopez-Saubidet; (rear) Wessels, Porceddu, Elliott (secretary), Camus.

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*Completed appointment during 1988

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CIAT	International Center for Tropical Agriculture, Cali, Colombia
CIMMYT	International Center for the Improvement of Maize and Wheat, El Batan, Mexico
CIP	International Potato Center, Lima, Peru
IBPGR	International Board for Plant Genetic Resources, Rome, Italy
ICARDA	International Center for Agricultural Research in the Dry Areas, Aleppo, Syria
ICRISAT	International Crops Research Center for the Semi-Arid Tropics, Hyderabad, India
IFPRI	International Food Policy Research Institute, Washington, D.C., U.S.A.
IITA	International Institute of Tropical Agriculture, Ibadan, Nigeria
ILCA	International Livestock Centre for Africa, Addis Ababa, Ethiopia
ILRAD	International Laboratory for Research on Animal Diseases, Nairobi, Kenya
IRRI	International Rice Research Institute, Los Banos, Philippines
ISNAR	International Service for National Agricultural Research, The Hague, Netherlands
WARDA	West Africa Rice Development Association, Bouaké, Côte d'Ivoire

Acronyms of International and Regional Organizations cited in the text

ACIAR	Australian Centre for International Agricultural Research
AOAD	Arab Organization for Agricultural Development
CAAR	Committee on Arab Agricultural Research
CDA	Cooperation for Development in Africa
CGIAR	Consultative Group on International Agricultural Research
CIAT	International Center for Tropical Agriculture
CIDA	Canadian International Development Agency
CIP	International Potato Center
CIRAD	Centre de Coopération Internationale en Recherche Agronomique pour le Développement
CTA	Technical Centre for Agricultural and Rural Cooperation
DSE	Deutsche Stiftung für Internationale Entwicklung
EEC	European Economic Community
FAO	Food and Agriculture Organization
GCC	Gulf Corporation Council
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
IBRD	International Bank for Reconstruction and Development (The World Bank)
IFPRI	International Food Policy Research Institute
IDRC	International Development Research Centre
IICA	Inter-American Institute for Cooperation on Agriculture
IITA	International Institute of Tropical Agriculture
ODA	Overseas Development Administration
ORSTOM	Office de la Recherche Scientifique et Technique Outre-Mer
SACCAR	Southern African Centre for Cooperation in Agricultural Research
SADCC	Southern African Development Coordination Conference
UNDP	United Nations Development Programme
USAID	United States Agency for International Development

Highlights of 1988

Seven Diagnostic Reviews in 1988

Diagnostic reviews of NARS or components were carried out in 1988: Burundi, Ecuador, Guinea, Laos, Mali, Syria, and the Oil Palm Institute in Nigeria. All are reported in the first section of the report on advisory service. (Page 1)

Three Limited-resources Reviews in 1988

Small teams carried out diagnostic reviews in three countries this year. Two were in small African countries – Burundi and Guinea – where two-person teams carried out full-system reviews. In a third case, one staff member diagnosed strengths and weaknesses of certain functions within the Syrian NARS.

Laos is First Review of A Small Asian Country

Research in Laos involves some 49 professional and technical staff in scattered units and projects. The review team offered suggestions for strengthening research within a national system. (Page 9)

Guinea Seeks to Rebuild Research Capacity

A 1988 review team found remnants of an earlier research system and interest now in rebuilding agricultural research capability. A model for reorganized structure was one of the suggestions offered by the reviewers. (Page 4)

Burundi Proposes Research Workshop

Research managers proposed an idea they call a research workshop as a main approach of the NARS. It has some elements of off-station research but some special considerations. (Page 5)

Syria Asks Review of Methods of Programming

A one-person mission responded to the request of Syria for review of its mechanisms for setting agricultural policy and programming research. (Page 7)

Nigeria's Oil Palm Institute Reviewed

Once an exporter, Nigeria now imports to meet its needs for palm oil. An ISNAR team reviewed the palm oil institute, one component of the nation's agricultural research system. (Page 7)

ISNAR and IICA Join to Review Ecuador NARS

The regional institute IICA and ISNAR joined forces to review the national system in Ecuador. The 27-year-old institute has made important contributions, the reviewers found, but they found many points where it could be strengthened. (Page 8)

Mali Moves from Review to Plan in Same Year

Before a formal report was issued of the ISNAR review of Mali's NARS, steps had begun for a long-term national plan for agricultural research. (Page 3 and 12)

Implementation Activities Increase

ISNAR's collaboration strategy moves through the sequence of diagnosis of constraints on a NARS, plans to overcome them, then actions to implement plans. As relationships with countries mature, implementation activities become dominant in the NARS requests. That trend was evident in 1988. (Page 13)

Help Uganda Plan to Rebuild Research System

Two ISNAR staff collaborated with a Ugandan task force seeking to rehabilitate the nation's agricultural research system and the broader agricultural sector. (Page 12)

Project Preparation Follows Planning With Madagascar

ISNAR moved one step downstream in its advisory service work with Madagascar. A team formed and supervised by ISNAR carried out a mission to prepare a project for external funding, focused on carefully implementing the nation's 10-year plan. (Page 14)

Costa Rica Moves on Broad Front

Costa Rica, whose NARS was reviewed in 1981 and 1987, moved to implement many recommendations of those two reviews. Work on setting priorities, for example, sharpened focus onto 14 projects, rather than spreading resources over 88 projects as found in the 1987 review. (Page 16)

Collaboration with Sri Lanka on Programming

ISNAR is working in a three-way collaboration to help Sri Lanka activate a national Council for Agricultural Research Policy. The third party is GTZ (Federal Republic of Germany). A related project concentrates on planning and programming methods at the research-station level. (Page 18)

Policy, Priorities, Plans Get Wide Attention

Most of ISNAR's collaborators put emphasis on agricultural research policy and planning. Many were active on the matter of setting priorities. It was a popular subject for training as well as consultation. (Pages 14-19)

Steps Taken on Research-technology Transfer

NARS' interest increased in the critical factor of research-technology transfer linkages. Specific steps are reported for five countries (Pages 19-20).

Program Budgeting Systems Adapted

Program budgeting systems have been created in a number of NARSs. There was special interest in methods to utilize computer capabilities, notably in Morocco, Indonesia, and Sri Lanka. Software available off-the-shelf can process the key program budgeting variables. (Pages 20-22)

Two Collaborative Studies on Managing Human Resources

Projects were under way in 1988 for ISNAR to collaborate with Senegal and Uruguay in studying human resource management system needs. The joint efforts are pointed toward systems that meet management needs from manpower planning and recruiting through job descriptions, career and salary structures, through evaluation and training. (Page 22)

Indicator Series Goes to Press

The Cambridge University Press, U.K. had the ISNAR Agricultural Research Indicators volume in press at

the end of 1988. Interest has been expressed by the same publisher in the State of NARS volume currently in preparation. (Page 26)

A Worldwide Look at Agricultural Research

In the last quarter century, world agriculture has gained in productivity per unit of land and per unit of labor – on the basis of worldwide figures. Developing countries show faster growth in numbers of scientists than for developed, but not in overall financial support. These data come from the ISNAR Indicator Series. The situation and some implications are drawn in the special article that begins on page 28.

OFCOR Analyses and Publications Continue

ISNAR's on-farm, client-oriented research (OFCOR) project continued through 1988. Nine country cases were completed, and four were out or due early in 1989. Two of nine comparative studies were published, others were in preparation. (Page 27)

Research-technology Transfer Project Advances

Seven countries were chosen for case studies in the NARS linkage of research to technology transfer units. Local collaborators were chosen and plans readied for major activity in 1989. The countries are Colombia, Costa Rica, Dominican Republic, Côte d'Ivoire, Nigeria, Philippines and Tanzania. (Page 30)

Study Strategies and Research for Small Countries

Research managers in small low-income countries face problems like those in larger countries – often with a reduced scale of resources to meet them. An ISNAR study, based on seven country cases, will focus on the small-country situation. (Page 32)

Experts Consult on Factors of Management

Eight selected African NARS managers met with ISNAR working groups to consult on four critical factors: priority setting, program formulation, monitoring and evaluation, and human resource management. (Page 37)

Fourteen Training Events in 1988

ISNAR sponsored or co-sponsored 14 training events in 1988. Three were international, three regional, and eight national. The 407 participants in 1988 brought the grand total (since 1981) to 2,139 for 62 training events. (Page 35)

Varied Topics for International Conferences

Subjects for 1988 international conferences covered a broad range: changing dynamics of global agriculture, human resource planning and management, and ATMS (agricultural technology management system). (Pages 35, 36)

Three Regional Events for Africa

Conventional-type workshops served 12 African NARSs in 1988: Nine attended the African Sahel training: Burkina Faso, Cape Verde, The Gambia, Guinea-Bissau, Mauritania, Mali, Niger, Senegal, and Chad; and Botswana, Lesotho, and Swaziland took part in a SACCAR-ISNAR workshop. An unconventional regional event brought eight NARS managers to ISNAR for expert consultation on ISNAR tools and materials. (Page 37)

National Training Provided in Three Regions

West Asia-North Africa, Africa, and Asia-Pacific were represented in national training on research management in 1988. The countries were Jordan, Philippines, Malawi, Sudan, Tanzania, Zambia, and Zimbabwe. (Page 37)

Report at Midterm on Southern Africa Training

The year 1988 brought to its midpoint the four-year SACCAR-ISNAR agricultural research management training project. A special article (beginning on page 40) reviews the project to this point, with numerous comments from participants; 243 had taken part through 1988.

Country-by-country Activity Reported

Collaborative activities were reported from 38 countries by the ISNAR staff in 1988. These are catalogued briefly by regions and countries, beginning on page 44.

Publications Listed

Twenty-four publications carried the 1988 imprint of ISNAR, including: annual report in three languages, newsletters, 2 workshop proceedings, 5 diagnostic reviews, 4 OFCOR reports, and 10 working papers. (Page 49)

Forty-five Consult for ISNAR in 1988

The list of consultants for 1988 included 45 persons from all parts of the world. The range of special services required was equally broad. (Page 49)

Changes Occur in Staff Outpostings

Major changes occurred this year in the pattern of ISNAR research management specialists on postings to individual countries. Projects were completed in three countries: Burkina Faso, Rwanda, and Madagascar; new postings took staff to Indonesia, Bangladesh, and Cameroon.

The ISNAR review team and Laotian hosts visit research plots of rice, the country's major food crop. Laos was one of three relatively small countries reviewed in 1988.

Collaborating with National Systems:

Diagnostic Review Missions in 1988

Seven diagnostic reviews carried out in 1988

ISNAR's agenda for 1988 included diagnostic reviews in seven countries – two more than the annual target set out in our strategic plan.

Several factors caused us to take on more than a usual number of reviews this year. One was simply urgency cited by those who asked for reviews. In other instances we were asked to collaborate on plans or changes in systems we did not know well: we must understand a system before offering advice.

Also, there was the matter of balancing our use of resources and potential impact. In 1988 we undertook two small-country reviews, in part to find if we could do them effectively with few resources. (Improvements in a large system tend to benefit greater numbers of people; yet we're not comfortable with a rule to work only with medium-to large-size countries.)

Six of the reviews dealt with national systems for agricultural research. (The exception was in Nigeria, where the review was limited to the national organization for oil palm research.) Three were systems in small countries (populations near five million); three were relatively larger or more mature systems.

Laos was our first review of a small-country system in Southeast Asia. In two other smaller countries, Burundi and Guinea in Africa, we applied a limited-resources approach. Mali, in francophone West Africa, is larger in land area and has two national research organizations. Ecuador has a national research system that began operations in 1961; we worked jointly on this review with IICA, the Inter-American Institute for Cooperation on Agriculture. While our work in Syria involved the country's main agricultural research organization, our review had a limited focus on mechanisms for setting policy and formulating the research program.

Once an exporter, Nigeria now imports palm oil

Oil Palm in Nigeria

In the year's one component review, a team of six (including two Nigerians) analyzed the Nigerian Institute for Oil Palm Research (NIFOR). This national institute's mandate includes three other palm crops, although oil palm leads in economic importance.

Nigeria was once the world's leading exporter of palm oil, but in 1985 it imported 150,000 tonnes. Its recent production has grown at just over 2.3% annually, while demand has increased at nearly 3.7%. Imports could reach 600,000 tonnes by the mid-90s if the trends continue.

Smallholders account for most of the oil palm output in Nigeria, with about three-fourths of production harvested off wild trees. Such trees get little cultural attention. Village or small-scale factories process most of the fruits; their extraction rates run below 50%, in comparison to efficient modern plants that get up to 90% of the oil.

Nigeria could produce much more palm oil. Production from semi-wild stands, which cover several million hectares in southern Nigeria, could be increased by replacement and new plantings. Nigeria has about 150,000 hectares in higher-yielding hybrids. (Malaysia, the leading oil palm producer has 1.4 million ha of hybrids.)

National policy in Nigeria seeks to put new vigor into the oil palm sector. The World Bank and the European Economic Community are providing support. NIFOR will play a key role: it is the only national source of improved hybrids — now producing seedlings for 25,000 ha per year. Its research leads the way to better technology for growing the oil palm and processing the fruit.

Both Strengths and Problems

The ISNAR review team found strengths in the NIFOR research program: an able scientific staff; a tradition of scholarship; established experiment stations; and management structure and processes in place.

But NIFOR was not realizing its research potential — for several reasons, according to the reviewers. For one thing, the objectives assigned to NIFOR were far beyond what its resources could achieve. Also, only a third of NIFOR resources were devoted directly to research — resources were diverted to many non-research activities. Also, its mandate includes three other palms that draw resources away from oil palm.

NIFOR has felt the effects of the depressed world petroleum market, since petroleum is Nigeria's primary source of foreign exchange earnings. Drop in government income has been followed by reduced support, and this is the primary source of NIFOR's difficulties. The institute's total budget for 1987 was 45% of what it had been in 1981. The reduced budget has left impacts troughout the institute.
Reviewers described facilities as *generally obsolete and rundown*. They cited needs for nearly US$6 million investment for equipment, facilities, construction, and renovation.

Recommendations

The review team's recommendations covered the domains of research and development goals and organizational matters.

In the research domain, suggestions dealt with the method of producing hybrids, some redirection in building packages of agronomic practices, and farming-systems research.

Advise study on how oil palm fits farming systems of smallholders

The reviewers pointed out that NIFOR has shown strength in plant breeding: its first-cycle hybrids are doing well, and further improvements should come in the second cycle. The team urged NIFOR to develop its own capacity to use tissue culture for propagating superior materials.

While present agronomic packages are adequate, the team noted, more work should go on packages fitted to needs of specific locations. And they emphasized the need for research on how oil palm fits into the complex farming systems of smallholders, since the bulk of production is expected to come from them. The team also urged concern for effects on the environment with large-scale shift of forests to oil palm production.

NIFOR could benefit the sector more widely by spreading its improved design for a small processing plant – they call it a *minimill*. It could be shared with a commercial fabricator. Also, the team called for NIFOR effort to design small-scale equipment that would clean, dry, and sort palm kernels – a way to curb some of the current waste of oil palm kernels.

NIFOR's need for a strategy to guide it in commercializing its own inventions was one organizational matter on which the reviewers commented. They noted also the need for more extension-related functions by NIFOR.

One key point among management recommendations urged a facility that could disburse resources more quickly to meet requirements in a timely way. Citing the mismatch of objectives and resources, the team urged that NIFOR clarify the research mandate in relation to the three other crops assigned to it: coconut, raphia, and date.

The NARS in Mali

More than 250 person-years of researcher input each year go to agricultural research in Mali. Compared to many of its West African neighbors, Mali has a large research effort. There are two research institutes in different ministries: the Institut d'Economie Rurale (IER) and the Institut National de Recherches Zootechniques, Forestiéres et Hydrobiologiques (INRZFH).

The Ministry of Agriculture asked ISNAR to collaborate in reviewing the research system and preparing a plan for strengthening agricultural research. They also asked advice on means for organizing and carrying out the plan. An ISNAR team – two staff and one consultant – worked with Malians to launch the work.

In its three-week on-site review in February-March, the team found a satisfactory number of researchers, but that most could not do their work efficiently due to lack of funding for equipment and operations. Recruiting of able researchers, and rewarding them for scientific achievement, was limited by the civil service rules that applied to them. Field stations under the institutes were set up in the 1960s – and some were not fitted to today's needs. More than 70% of the research funding was coming from external sources.

Three Main Recommendations

A major recommendation in the area of organization related to the station network: to change single-commodity stations to take on a multidisciplinary thrust. Another main recommendation received early attention: to begin a long-term-

Mali moves quickly from diagnosis to long-term planning

planning exercise to establish priorities for research and to improve balance among programs.

The review team discussed its findings and recommendations in a seminar. And action began promptly to start the long-range plan.

The strategy and process for the plan in Mali came from an approach used a year earlier in nearby Niger. It involves setting up task forces to work in depth on major sectors in agriculture – in this case 10. Each produces a sector paper; then representatives meet to share their analyses and to formulate the national priorities. The task forces – which include specialists from government, universities, and development projects – then make plans for the sectors they study. The process also uses a national ad hoc committee, named by ministry officials to oversee the process and to deal with broad political issues. ISNAR stays close to the process, helping Malians elaborate the implications for resources and propose means of putting the plan into action. The plan is theirs, however, created by Malians for their system and their country. It's an action plan keyed to the future.

Guinea: Restoring Agricultural Research

Three decades ago agriculture flourished in the West African Republic of Guinea. A research system helped producers use their natural resources effectively – they have one of the highest potentials for agriculture in the region.

In recent decades, however, research was not well-supported, either in funding or in attracting able researchers. Both facilities and output deteriorated.

Development leaders in Guinea see the agriculture sector as the base for socioeconomic development in the country. Projects backed by international donors are active. Weakened by decades of neglect, however, the system has few solutions to recommend to the developers.

The Secretariat of State for Scientific Research, to which the national directorate for agricultural research was transferred in 1988, invited ISNAR to review the research system. That directorate has since become autonomous as the Institut de Recherche Agronomique de Guinee – IRAG.

A Small-team Review

ISNAR responded by assigning the mission to two of its staff, both experienced in agricultural research in West Africa. In just over three weeks in Guinea, they met with persons from a wide range of local, national, and international organizations. They saw research facilities at the headquarters and the field; they visited all four major agroecological zones.

Terms of reference focused attention on three topics: finding the major constraints on the research system; planning a structure to direct agricultural research; and formulating short- and medium-term actions to strengthen IRAG.

The team found that the research service was not ready to perform the functions expected of it. Some modest research efforts were under way – generally under projects that had external support (notably for rice, coffee, and fruits). But many areas of research had not been programmed.

Two options seen for action by Guinea agricultural research system

Two Options

The ISNAR team suggested that two options confront the research system in Guinea.

One option is to go along with current activities – many separate and often limited projects under different rural development programs and donor funding. The long-term result, in the view of the team, will be a collection of fragmented projects, not a strong and coherent research organization that serves the whole agricultural sector.

The second option, the one recommended by the reviewers, calls for two steps: first, development of a consolidated research system – which would minimize long-term operating costs of infrastructure and programs; second, reforming the program structure and management methods to fit that consolidated system.

The reviewers advised that IRAG take gradual, well-considered steps. It can put into place right now some programs of applied and adaptive research, using technologies already introduced in nearby countries. It can work up its manpower plan for the future, and can start training to upgrade scientific capacity.

A Model Organization

The review team worked through one model for organizing and managing agricultural research in Guinea. It included an organigram with many reasoned suggestions on activating and operating the organization. The model was offered as a starting base for Guineans to adapt and adjust to the situation as they know and work with it. ISNAR staff will collaborate as NARS leaders formulate and begin their next steps.

Burundi: Some Innovations

Small land area and a population of five million make Burundi one of the most densely populated countries in Africa. Yet it is primarily rural and nearly self-sufficient in food. Agricultural output, however, has been growing at an annual rate of 1.3%, while population growth rate is more than double that.

Burundi's five-year plan asks much of its agriculture. That in turn calls for technical advances from its research system, ISABU (Institut des Sciences Agronomiques du Burundi). In March 1988 the Director General of ISABU asked ISNAR for advice on a range of organization and management topics.

Although ISNAR'S agenda was heavily committed for the time period, a small but intensive mission was mounted by mid-summer. Two staff undertook the review. In addition to serving Burundi, this mission applied small-team methods to the diagnostic review.

The team spent three weeks in Burundi. They found ISABU to have 86 researchers (37 were expatriates), six research stations, plus other field sites without resident scientific staff. External agencies paid for much of the current program – with Belgium by far the largest donor, and other support from USAID (U.S.A.), Canada's IDRC, France, and the European Economic Community. Three CGIAR centers have work there – CIP on potatoes, IITA on cassava pests, and CIAT on beans.

After their on-site work, the team devoted four weeks more to analysis and writing. A draft report went to ISABU in

Burundi farmers have benefited from the *fermettes Bututsi* program. ISABU researchers work directly with them, finding constraints and proposing and demonstrating solutions. They also give practical advice on management practices. The kind of experience models the new approach of *ateliers de recherche*

October. Before the end of 1988, its Director General had made plans to come to ISNAR headquarters in January 1989 for final review and approval of the report and, especially, to discuss ways to implement recommendations. The report was readied for concurrent French and English editions the same month.

Analyzing a New Idea

Much of the review followed usual methodology: many persons were interviewed and consulted; stations and facilities were visited; policymakers and officials were contacted; procedures and processes were studied and evaluated. But there was something new here: ISABU asked the team specifically to examine an approach that could alter and re-focus much of its work.

The ISABU creators gave their concept the name research workshops (*ateliers de recherche*). The crux of the idea is that research would take place in a *workshop* that is a real-life farming situation – something like off-station work, but something more.

In a research workshop, a team of scientists would become residents of an area selected for concentrated study – not merely visitors from a research station. They would select as many as 40 farmers to represent the producers and the problems to be studied. They would involve farmers to help define and describe the needs; to determine priorities for the technology to be developed; and to work with the scientists on field trials, evaluating results, and making decisions about recommending the technology for adoption by more farmers. Two staffing alternatives had been put forward: one called for a team with four scientists, each with a research specialty related to the expected problem areas; the other would have one or two scientist-generalists backed by a few research technicians.

The ISNAR team analyzed this idea, considering it within both the structure of ISABU and Burundi's environment. They concluded that the *research workshops* idea is innovative and promising there – certainly worthy of trial.

But the reviewers recommended caution. ISABU should view the approach as experimental: to test it against definite criteria before implementing the approach on a country-wide scale. And they suggested the staffing alternative of generalists plus technicians, rather than specialist teams.

Small-team review methodology applied in Burundi

Terms of reference of the review called for attention to a number of other research management functions. The team suggested strengthening actions. These included specific advice on human resources, training, information management, linkage to extension services, and financial management.

As a review methodology, we found that the small team could make a broad diagnosis of a small system in a short time. An exceptionally intensive and disciplined methodology was required.

Syrian review focuses on research policy and programming

Syria: A Focused Review

A training event a year earlier led to our review in 1988 of certain research management functions in Syria's Directorate of Agricultural Scientific Research (DASR). We had worked with Canada's IDRC on an agricultural research management workshop for Syria. Interest in the subject continued.

Early in 1988, we were asked to review certain aspects of DASR, specifically: mechanisms for setting agricultural research policy and formulating the DASR research program; and resources available to implement the DASR program. And we were invited to offer proposals for improvements on all the points.

One senior research officer of ISNAR carried out this focused review. He was well-acquainted with the system, having served as an agricultural scientist in Syria for many years. Also he has worked with DASR officials in various ways while in ISNAR – such as coordinating and teaching in the training event that helped trigger this request for review.

DASR is the main agricultural research organization in this West Asia nation, whose agriculture contributes the largest single component of the gross domestic product. Half of Syria's 11 million population (growing at 3.7% per year) live in rural areas. In addition to more people each year, changes in food consumption patterns cause a rising demand for products of the farms. Self-sufficient in some foods, Syria imports about one-third of its cereals, 30% of milk, and 60% of fish and refined sugar.

The Present System

DASR has a staff of 355 degree-holders (28 Ph.D.s and six master's among them), who work within eight technical divisions. As staff of the Ministry of Agriculture and Agrarian Reform, and employed under general government regulations, DASR researchers have salaries notably lower than university faculty and persons in similar posts in nearby countries. The last decade has seen a doubling in research staff, but turnover has been high; about 30% have been in DASR for less than five years.

DASR's physical infrastructure includes 14 centers and seven stations.

Current research-planning mechanisms are centralized, without guidance of an expressed strategy or a long-term plan. Input by individual scientists comes in specialized-group meetings; their project proposals may be discussed at the main programming event, the DASR annual meeting.

There were some 400 projects on the books in 1988, and the number has been growing by about 14% per year.

Recommendations

The reviewer found weaknesses in DASR's current planning methods. A number of bodies,

with specific roles, were suggested to formalize the planning process: a Ministry research committee to formulate national agricultural research policy; a national task force to prepare research project areas for a long-term plan; and a technical committee, plus program committees, to deal with the short-term plan and annual research program.

Two main proposals were advanced to strengthen management of human resources. First, DASR was advised to develop a human-resource plan, based on future needs for research. This plan would include training, in-country and abroad. Second, the Ministry needs to create an incentive structure for researchers to encourage able scientists to look ahead to life careers in agricultural research.

In the area of physical resources, the review pointed out a need to consider reorganization of research stations.

Ecuador's INIAP

Agricultural research in Ecuador has more than a half-century of history behind it. The present national institute (Instituto Nacional de Investigación Agropecuaria, INIAP) began operations 27 years ago.

The Ministry of Agriculture requested our review of INIAP – with endorsement of CONACYT, the National Council of Science and Technology, and INIAP itself.

The INIAP staff in 1988 numbered 226, of whom 60 held postgraduate qualifications. Records of a recent year reported over 1,100 trials on 71 commodities or species. A relatively small country for South America, Ecuador exports coffee, cocoa, and banana. Its agriculture includes a wide range of cereals, vegetables, fruits, and animals. Fewer than half of the nation's 10 million people are rural now. Although land reform has brought some increase in farm size, 60% of farms have fewer than five hectares.

Government support of INIAP grew by 5% per year in the decade of the 1970s; it has gone down consistently since – as government income from petroleum declined. And INIAP's share within the Ministry budget has also dropped – from 9.5% to 2.8% in less than eight years.

The review of INIAP focused – at the Ministry's request – on two main features: how elements in the system function; and recommendations on how to improve the capacity, effectiveness, and efficiency of the system.

Joint Effort with IICA

A team of five reviewers carried out the mission, which was organized as a joint effort with IICA, the Inter-American Institute for Cooperation on Agriculture.

Ecuador's national system, INIAP, has contributed much in its quarter-century of operations. The ISNAR-IICA review brought out ways to strengthen its current work.

Erosion of budget has had severe impact on Ecuador's INIAP

Reviewers found that INIAP has made noteworthy contributions to Ecuadorian agriculture. They also found weaknesses and areas where functions could be improved.

Erosion of the research budget has had severe impact, the team reported. The system has lost many experienced and highly trained staff.

Wide-ranging Suggestions

Higher salaries will be essential to attract and retain able researchers, for whom there is strong competition from other employment sources. INIAP's human resource management needs a base in a manpower plan and development of a career ladder so researchers can project their future within the system.

A number of management reforms can help INIAP make the best use of its resources. These include program budgeting and monitoring and evaluation. This calls for improvement in its information systems and effort to measure economic impact of its programs, according to reviewers.

The infrastructure was judged still to be adequate but with operational problems, including: old and obsolete equipment; lack of transport; and outdated research library collections.

The Ministry's rigid organizational procedures, the team found, limit the flexibility INIAP needs for meeting changing circumstances. The reviewers proposed restoring INIAP to autonomous operation under the Ministry.

Within broad functional areas of policy, organization, and management, team members offered many specific suggestions and actions. They pointed out a number of important linkages of INIAP to other bodies for mutual benefits: with PROTECA, a special sectoral project; FUNDAGRO, the agricultural development foundation; IDEA, the technology development program; private-sector organizations, and groups involved in transfer of technology to users.

Laos: A Small System

On a world map, or in comparison with most other countries, the Lao People's Democratic Republic in Southeast Asia is a small country. Its population of four million is growing fairly rapidly.

Less than one million hectares make up its cultivated-land base – about 30% of land is considered suitable for cultivation. About 90% of the cultivated land grows rice, the dominant crop. Maize, cassava, soybean, mung bean, groundnut, and grain legumes comprise the other food crops. Coffee leads a short list of exports, with cotton, sugarcane, and tobacco. The leading livestock interest is water buffalo, the source of power for rice production; there's interest also in pork, poultry, and fish production.

Our exchanges with Laotian officials began in mid-1986. Over the following months, a formal request for review developed. Terms of reference framed a diagnostic mission to review the existing agricultural research system; to offer propositions for improving the structure in the short term; plus a plan for the medium term to set up a network of research stations and to advise on long-term needs for personnel.

A team of two ISNAR staff and a consultant made the on-site review in four weeks in February-March 1988. After consultations with government

24 professionally trained staff in the Laos NARS

officials in early summer, the approved French-language report was published in July.

Separate Research Units

Reviewers found a staff of 49 persons in agricultural research – 25 support technicians and 24 with professional training (two to the Ph.D. level). Personnel were divided among 11 research programs – rice claimed 17 (six professionals and 11 technicians). Three field facilities were maintained away from the capital and headquarters. Two had been set up during the country's colonial period, and the most recent was created in 1985.

Agricultural research functioned under different departments of the Ministry of Agriculture, with no overall organization filling a national planning and management role. The rice program included some variety development, plant protection, and seed multiplication work. In most instances, research on other crops covered variety trials and seed multiplication.

Financing for research came from several sources within the country. External funding provided key support: the United Nations Development Programme was financing food crops and supporting research stations; France was helping with fiber and oil-crop research; Australia with forages, cassava, and animal feeds; and the European Economic Community with tree fruits.

Recommendations

The review team set out a series of propositions to help Laos strengthen its agricultural research system.

Organizationally, the team proposed a single national center to bring all agricultural research activities together for central

scientific direction – under the Ministry of Agriculture, Forests, Irrigation and Cooperatives (MAFIC). Management and financing would be decentralized, however, through regional centers and the network of experiment stations – each with its defined mandate. The team also suggested a directorate of agricultural research under MAFIC and a council on planning and programming agricultural research.

For the short term, the reviewers advised limiting expansion to three provinces where there are already some elements of infrastructure. They recommended immediate attention to developing priorities to guide efforts in the medium-term. The short-term plan of action would emphasize steps to start on organizational and structural changes and to formalize planning. Reviewers offered ideas as well on how the system could make better linkages between research and extension. And as means of getting long-term stability and continuity in the research effort, they advised increasing national sources of funding.

Reviewers recommended that Laos bring its various research efforts together into a single national center. Some central planning and management initiative could increase effectiveness of the small research staff.

Collaborating with National Systems:

NARS Make Plans to Strengthen Their Systems

Diagnostic reviews, as reported in the preceding section, tend to be one-time efforts, at least one review seems sufficient for a number of years.
Support to national agricultural research systems (NARS) in planning has no time limit.

Planning activities usually get a lot of time in the months that follow a review; however, they recur at whatever frequency the needs of our collaborators cause them to call upon us. We report here on some of the system-planning activities in which we worked with NARS staffs in 1988.

Bangladesh

In 1987 two senior ISNAR staff helped a research group in Bangladesh prepare a long-term agricultural research plan – to the year 2000. It looked toward the second phase of the Bangladesh Agricultural Research Project, which is supported by USAID. In 1988, USAID supplemented the project to provide services of a resident research management specialist (an ISNAR staff member) for three years. An experienced research manager started his assignment in January 1989. His work with leaders of the Bangladesh Agricultural Research Council (BARC) will have a strong planning emphasis related to: the national agricultural research plan; allocation of resources to priority problems; a monitoring and evaluation system; long-term strategy for BARC as coordinator of agricultural research; the agricultural research station network; management information systems; and financial management systems.

Cameroon

In Cameroon in 1987, we reviewed two agricultural research institutes under the Ministry of Higher Education and Scientific Research. One of our staff has continued in frequent liaison. Early in 1988, we outposted a senior staff member as a research management specialist to advise and work with IRA (Institut de la Recherche Agronomique). His work is funded by Cameroon under a World Bank loan for agricultural research. During the

year, IRA moved ahead with system planning: a proposal was put forward, for approval by Government, to do away with two national centers (soils and forestry) and to integrate their research activities into IRA. The plan would also create four IRA centers, with regional mandates for each.

Mali

Our collaboration with Mali began with a review mission in February-March. It moved quickly into planning. Within a few months of the oral report, and before the written report was delivered, the agricultural research institute had been shifted from a subordinate role in a ministry to that of an autonomous unit.

A national seminar in October launched the broad national agricultural research planning exercise. Sectoral working groups were formed to study and report on different parts of the agricultural sector. An ad hoc committee of national leaders was named to oversee the exercise; the committee itself deals with political and policy matters. Plans emerging from this work – carried on by Malians with our support on methodology – will provide the basis for manpower and allocation of resources within the system. At the same time it will provide focus for research in the major commodity and subject areas.

Somalia

An ISNAR mission reviewed the Somalia agricultural research system in 1983. We have had limited contacts with the system in following years. In 1988, however, leaders expressed their desire to update the national research plan, formulating a long-term plan. This signals intent to take up system-building efforts more vigorously, implementing suggestions made in that review.

Syria

Interest in planning followed our diagnostic review of Syria's Directorate of Agricultural Scientific Research (DASR) this year. A strategic plan, requested by the Ministry, will be the first step as DASR implements recommendations for strengthening the agricultural research system.

Uruguay

Planning activities with Uruguay moved along three main lines this year, following up the review of 1987. One staff member helped formulate principles to guide writers of the proposed statute that would create an autonomous national institute for agricultural research. We helped also to develop a proposal for structure and organization of the new bode. A senior contributor to ISNAR research on methods for priority-setting worked with Uruguayans on setting priorities within their national plan. Another staff member led the work to develop a manpower plan; this effort dealt with the key features of human resource management.

Uganda

Our work with Uganda began late 1986, when the Food and Agriculture Organization (FAO) asked us to help in assessing needs to rehabilitate two research stations. More involvement began in 1987, when task forces were formed – under World Bank and Bank of Uganda initiative – to deal more broadly with rehabilitating the agricultural sector. An ISNAR senior staff member shared leadership with a Ugandan of a task force on agricultural research.

The task force found a host of problems facing the agricultural research system: the infrastructure had been virtually destroyed by war, and the research organization was not flexible enough to respond well to difficult problems.

One recommendation from the task force covered organization – it proposed a semi-autonomous national agricultural research organization. By 1988 the national organization had gained backing at government policy levels. A team was developed to prepare a plan to establish and guide such an organization. Two ISNAR staff and three Ugandans comprise that team. Its target is a new organization in full operation by the end of 1990.

Efforts have begun for formulating research programs in formal and systematic ways, with annual and five-year assessments of programs and projects. A manpower-planning and training effort has the backing of a donor, USAID. A formal pattern has been conceived for linking research and extension.

Several donors are active in Uganda within this model. The initial task force activity had World Bank backing; USAID has provided for ISNAR staff inputs at the second stage of planning; the World Bank, USAID, and other donors will support the forthcoming strategic and manpower planning and the long-term training activity.

Collaborating with National Systems:

NARS Implement Institution-building Actions

From our first interaction with a national system, its national leaders look ahead to this third step, implementation. Here's where the action takes place; these are the steps that strengthen institutions. And the institutions take the actions themselves; we don't act for a NARS. As analysts and specialists in agricultural research management functions, we support the NARS as it chooses actions and implements them.

So in reporting implementation activities of 1988, we are really telling what the NARS people did – and relating how we collaborated and supported their actions.

Implementations occurred in a great many ways. There were dramatic actions, such as steps to create or rehabilitate institutions to manage all of a nation's agricultural research. Some actions focused on limited areas, such as activating a committee to start interaction of research workers and extension staff.

The substance of action was diverse as well, with all pointed toward improving one or more of the management functions by which a NARS carries out its tasks. As a way to organize a report on such varied activities, we can look in terms of critical management factors. We'll focus on the factors toward which the ISNAR strategy concentrates our program.

Work with Madagascar on long-term plan, then on preparing project to implement it

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

We report first a collaboration on planning and implementation that differs from what we have done before. We were involved in three stages in this instance in Madagascar: first, in the national long-term plan; then preparation of a project to implement the plan; and third, participating as an independent adviser when the World Bank's staff carried out its mission to appraise that project.

Madagascar

The collaboration was requested by Madagascar's agricultural research institute, FOFIFA. Created in 1974, FOFIFA has had many stresses and changes over the years. Since our system review in 1983, we have maintained close contact; in fact, during four of those years an ISNAR specialist in research programming was in residence, financed by Madagascar.

As that contract with ISNAR neared its end, FOFIFA leaders asked for guidance on methodology and help in substance to prepare a detailed plan for FOFIFA's next 10 years; that to be followed by the design of a medium-term research program as a project proposal on which FOFIFA would negotiate for support from external sources.

Ten-Year Plan

In the first stage of this sequence, the 10-year plan, FOFIFA named a working group of seven of its staff. An ISNAR staff member plus an ISNAR consultant worked with the group on methodology and supporting advice.

The method followed six main lines of action:

1. analyze the agricultural sector, evolution of production, and constraints related to agricultural policy;
2. establish priorities for research for 1986-90;
3. establish programs to deal with the first and second research priorities;
4. project the human resource needs in two phases: for the first 1 to 5 years, then for years 6 through 10;
5. determine the network of research stations needed and long-term functions of stations in relation to needs of the research programs;
6. discuss means of executing the plan, including legal statute, financing, relation of research to development projects, and evaluation.

The working group identified 33 commodities or programs that have economic significance in the agricultural sector. Using a weighting system based on five factors, the group established first- and second-level priorities among them. Within these priority areas, the working group went on to set specific emphases within programs (for example, that 78% of effort in rice would deal with irrigated production). Research manpower needs were projected for each program, with the staffing needs for the first five years, then the longer term for years six through 10.

In terms of a research station network, they laid out the pattern for long-term needs at seven regional centers, four autonomous stations, and five substations. Most could be redeveloped or rehabilitated at existing sites; several new ones would be needed.

The group concluded that some changes were needed in statutes – to have more flexibility in allocating funds, in recruiting, and to fit conditions of service to needs in human resource

management. Financing came in for attention: mobilizing needed financial resources, emphasizing stability and continuity – and increasing the national share of support for agricultural research.

The department for research development was proposed to build firm linkages between research and development programs. Regional committees would be formed at the main research stations for closer ties between researchers and users.

The plan should be re-evaluated in years four and seven, the working group advised. That would permit revisions that time and circumstances may call for.

Project Preparation

Next an ISNAR team was formed for the project preparation task. The project, developed jointly with a Madagascar team, was designed to assure that the project objectives would be in line with the strategic choices set out in the long-term plan.

Additional points in their design discipline were that the project would realistically address changes in policy, organization, and management identified in the long-term plan; also it would not neglect institution-building aspects, not exceed the NARS capacity to absorb levels of investments and pace of changes as called for in the design, and not lose the system perspective and holistic approach of the long-term plan.

The ISNAR project-preparation team included an ISNAR staff member as organization and management specialist, an agronomist, a financial analyst, an architect, and an agroeconomist as leader. The Malagasy team included FOFIFA's director of programming, director of administrative and financial affairs, director of research and development, and chief of a regional station. The scientific director was also involved in many working sessions.

Field work was carried out during three weeks in June, which the team spent in Madagascar. The National Agricultural Research Program they produced included all FOFIFA activities, but it focused on 12 priority research programs and on institutional improvements in structure and procedures – notably a decentralized, regional approach in research.

The priority programs will be phased in as a function of (a) available, qualified research staff and (b) establishment of the regional research centers. The project will provide the required regional and subregional infrastructure through new construction and rehabilitation. Also the project will include an important training program to upgrade existing staff and provide new staff with specialized qualifications.

Independent Adviser

At the final stage of the planning process, our liaison staff member was asked by NARS leaders to join, as an independent adviser, when the World Bank staff came to Madagascar for its projects-appraisal mission.

Argentina

Two ISNAR staff were invited to study Argentina's process of decentralizing some research responsibility into the regions. The national system, INTA, has created regional research centers, with associated regional councils. The councils provide a mechanism for participation by a wide range of interested groups, including farmers, universities, provincial departments of agriculture, and others. The regional structure operates under the framework of INTA.

The ISNAR staff endorsed the plan for decentralization. They suggested some ways of adding strength: by clearer definition of the relationships and funding between the regional and national levels; also by focusing the national research program sharply on certain targets to which regions could relate more readily.

Burkina Faso

Following the end in 1987 of the assignment for an ISNAR staff person as resident adviser, contacts have continued with the agricultural research program there. A French agency, ORSTOM, will post a senior research adviser there to give continuing aid to the system. That person visited ISNAR for background on our adviser's three years of work. An ISNAR staff member maintains contact with the national research organization, INERA.

Cameroon

Cameroon's two research institutes, IRA (Institut de Recherche Agronomique) and IRZ (Institut de la Recherche Zootechnique) invited ISNAR to field-test methodologies for setting priorities in agricultural research. Two members of the Working Group on Priority Setting, plus ISNAR's outposted staff member, held sessions at four stations and the university. These sessions provided a way to test concepts in priority-setting methods while working with researchers in a training and action setting. We emphasized cost-benefit analysis, as well as check list and scoring methods. Subsequently we have developed a computer program to help them deal with the priority-setting information. And our outposted staff member continues as a resource at hand to support this activity.

The Ministry has also redesigned its research programming tool, called *fiches d'operation* – a system of individual planning sheets for each research project. This is a prelude to changes in the processes for developing annual programs and budgets.

Costa Rica

Costa Rica's Ministry of Agriculture (MAG) had an active 1988 in implementing recommendations from our 1981 and 1987 missions – the latter was done jointly with IICA (Inter-American Institute for Cooperation on Agriculture). Early in 1988 leaders of MAG and ISNAR agreed on a seven-point plan of action, and the year brought progress on implementing most points.

With IICA, we studied how a programming and priority-setting system should work in the research stations; analyzed the cost of integrated national commodity programs (and made estimates on how many such programs MAG could fund); and worked with two seminars to build consensus across the NARS. Priority-setting work helped to concentrate research attention on fewer commodities. They worked on 33 commodities

Two headquarters staff and the resident management specialist field-tested priority-setting methods at research stations and a university in Cameroon.

in 1988, a deep reduction from the 88 that claimed resources at the time of our review. They plan to reduce still further, to 14 in 1989.

Individual programming units within the larger system had good methodologies for their own planning. The problem, however, was that units were operating in virtual vacuums; they had weak linkages with others, either upward to policy levels or outward to farmers' problems. The ISNAR/IICA team suggested that MAG create a National Commission for Agricultural Research and Transfer to help at the national level. To help form outward linkages, they suggested integrated national commodity programs, which could link MAG, universities, and the private sector.

Policy seminars were built around research programming. Our staff was looked to for a role in design of the seminar and in presenting key elements. (The continuing relationship of ISNAR with the Ministry was marked with a surprise presentation at that December event: a plaque was given, stating appreciation for the work accomplished.)

The Gambia

Task forces have been formed in The Gambia's NARS to review proposed research programs on production factors and a number of commodities. The task forces are interdisciplinary and interministerial; they represent one way to set up linkages that can add strength to their small system with its limited manpower resources. An ISNAR staff member worked with leaders to develop plans for a national agricultural research board and advised on procedures after it was created.

Niger

Niger carried out a major national long-term planning effort in 1987, with collaboration of ISNAR. In 1988 the focus was put on the medium term, to prepare a special project for World Bank and FAO Investment Center support. Niger turned again to ISNAR. The aid, again, was mainly in method. Leaders from the earlier task forces and an FAO team prepared the project. Data from the earlier strategic planning work provided an information base.

Costa Rica has used seminars as one way to speed the process of adapting ISNAR-IICA review proposals and implementing actions.

Rwanda

We have collaborated closely with Rwanda since ISNAR's second year of operation. A staff member in 1987 led the review and planning study of farming-systems research as part of overall planning for agricultural research; an ISNAR consultant also worked with that study. The report was filed early in 1988.

During the three years of its duration, our contract for a resident ISNAR research management specialist provided a wide base of planning support for ISAR, the national agricultural research institute. Since that task was completed in 1988, ISAR has chosen to use short-term consultancies to meet specific support needs. Late in 1988, a government decision called for decentralization of much research responsibility to ISAR's regional research centers. One of our staff helped Rwandan research and administrative officers produce a plan to achieve decentralization.

Sri Lanka

Sri Lanka's Council for Agricultural Research Policy (CARP), now functioning with a technical secretariat, has responsibility for defining the national agricultural research plan. Proposed by the earlier ISNAR/Sri Lanka review mission, this council reviews programs from seven ministries and makes independent recommendations to the finance and planning ministry. We are working with Sri Lanka in two ways: a consultant provided by ISNAR works with the secretary on CARP procedures and mechanisms; two ISNAR staff and a consultant continue their work on research planning and programming methods at the research station level, with particular focus on management information needed for planning. GTZ (Federal Republic of Germany) supports this work both with funding and other technical assistance personnel.

Sudan

The 1987 ATMS (agricultural technology management system) review, carried out by Sudanese with the support of several of our staff, triggered planning interest for 1988. The review report itself was the focus of two days of discussion by 45 Sudanese. They agreed on, among many other matters, the need for national agricultural research policy and a long-term research plan. Our collaboration continues as people in the system consider the recommendations and how ISNAR should work with them.

Zaïre

Research system leaders in Zaïre started action this year to develop a medium-term research plan. Our contact staff member aided in the recruitment of an experienced international specialist (from CIRAD) to carry out the work. The United Nations Development Programme provides funding support.

Zimbabwe

Research plans and actions in Zimbabwe this year reflected proposals that national staff and ISNAR developed as a result of the review a little more than a year earlier. A research planning unit has been formed. Several first efforts have been launched to replace single-commodity research with interdisciplinary work that cuts across institutes and stations. A committee for on-farm research and extension (COFRE) has already reorganized the farming-systems program; COFRE's mandate covers wide aspects of planning and collaboration with the extension and technical services.

Region research centers have been planned in Zimbabwe, each to focus mainly on adaptive research for one of six natural ecological regions. Some change in focus gives stronger emphasis in the research plan to technologies needed by communal and small-scale farmers.

Building an effective structure and organization within the NARS.

Most of our diagnostic reviews show some structural and organizational constraints. Systems vary in their ease or complexity of making changes. Major structural revisions seldom take place quickly; it may be years after a recommendation before notable change occurs. Others may change quickly.

A number of organizational and structural changes in national systems were included in activities we have reported in the planning section and under the planning and programming factor above: Argentina, Cameroon, Rwanda, Uruguay, Uganda, Costa Rica, Mali, and Zimbabwe. We will not repeat them. However, here are other implementations of organizational and structural changes.

The Gambia

The Gambia has established a new Department of Research Services within the Ministry of Agriculture. It brings together research sections that were scattered throughout the Ministry. A National Agricultural Research Board plays a leading role in setting national research policy.

Madagascar

Madagascar has established a Directorate of Planning and Coordination in its Ministry of Scientific and Technological Research. This has strengthened many linkages of the agricultural research organization, FOFIFA, with other research units and with extension. A Board of Trustees within FOFIFA includes users and organizations with an interest in agricultural research; the board brings these influences into planning and evaluating research.

Rwanda

Rwanda has consolidated and simplified its structure and organization over a period of several years. The place of programs (each with a coordinator) has been strengthened. Structurally, research programs can now function across departments; this two-way matrix replaces a structure in which research sections had been another layer of administration below departments.

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

Producers or other users of technology are the eventual targets of most agricultural research. Yet most NARSs are found to be weak in linking themselves to the organizations that transfer new technologies to users. These linkages are getting more and more attention as collaborators work to improve their programs. Here are a few examples from this year.

Chile

Our 1987 review put special attention on research-extension linkages in Chile. Chileans progressed in 1988 toward stronger links. They planned and took steps to integrate staff who transfer technology into the

process of formulating research plans. Also, scientists are participating more in off-station research and transfer activities.

Costa Rica

The Ministry of Agriculture staff has developed an action document on research-extension linkage. It is a plan to integrate the two activities. It sets out the individual and shared responsibilities of the two units. Also, the system is forming advisory committees at the research stations, which will give producers more influence on research and extension activities.

Rwanda

Thematic study days, as staged by ISAR in Rwanda, offer one means of linking the ISAR researchers with Ministry officials, staff from development projects, and extension workers. These are one of several approaches to strengthen links to those who transfer technology to Rwandan producers. A publication series, Technical Notes, has been revived to reach extension officers and farmers with printed information. Changes in annual report presentation and planned changes in concept make this annual document a stronger carrier of information from the research system to various clients.

Uganda

Two of our staff are working with a Ugandan team to plan rehabilitation of the national agricultural research organization. In the supporting work, an ISNAR staff member addressed research-extension linkages as a chapter of the written report. This offers a framework for planning close links between the two functions, both for research planning and transfer of technology that comes from research.

Zimbabwe

Zimbabwe's Committee on On-farm Research and Extension (COFRE) was one of three groups in the Department of Research and Specialist Services (DR&SS) with some responsibility for transfer of technology. This year COFRE received a broader mandate. It has now become the main mechanism for linking DR&SS with AGRITEX. Activities cover planning and collaboration with the technical services and extension services. With research centers in the natural regions focusing on needs of major ecological zones, and COFRE in a coordinating role, DR&SS can work closely with extension services and farmers in field-testing research results and getting feedback.

Formulating programs and program budgeting.

We have worked with few NARS that had effective mechanisms to guide research program-planning processes. Even fewer had systems for allocating resources to carry out plans. Program planning and budgeting rank high in interest among our collaborators. As we work with NARS, especially in using program budgeting, they find need for better information bases than they have had in operation. (The information base for budgeting needs reliable data on past use of four elements: projects, people, money, and physical elements.) Thus information management, although listed as a separate management function, must often go along with the focus on planning and budgeting.

Here are some examples of this work area from our 1988 activities.

Burkina Faso

Burkina Faso has begun to create an information base for each of its eight priority research programs. When consolidated in the Division for Programs of the national institute, INERA, this information base will support the research programming system; it can also be adapted for use in monitoring and evaluation.

Kenya

The Kenya Agricultural Research Institute has moved in both breadth and depth to strengthen the nation's research. In 1988 we worked with directorates of three research centers to improve program formulation methodologies and to establish mechanisms for interdisciplinary approaches to diagnosing problems and executing programs.

Indonesia

The Indonesia project on management information system development continued through 1988. We provided 1.5 years of resident and consultant support as methodologies were tested further and more research centers came into the data base.

Madagascar

In Madagascar, where an ISNAR resident research management specialist worked with FOFIFA, a research programming and budgeting system has been put in place. Designed for FOFIFA, it provides information for greater management capacity.

Morocco

Morocco's interest in program budgeting led to our earliest use of computers on this function. Working with us over a period of several years, Moroccans have now designed a system that meets their management needs. The system originally planned for program budgeting – with additional modules they are designing – can handle four other research management areas: research programming, evaluation, human resources,

Interest grows among NARS for ways to use microcomputers and commercial software to manage research programming and budgeting. ISNAR experience in Indonesia, Morocco, and Sri Lanka provides an advisory base.

and financial accounting. It will serve multiple users working from different locations. And both the hardware and software are available on international markets. That availability is important to the Moroccans: it means they put their creative energies into management design of the system, not into developing the technical system.

Sri Lanka

Sri Lanka's Council for Agricultural Research Planning needs a variety of management information to meet its mandate for developing a national research policy and plan. Under a project by GTZ (Federal Republic of Germany), we began work with them last year. We are adapting to their situation some concepts coming from a similar project in Indonesia. During three weeks in 1988 we collected and analyzed data in three main categories: content of research conducted this year and planned for next year; personnel time allocations; and financial data. A microcomputer and off-the-shelf software provide the necessary technical elements.

Sudan

The Sudan review of 1987, based on ATMS methodology, has been followed by annual workshops, in collaboration with ARC, (the Sudan Agricultural Research Council). The first workshop subject for 1988 was on program formulation and program budgeting.

Monitoring and evaluating research system components.

Some level of monitoring and evaluation occurs in any research system. Few NARS among our collaborators have systematized this management function. Many have, however, begun to prepare for future attention.

Chile has set up a system to monitor and evaluate results of efforts in research and transfer of technology. **Rwanda** has a planning and evaluation unit and is trying a system for monitoring and evaluation.

Among NARS with an advantage in this function are those in which management information systems are now in place (there's a close relationship between data for evaluation and data for planning). The subject has been requested for regional and national training programs.

Developing and managing human resources.

The human complement is the core of an agricultural research system. This management function is one of the high priorities where managers seek improvement. Some move quickly from national research planning to manpower planning. A few try a shortcut that may not succeed: they launch massive manpower-training efforts before formulating the strategic plan that will make use of staff with new abilities.

Two major human resources efforts were on our agenda in 1988. Many less-intensive collaborations were carried through. We will report both types here.

Senegal

The Institut Sénégalais de Recherches Agricoles (ISRA) of Senegal has been in a period of rapid expansion and reorganization. Its director approached ISNAR in the latter part of 1987, asking for collaboration on human resource management. A team prepared a mission and spent two weeks in the country. The report was presented early in 1988.

Help study and planning for human resource management in Senegal and Uruguay

The report suggested that, after its period of expansion, ISRA management switch now to a priority concern on how to get resources and use them effectively – especially human resources.

Nearly one-third of 180 ISRA scientists in post in 1984 were no longer there in 1987. Fewer than half the number then had been with ISRA for more than five years; and they were young – almost 60% were under 35 years of age.

The study team used questionnaires and interviews to gather data directly from ISRA staff and many national officials. The team found a relatively flat salary structure: to get a higher salary after as few as six years in a research position, a researcher would have to move to an administrative post, for example. And researchers in the system saw time as the main factor in promotion. The team's summation was that ISRA was not offering the prospect of an attractive career in agricultural research.

Recommendations included proposals from which ISRA could develop its policies and procedures related to human resources. One proposed a six-class system of grades that would let a researcher earn a 30-year salary potential almost three-and-a-half times the starting rate – without leaving his or her research career. Another outlined standards for an evaluation system that would be consistent with such a career and salary structure. There were ideas on recruiting, on-the-job apprenticeships with senior researchers, and guidelines for policy on advanced training. Also a management information system was suggested to make better use of the good base of personnel information ISRA already has.

ISRA accepted the report and its recommendations; it asked for more advisory and backup support to implement recommendations. Its own nine-person working group was set up last year. A USAID-supported project makes it possible for ISNAR to respond to ISRA's needs. Under the 18-month project, we will work toward four objectives:

1. to propose – for ISRA to adapt and implement – policies and procedures on recruitment and staff development;
2. to analyze more fully ISRA's use of personnel in relation to research program objectives – relative also to the resources available to ISRA;
3. to propose monitoring and evaluation procedures – including appraisal of research performance – related to the new grade and salary structure;
4. to develop a management information system.

Uruguay

Work with Uruguay in 1988 focused on managing human resources under its proposed autonomous national institute, INIA. The human resources area called for special concern, since plans had already been approved for a quick and massive buildup of research staff – from 80 now to 180 by 1991.

With an Uruguayan counterpart, we did analysis and planning needed to propose policies and structures. The system we've helped develop takes into account the existing organization, but it moves on to reflect current thinking on this area of management.

The rapid increase in staff will require appointment of many young inexperienced graduates. A professional apprenticeship program was proposed, in which the new staff member would

work two to three years under an experienced senior colleague – to gain knowledge and get to know the working attitude in the system. Successful apprentices would go on to formal advanced training.

The proposal would retain annual grading of staff but extend it with annual supervisor-staff evaluation interviews; and it would use promotion panels including other researchers to evaluate research capabilities.

Income differentials in a central government system tend to be flat: seniority, rather than performance, often becomes the main factor in promotions. A new salary and career structure was proposed that would be specific for the research system. Six levels were set up, with five salary levels within each. The income-growth curve would reflect productivity as well as other factors. An able researcher would have good prospects for a career of 30 years – remaining in research for all those years.

A broad base of computerized information on personnel has been kept by the present system. It was proposed now that this be broadened under the new organization. We're helping design means to get information needed in monitoring and evaluating the research, in addition to human resource matters.

Both the Senegal and Uruguay projects drew on expertise brought together at ISNAR by years of work with management of human resources in NARS. Last year's Human Resource Workshop shared with research managers the breadth and depth of knowledge we had accumulated to that time. That workshop is reported in the Training section.

Cameroon

Our first contact with Cameroon came in 1983; the country was one of four in which we studied training needs. Human resources and human resource management have held a priority for research managers there. Staffs of the two Cameroon research institutes have taken part in management training activities we've offered in Africa. And they have carried out efforts of their own. Written and oral communication offers a good example: after an ISNAR train-the-trainer workshop on communication, the Cameroonian participants developed their own program; more than 100 of their research personnel have had this training.

In this same management function area, one of the two institutes, IRA, has established a personnel data base on which to make its manpower development plans. The livestock institute, IRZ, expects to use the same format.

The Gambia

To strengthen the base for effective management of human resources, research managers in The Gambia developed new job descriptions for individual research tasks. And new terms of service have been established for the research staff.

Kenya

Agricultural research managers in Kenya have viewed human resources as a powerful factor in strengthening their NARS. We collaborated with Kenya in our first effort to determine longer-term manpower needs in a national agricultural research system. That study, begun in 1982, projected research programs and personnel needs to the year 2000. The scientific staff of the national institute, KARI, is projected to be then about 600;

a six-year training program has already started. Motivation and retention of scientists and technicians should be improved by new conditions of service that the KARI board has approved.

Madagascar

Over the past four years, Madagascar's FOFIFA has moved in two important ways to strengthen its human resources. One was in reducing ineffective elements of infrastructure, which lowered the demand for unskilled manpower. The other was to design and begin recruitment and training programs fitted to the broad needs of the system.

Malawi

Human resource factors have been strengthened, along with a range of actions taken within the Malawi agricultural research system. A new scheme of service has been formulated, and managers have introduced job descriptions for the research staff. A vigorous graduate training program is under way, with international donors supporting many in advanced studies overseas. Also, Malawi is planning national workshops (under the SACCAR-ISNAR project) to help in specific areas faced by NARS managers as the system evolves.

Rwanda

The Government Council of Rwanda has approved a new statute for researchers (which awaits national funding required for implementing it). It should bring new incentives for the staff of ISAR, the national institute, both for on-the-job performance and to encourage advanced training. There is work under way that would provide a common statute for researchers in the university and ISAR.

Research at ISNAR - 1988

Research indicators analyses reported at international conferences

The ISNAR strategy assigned four broad goals for our research activity:

1. to develop a knowledge base on national agricultural research systems (NARS);
2. to develop improved concepts and tools on agricultural research management;
3. to increase and maintain ISNAR's diagnostic capacity;
4. to carry out studies in depth on priority issues.

Research in ISNAR gives strong emphasis to the applied. We're oriented toward practical knowledge, toward management approaches that can be used by NARS, by development agencies, and by ISNAR itself. The need for a particular type of research may be signaled by several sources: by our own collaborators, by our advisory service work in the field, or by our international research management workshop, which serves as an annual consultation with our clients.

Research then addresses a problem. We apply the scientific process to reach valid conclusions, then disseminate results and evaluate outcomes. Thus one moment in time, such as an annual report may capture, finds research activities at different stages.

Two of our major recent research projects reached dissemination in 1988 – although staffs were still generating more knowledge from them through further analyses and syntheses. These were the agricultural research indicator series on NARS and the project on on-farm, client-oriented research (we call it OFCOR).

Two projects, started last year, were in active stages of investigation: (1) the study of research linkages to organizations that transfer agricultural technology, and (2) research on methods of setting priorities for agricultural research at the national level.

Work was started in 1988 to formulate a new project – a study of strategies and organizational issues related to agricultural research systems in small countries.

While set out with varying levels of formality, our internal working groups on management functions carry out program-development research in their areas of interest: organization and structure of NARS; human resource management in NARS; methods of planning research programs and setting priorities in NARS; and information management systems for NARS.

Agricultural Research Indicators

The year 1988 brought the final verifications of indicators of research personnel and expenditures for 151 countries in this data base, which covers a period from 1960-86. The first volume in the series went to a commercial publisher (the Cambridge University Press, U.K.) in the latter part of 1988.

The data were in strong demand ahead of publication. Requests came from donors and from some CGIAR institutes for data to help them answer specific questions. A scholarly paper on methodology was submitted to an international journal to share technical issues on data base development with a professional

audience. Another paper was accepted for journal publication, a paper analyzing factors that determine research support within a political economy framework.

Our own analyses of global trends were part of two international conferences: the Agricultural Research Policy Workshop at Feldafing, Federal Republic of Germany, co-sponsored with two European agencies (DSE and CTA); and our own annual International Agricultural Research Management Workshop. Also, a major workshop in Egypt heard a presentation from a similar analysis. (The article, *Agricultural Research Worldwide: Where Do We Stand?*, p. 23, draws a few highlights from the analyses.)

A companion volume on the state of NARS continued to get staff attention in 1988. It will place indicator series data in a broader context. In-house contributors and outside authors of invited chapters moved ahead in analysis and writing. It seemed probable at year's end that this book might also be brought out by the publisher of the indicator series.

OFCOR Activity Continues

This continuing study of on-farm, client-oriented research (OFCOR) moved on broad fronts in 1988. The project focuses on how to integrate such research as a stable and productive component of a national agricultural research system.

All nine of the country case studies were completed in 1988. Reports for Guatemala and Zambia were published during the year. Those for Nepal and Bangladesh reached final stages of preparation and will come out early in 1989. Additional case-study reports are scheduled for publication in 1989.
Nine papers are planned as comparative studies, designed to offer practical advice on specific management themes. Two were published in 1988: *Strengthening the Integration of On-farm, Client-oriented Research*; and *Organizing and Managing Field Operations*. Another, on participation of resource-poor farmers in research, was ready for publication. Two others were in first-draft review: staffing and career issues; and on-farm

(Text on 1988 research resumes on p. 30.)

The Research Indicator Series, a quarter-century base of data on agricultural research in 151 countries, serves a wide range of uses by advisers, managers, and scholars.

Where Do We Stand? Agricultural Research Worldwide

World agriculture has performed well over the last quarter of a century. In simple global totals, food production has increased more than the number of mouths to be fed.

From 1960 to 1985, all regions except subSaharan Africa showed increases in both output and productivity of both their land and labor. In other words, most of the world is now getting more food per unit of land and per unit of labor than it did 25 years ago. Figure 1 gives, for five periods, changes in per-unit productivity of land and of labor in developing and developed areas.

Technology is one key ingredient in productivity gains in the modern world. In agriculture, most progress in technology has roots in science and adaptive research. It's therefore reasonable to say, based on the record, that the world agricultural research system has been succeeding; returns on investment in trained scientists and research support have been favorable.

Origins of Progress

Technological progress in agriculture rests on a number of actors. We will look particularly at two of the leaders:

- national agricultural research systems (NARS) of the individual countries – which adapt technologies to their and special needs and conditions;
- international agricultural research centers (IARCs) – which help turn scientific breakthroughs into technologies that countries can adapt to their use. (The IARCs also help developing countries build the capability of their NARS through training and direct collaboration.)

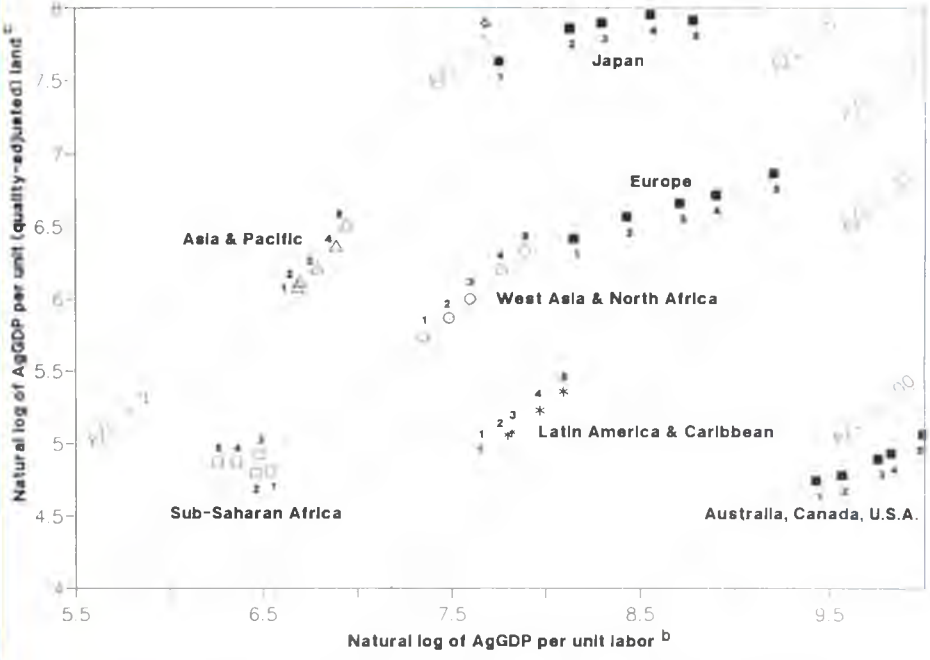

Figure 1. Agricultural land and labor productivity indices in five-year periods during 1960-85 by regional averages.

Legend: Periods: 1=1960-64; 2=1965-69; 3=1970-74; 4=1975-79; 5=1980-85. Land is total of arable and permanent crops, plus permanent pasture; labor is agricultural population that is economically active.

NARS Growth: 1960-64 to 1980-85

The research systems bring two productive resources together: human and financial. Early analyses of our Indicator Series data show large increases in both scientists and expenditures in the period.

In absolute numbers, the NARS of 129 developing countries had four times as many scientists in 1980-85 as in 1960-64. Their rate of growth on this factor was much faster than for 22 developed countries. In 1960-64, those 129 countries had 21% of all agricultural scientists; their share of agricultural scientists in 1980-85 was 45%.

All developing regions increased at about the same rate.

In absolute terms, there was also increased real funding for agricultural research. But the growth rate of funding in the developing countries did not keep pace with scientist numbers. In 1960-64, 24% of research expenditures took place in the 129 developing countries (which then had 21% of the scientists).

The developing countries' share in 1980-85 expenditures was 35%, when they had 45% of the scientists. Only in Asia-Pacific was funding per scientist actually higher in 1980-85 than in 1960-64.

In developed countries, expenditures grew much faster than did numbers of researchers.

Investments in Research

The cost of doing agricultural research has gone up throughout the world. The trend line for developed countries shows a regular and continuous increase – from $52,000 per scientist in 1960-64 to $86,500 now (in constant 1980 US dollars).

When developing countries were combined as a single group, they showed a slow increase until the mid-1970s (then reaching $70,000 per scientist); since that time they have declined, averaging $56,000 in 1980-85. And the regions vary.

Asia-Pacific gained slightly over the entire period. Other regions declined during the last decade. West Asia-North Africa, at about $40,000, had the lowest rate of spending per scientist in 1980-85. SubSaharan Africa showed the steepest decline: from $120,000 per scientist in 1965-74 to less than $80,000 by 1980-85 (in that period, many expatriate researchers were replaced by national scientists at lower average salaries).

Implications

We can draw three main types of implications from this brief look at human and financial resources of the world agricultural research system.

First, the impressive growth of human capital has put scientific potential in place. But there are serious problems in using the potential: the ratio of financial to human resources has deteriorated. Large investments in human capital remain at low productivity when scientists don't have infrastructure, equipment, and operating funds to support their work.

Second, the division of labor will continue to change. NARS – as a group – now make up an important component of the global system. Diversity increases, and the gap widens between stronger and weaker NARS. The larger and stronger ones will share more and more in some functions that IARCs have performed – these NARS's have increasing capacity to make the adaptation needed to exploit technology from outside sources; some are becoming more able to generate some

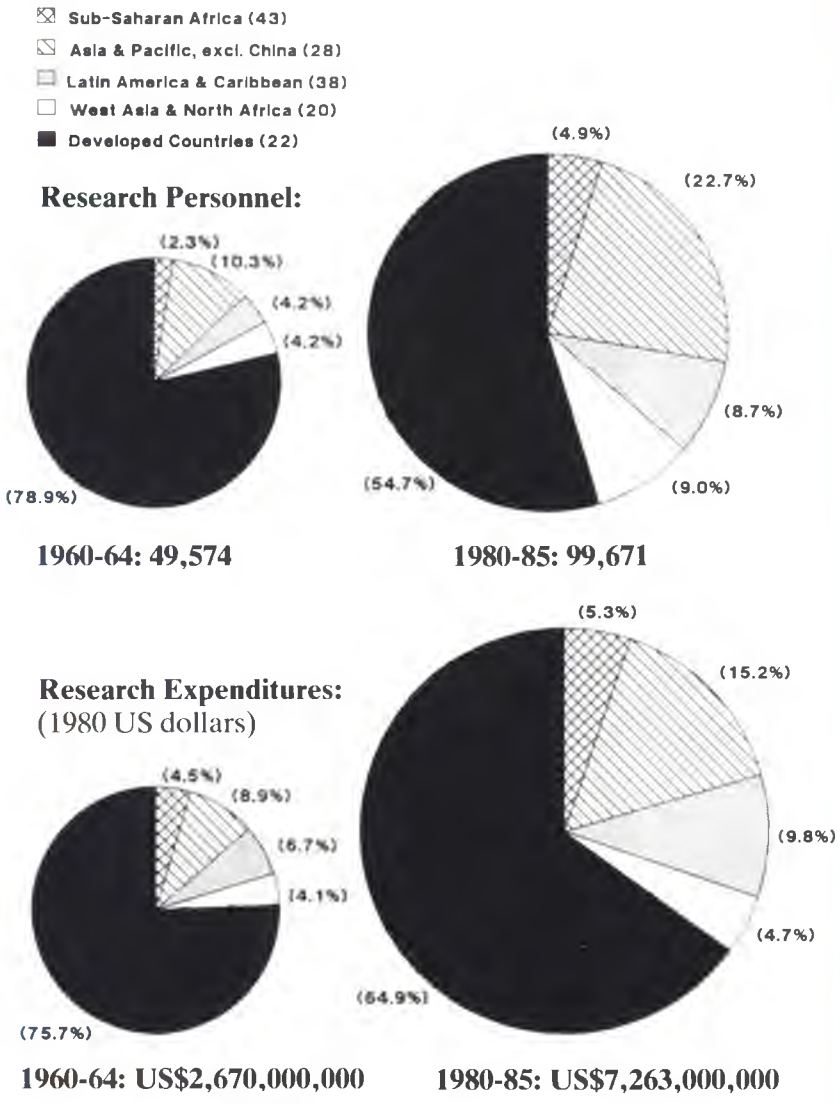

Figure 2. Distribution of agricultural research personnel (top circles) and expenditures (lower circles) by world regions, 1960-64 and 1980-85.

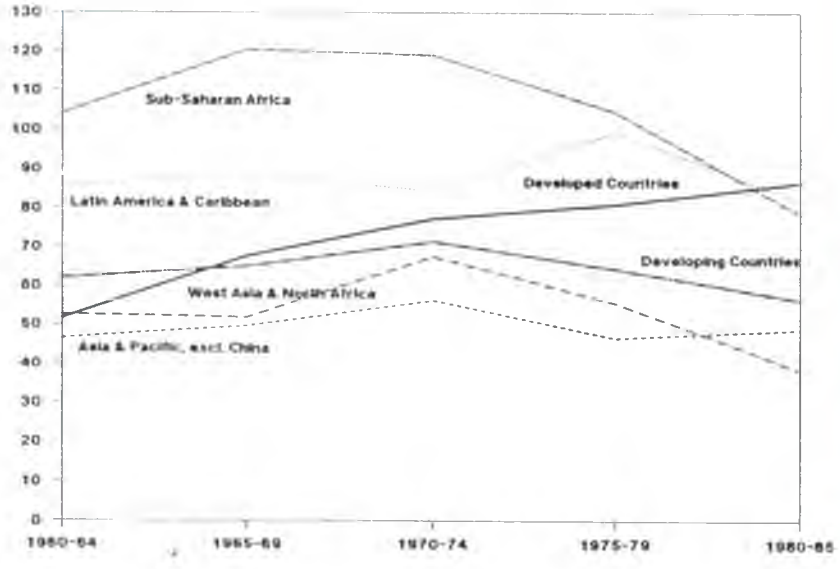

Figure 3. Average expenditure per agricultural researcher in developing countries in regions and for developed countries (in thousands of 1980 US dollars)

technology on their own. Smaller, weaker NARS will continue to rely on help from IARCs; and they will collaborate more horizontally – that is, among themselves. Organization and management of linkages among scientists will become increasingly important.

Third, a systematic effort is needed to increase productivity of NARS.

It isn't enough to expand human capital, or even both human and financial capital; systems need to be managed. They need more capability in areas of research policy, organization, and management. NARS need to collaborate with specialized agencies – within and outside – to reinforce their institutional capabilities. The resource mix in NARS calls for special attention. Both the level and stability of support are crucial.

Contributions of the IARCs

International agricultural research centers have contributed to the world's system. They have generated useful technologies; helped build and strengthen national research institutions; improved the policy environment in which NARS work; and they have been catalysts and bridge builders among components of the global system.

The system will continue to need these contributions. As national systems grow stronger, however, the division of labor will change. A fully collaborative partnership will be good for both NARSs and IARCs. They need to join forces in joint planning efforts and in a rational division of labor.

Together they can assure the broad range of products and services the system will need to supply the growing population.

Much of this digest was drawn from an ISNAR paper published in proceedings of the 1988 Conference, The Changing Dynamics of Global Agriculture.

OFCOR Activities

(continued from page 27)

research as a mechanism for strengthening the link between research and extension.

The four published units went into wide distribution to research managers and practitioners of on-farm research. Three international conferences – in Korea, the United States, and Peru – included papers that synthesized findings from the study. Three of the core team who worked in the study discussed results with eastern and southern African NARS leaders in a session sponsored by a Swedish agricultural university.

In addition to completing these reports, ISNAR staff members continue their activities. A major commitment remains for the overall synthesis paper. Focus here takes the project toward its final goals: to help NARS managers make this approach an integral part of their research program and system; and to offer field-derived guidelines for managers on how to plan, organize, and manage on-farm, client-oriented research.

Research-technology Transfer Linkage

This three-phase project saw action and results in its first two phases this year. Phase I, begun in 1987, gained much momentum in 1988. This preparatory work embraced three main activities: a wide review of literature on this linkage – with seven papers taking different disciplinary perspectives on the linkage; the conceptual framework and methodology for country case studies; and a pilot study to test and improve methodology. (The pilot study, in Colombia, was started late in 1987, and analytical work followed in 1988.)

Reviews of literature, plus seven papers on theoretical and methodological issues, had been drafted by the end of the year. Authors from various national origins cover a wide spectrum of disciplines.

Discussions were held with officials and researchers in

Case studies planned in seven countries on research-technology transfer linkages

The ISNAR working group on research and technology transfer plays a role in the study of linkages now under way. Case studies will be done in seven countries.

countries where institutional relationships or particular technologies would make useful case studies. Contacts were made to select case-study coordinators and researchers for the countries chosen. Seven countries had been selected at the end of the year, including Colombia, Costa Rica, Dominican Republic, Côte d'Ivoire, Nigeria, Philippines, and Tanzania.

Another part of this process is to choose specific technologies on which the study would be focused in a given country. In the Philippines, the technologies to be studied relate to downy mildew disease in maize, seed potato production, and conservation and improvement of hilly land. Training for the Philippines study team took place there in November.

Phase III – synthesis of results, guidelines for managers, and dissemination – awaits the completion of country case studies.

Planning and Priority Setting

Our research effort on this management function seeks ways to help NARS managers put more rigor into their practices for setting priorities.

At the level of concept and theory, ISNAR staff and collaborators are preparing a review of current knowledge and practices in setting priorities for agricultural research.

The same staff members are also handling our part of the ACIAR/ISNAR project in the Asia-Pacific region. The Australian Centre for International Agricultural Research (ACIAR) is working with three countries to develop basic data, policy analysis, and priority-setting approaches appropriate to the country situations. With support from the Federal Republic of Germany and the Australian International Development Assistance Bureau, ISNAR is applying the research design in one country; we are collaborating with Indonesia's Centre for Agroeconomic Research to study priority setting within the Agency for Agricultural Research and Development.

The main goal of this research is to develop tools our NARS collaborators can use to improve the way they set their priorities for research programs. Such tools help our advisory services staff work effectively with a NARS. And training on the use of these tools backs up our work broadly on this important topic in agricultural research management.

Working paper and training on setting priorities stir wide interest among NARS

The research effort here is supported by an internal Working Group on Planning and Priority Setting. Two of the group's members brought out a working paper this year that deals with four methods of setting priorities: congruence, check list, scaling, and cost-benefit analysis – and how each can be used in a NARS. The authors later field-tested the materials when invited to Cameroon to help on priority setting with four research stations and a university faculty.

This working paper on setting priorities – available in both English and French editions – can be applied broadly in NARS at different levels of development. It was written to be especially relevant to Africa as part of our cooperation with the Special Program for African Agricultural Research (SPAAR).
This same material has been the basis for training modules in the SACCAR/ISNAR project in southern Africa and in a number of national training events in other regions.

Organization and Structure

The research effort here focuses on how organization and structure affect NARS productivity. It begins with trying to make full use of our own knowledge and experience. In more than 40 reviews and diagnoses over the past seven years, we have seen different ways of organizing NARSs in different political and economic situations to meet different objectives.

This Working Group on Organization and Structure has begun to draw together a cross-national data base to use with senior managers, both in workshops and direct contact. The 1988 work began with an in-house synthesis. Each of five staff members wrote on organization and structure for a region in which each had wide experience. Each writer fitted his synthesis to a common outline, fostering cross-regional insights. The papers deal regionally with francophone and anglophone Africa, Latin America-Caribbean, Asia-Pacific, and West Asia-North Africa.

These overviews provide usable products now, and they provide bases for the second phase of the research. That will be field studies of seven themes that relate to organizational choices at national, institute, and program levels. Managers of NARS will collaborate.

Strategies and Research for Small Countries

Farmers and researchers in small, low-income countries face the same range of problems that confront their counterparts in larger countries. They work in varied farming systems and environments; ethnic and cultural diversity may constrain communication and institutional development. The small-country farmers need benefits that come from effective and broad-scale agricultural research. But the reduced scale of research resources available in the small, low-resource country often means limited benefits to farmers.

Agricultural research managers in small countries need tools and strategies to make the most of the resources they have – and to borrow efficiently from others. Many donors would benefit from validated guidelines for giving cost-effective support to systems in such countries.

Our own reviews have given us some sense of problems and clues toward possible solutions to these questions. We have now

Plan study of strategies for NARS in small countries

conceptualized a project that would address this area in the framework of research. By the end of the year one donor, the Danish Government, had awarded support for a pilot study, and other donors had the proposal under active review.

Definition was itself a problem. Within a maximum population figure of five million, we looked at five other parameters – to qualify, a country had to meet three of the four: per capita income less than US$2,000 (1980 constant dollars); more than 20% of the economically active population in agricultural production; agricultural gross domestic product (AGDP) less than US$2,000 per economically active person in agriculture; and AGDP more than 20% of the nation's GDP. We could identify about 50 small low-resource countries by those criteria.

Six specific objectives will guide the project – all within the context of the small-country NARS:

1. to develop a reliable and up-to-date base of information on agricultural research and research systems;
2. to develop typologies for considering research needs and potentials;
3. to evaluate national and regional contexts for agricultural research to suggest models for setting priorities;
4. to suggest strategies and models of organization appropriate to NARS;
5. to develop strategies for managing NARS links with policymakers, external sources of knowledge, and producers;
6. to develop appropriate tools for managing human resources.

We plan to base the methodology on that used in the OFCOR and research-technology transfer linkage projects. This involves extensive literature review and consultations with NARSs; country case studies (seven proposed); a workshop at which managers will help interpret results and contribute to our understanding of ways to strengthen management of the small-country NARS they represent. Our final report will contain guidelines and strategies for planning, organizing, and managing agricultural research in small, low-resource countries.

Expert Consultation on Management Factors

Our first *expert consultation* was conceived as a kind of hybridization between training and research: it used a format common in training – the workshop; but the focus and the outcomes had the strong flavor of research.

For this week-long event we programmed four topics, each an area of inquiry by one of our working groups. The four topics were: priority setting; program formulation; monitoring and evaluation; and human resource management.

The experts in our expert-consultation were high-ranking leaders in eight African NARS. The countries represented were Cameroon, Ethiopia, Kenya, Nigeria, Malawi, Tanzania, Zambia, and Zimbabwe. Participants from the ISNAR side were the persons who made up our internal working groups – a total of 26. (However, on each topic, the eight NARS leaders faced eight or fewer ISNAR specialists to discuss the management function studied by that one group. Thus the meeting was balanced between NARS and ISNAR.)

Eight African NARS leaders came to The Hague for a full week to interact with ISNAR working groups. Focus was on materials and tools relating to four critical management factors.

The consultation format programmed a full day for work on each topic. A paper from the working group kicked off the session. The paper had been provided to participants in advance; two expert consultants were invited to make written comments on a paper, as well as to be oral discussants of it. Thus each paper had formal review and comments by two working NARS managers.

These three presentations on each topic became the common focus for plenary discussions. Then the assembly formed into two working groups for another two hours to probe each topic. The first hour of the following morning provided time for reports-back and plenary discussion of work-group findings.

The format had the structure of a training workshop, but the primary goal was not the enlightenment of the eight invited participants. The goals were more focused on the outputs of our own working groups: tests of ideas, reaction to materials, and suggested lines for improvement, all coming from hours of disciplined study with leaders of eight NARS our materials must serve.

Results had immediate impacts. The Human Resource Management group confirmed the relevance of materials for its forthcoming international workshop, adapting them according to outcomes of the expert consultation. The Priority Setting group received specific guides toward further development and refinement of its materials for use in African NARS. The Monitoring and Evaluation group had reactions that helped frame working papers that followed – also sharpening focus on monitoring the research process, as distinct from evaluating the final impact of research. And the Program Formulation group incorporated comments into its working paper that came out later in the year.

Training at ISNAR - 1988

More than half of our sponsored training events in 1988 took place at the level of a national agricultural research system. Other sponsors joined us in a number of training events, as we report in this section. Here, in brief, are the seminars, conferences, and workshops in our training program this year. The table at the end of the section shows the locations and enrollment by regions. In the text we report on the individual activities.

International Events

The Changing Dynamics of Global Agriculture

The 1988 Agricultural Research Policy Workshop engaged NARS policy makers from 16 countries – 4 each from Africa and Latin America-Caribbean, 3 from West Asia-North Africa, and 5 from Asia-Pacific. The topic was research policy implications in four areas of worldwide change in agriculture. The aim was to discuss what a NARS manager – most often trained in physical or biological sciences – needs to know about:

- global food surpluses;
- linking growth in agriculture with growth in the rest of the economy;
- sustainability of agricultural environments;
- mobilizing and sustaining support for NARS.

Two European development agencies joined ISNAR in sponsoring this week-long event, held in September at Feldafing, Federal Republic of Germany. Our joint sponsors were the German Foundation for International Development (DSE), Feldafing, FRG, and the Technical Centre for Agricultural and Rural Cooperation (CTA), Wageningen, Netherlands – a center created by the European Economic Community. All three sponsors played active roles, with papers and in the workshop process.

Participants heard and discussed two presentations by European and North American scholars on each of the first three subjects. One paper came from the International Food Policy Research Institute, Washington, D.C., a CGIAR center. The final topic was the subject of eight papers, including two from developing-country NARS. Another was contributed from the regional Inter-American Institute for Cooperation on Agriculture, Costa Rica.

On the fourth topic, on mobilizing and sustaining support, leaders heard the first two papers drawn from the content of the ISNAR global data base on NARS. One reviewed the broad trends of a quarter-century in terms of personnel and expenditures for agricultural research (see the article on p. 40); the other reported on factors that determine support for a NARS within its own country.

The workshop proceedings was in final editing at the end of the year for publication early in 1989.

A worldwide representation of NARS managers discussed changes in world agriculture in the annual Agricultural Research Policy Workshop.

Human Resource Planning and Management

The annual International Agricultural Research Management Workshop has evolved to become a true workshop. ISNAR invites a wide representation of its NARS partners to consult on the usefulness of our approaches to strengthening NARS. They consider such factors as relevance, rigor, cost effectiveness, and importance – or priority – for NARS.

The 1988 workshop was tightly focused on one key management function: planning and management of human resources in NARS. Our Working Group on Human Resource Management planned and conducted the five-day event, held in November at The Hague. Participants came from throughout the developing world: Asia-Pacific, five; West Asia-North Africa, two; Africa, nine; and Latin America-Caribbean, four.

Ten sessions made up the week's agenda, with ISNAR staff and materials featured in all the sessions. Beginning with an overview, based on our global data base of personnel and our advisory work with NARS, the program hit key points in human resource management within the context of a NARS. Participants discussed a human resource information system and were introduced to ARIS, an agricultural-researcher information system data base under development in ISNAR. Staffing, training, performance appraisal, performance improvement, compensation, special experiences, and development of management skills rounded out the list of topics.

Presentations and case studies, discussed in small working groups, provided means for validating our materials on these topics. Participants worked with the materials, and their discussions validated strengths and highlighted areas where additional work is required.

Proceedings of this workshop were ready for publication as the year ended.

Workshop on ATMS

In 1985-86 ISNAR staff and researchers at Rutgers University, in the United States, worked together to develop an approach to diagnosing constraints in an agricultural technology management system. They gave it the acronym ATMS. The methodology was developed and tested in the Panama system. Later ISNAR used the ATMS approach in Sudan, and Rutgers applied the method in El Salvador.

We jointly sponsored a workshop in the United States in 1988, to examine the impact of agricultural technology management activities and the policy and organizational factors that would account for the

impact. Rutgers took the lead in organizing this workshop.

Thirty-four persons took part, including persons working with the methods and NARS participants funded by USAID country offices. The Rockefeller Foundation provided some financial support for the event. A proceedings will present a series of papers on the two central themes: measuring impact and diagnosing issues of policy, organization, and management that account for the extent of impact.

Regional Events

Sahelian Africa

Thirty-one participants from nine Sahelian countries attended a regional workshop on agricultural research management, held in Senegal. Chiefs of centers and stations and program coordinators attended from Burkina Faso, Cape Verde, The Gambia, Guinea-Bissau, Mauritania, Mali, Niger, Senegal, and Chad.

This one-week workshop was sponsored by ISNAR and Sahel AGIR (Project for Improvement of Management in the Research Institutes in the Sahel) – with funding from two Canadian sources, CIDA and IDRC, and the Government of France. Two ISNAR staff and five from AGIR conducted the training in French.

Program content emphasized a manager's function within a NARS, roles in planning and managing research programs, and improving communication of managers with superiors, collaborators, and partners. It also gave participants opportunities to exchange experiences with managers in other countries of the region.

SACCAR/ISNAR Project

Three small-country systems in Southern Africa met for their workshop under the SACCAR/ISNAR project. Participants included four each from Botswana and Swaziland and 11 from Lesotho, where the workshop was held. (The article on p. 40 gives the detail of this project.)

Expert Consultation

Eight African NARS leaders joined the ISNAR Expert Consultation workshop. The focus was on concepts, materials, and tools being developed at ISNAR to aid NARS managers. This activity is described more fully in the Research section.

National Events

Jordan

A workshop on planning and programming agricultural research was held in Jordan by ISNAR, along with the faculty of agriculture of the University of Jordan, National Centre for Agricultural Research and Technology Transfer, and the Canadian International Development Research Centre (IDRC). The specific topics were planning and priority setting, program formulation and budgeting, monitoring and evaluation, and linkages. Jordanian research leaders and policymakers took part. The workshop brought out the interaction of key research and training institutions in Jordan. At the end, they stated recommendations concerning several needs for improvement in managing the research process: management information systems, improved processes in planning and setting priorities, and coordination of regional and international research. They also called for study of particular issues, such as setting criteria for monitoring

and evaluating research and determining how much researchers should be involved in efforts to transfer technology.

Madagascar

FOFIFA organized a week-long seminar on management, conducted by two ISNAR staff and trainers from the Ministry of Agriculture and CIRAD (France). Thirty participants worked on planning, programming, and evaluating agricultural research. One ISNAR staff member summarized his experiences in a paper comparing approaches to research planning in five national systems: Côte d'Ivoire, Senegal, Tunisia, France, and Bangladesh. This was one of the final activities of our outposted ISNAR research management adviser. (He had served four years as a programming specialist with FOFIFA – contracted to Madagascar under its World Bank project for agricultural research.)

Philippines

The Philippines Council on Agricultural Research and Rural Development (PCARRD) asked our collaboration in orientation of new leaders as the research system was decentralized under a change in government. The workshop, planned and conducted jointly, focused on the operation of PCARRD and relationships among institutions of the national system. Four ISNAR papers dealt with organizational design, setting research priorities, research-extension linkages, and human resource management.

There was impact: PCARRD created a task force to study recommendations that came from the workshop, and proposals came out for collaboration with ISNAR on management information systems at the regional level.

SACCAR/ISNAR

Workshops

Four nations – Malawi, Tanzania, Zambia, and Zimbabwe – held national research management workshops in 1988 under the special SACCAR/ISNAR project. This was the second round of the four annual workshops planned for each country. The project, and the workshops of 1988, are discussed in the separate article on p. 40.

Sudan/ARETP

The Agricultural Research Corporation and ISNAR have an agreement under which we provide research management training for the Agricultural Research, Extension, and Training Program (ARETP). Twenty-eight staff and two World Bank consultants attended the 1988 event. Emphasis was on program budgeting for agricultural research. The 1987 workshop had introduced program budgeting, and a Sudanese administrator had spent time at ISNAR to plan a data base on research activities. The 1988 workshop gave opportunity for hands-on work, with microcomputers, on management information data collected from three ARC centers. Plans call for implementing a program-budgeting system more widely in 1989.

Program budgeting in agricultural research was featured in training for Sudan's ARETP this year. Twenty-eight took part in hands-on work with computerized systems.

Sudan

The Agricultural Technology Management System (ATMS) study in Sudan moved through the data-collection stage in 1987. Senior staff from Sudan's Agricultural Research Corporation (ARC), the University of Khartoum, and the planning division of the Ministry of Agriculture and Natural Resources carried out that study. (They worked as a consulting team to the Arab Organization for Agricultural Development, AOAD.) ISNAR helped analyze the data and prepare a final report that diagnosed strengths and weaknesses. A reporting workshop in 1988 gave the report a wider constituency.

Forty-five persons spent two days discussing the report. (The open discussion may have been the most important part of the entire process.) Among them were cabinet-level officers and leaders from other research and training organizations, as well as the ARC personnel. They discussed outcomes and recommendations for strengthening their own system. Also, they contributed to ISNAR by evaluating the ATMS methodology.

The record of discussion and conclusions of the workshop were published jointly with the original ATMS study.

AOAD supported costs of the Sudan team as a first step in its larger effort of SARMAC (to strengthen agricultural research management in Arab countries).

Global, national and regional events.

	Global		National		Regional		Total	
	No.	Att.	No.	Att.	No.	Att.	No.	Att.
Africa			4	138	3	57	7	195
Asia-Pacific			1	41			1	41
Latin America-Caribbean								
West Asia-North Africa			3	100			3	100
Global	3	71					3	71
Total, 1988	3	71	8	279	3	57	14	407
1981-87	13	500	18	442	17	790	48	1,732
Grand Total	16	571	26	721	20	847	62	2,139

SACCAR/ISNAR
Training Project for Southern Africa

The course has been beneficial; it has highlighted issues that would have taken a long time for some participants to know.

I was able to note my weaknesses as a manager; it has strengthened my understanding of the responsibilities of a manager, even at mid-level.

It built [my] confidence in expressing opinions, especially through discussions and working groups.

Writers of these unsigned comments were from four different countries in Southern Africa. But they were talking about the same thing. They referred to agricultural research management workshops in which they and 239 others in their region had taken part over the last two years. Eight such workshops had been carried out in the two years, with participants from seven of nine countries included in this regional training project.

The SACCAR-ISNAR Southern African Agricultural Research Management Training Project is the full title of the activity that offers these workshops for agricultural researchers in nine countries: Angola, Botswana, Lesotho, Malawi, Mozambique, Swaziland, Tanzania, Zambia, and Zimbabwe.

Launched into its planning stage in September 1986, the project offered three workshops in 1987, then five in 1988. Eleven more are docketed in its next two years.

Two separate lines of development converged to lead to this project. Heads of state of the nine countries, at their Lusaka Summit in 1980, created the Southern African Development Coordination Conference (SADCC). A SADCC project for agricultural cooperation evolved into SACCAR, the Southern African Centre for Cooperation in Agricultural Research. SACCAR oversees 11 projects in agricultural research, including one in agricultural research management.

At about that same time, a number of donors interested in subSaharan Africa formed a consortium (CDA, Cooperation for Development in Africa) and divided leadership for different targets in development. The agricultural group – the Canadian International Development Agency (CIDA), the U.S. Agency for International Development (USAID), and the United Kingdom's Overseas Development Administration (ODA), set up a project with ISNAR in 1982 to determine training needs in agricultural research in subSaharan Africa. In following years, ISNAR conducted regional agricultural research management workshops in Swaziland and Tanzania.

With support of the three donors, SACCAR turned to ISNAR in responding to the need for research management training in its nine-country region. ISNAR became the executing agency for a four-year training project. Five objectives were set out, all keying on agricultural research management:

- to foster human resource development;
- to strengthen capacity of national research leaders to plan, program, budget, execute, and monitor research;
- to build management skills of mid-level research administrators;;
- to work towards a base for sustained management training capacity within the region;
- to reinforce exchange of information related to management.

Managers at three levels were targeted for the training: agricultural research policymakers, senior research managers, and middle-level research managers.

The Half-way Point

The year 1988 brought the project to its mid-point. Almost half the number of scheduled events had been carried out.

Seven of the projected 12 national workshops had been staged, along with a combined event for research managers in Botswana, Lesotho, and Swaziland. The regional training event for Angola and Mozambique – in Portuguese – has been delayed by problems in planning and logistics for a workshop.

Southern African Center for Cooperation in Agricultural Research.

The map shows the countries and numbers of participants recorded in the first two years of training activity.

Participants in the 1988 events had these characteristics, on average: 37 years of age; 7.4 years in agriculture; and 7.0 years in research. Eighty-three percent were males; and in education, 36% had B.Sc., 50% M.Sc., and 14% Ph.D degrees.

Looking for Results

An external team of evaluators will make a mid-term assessment of this project during 1989. Ahead of that formal activity, many indicators give clues to results.

Quotes that opened this section came from individual evaluation forms completed by participants in the 1988 workshops. In addition to responding to some open-ended questions, they recorded detailed ratings of the 20 or so subjects on the agenda for their specific workshop. On a five-point scale, all subjects were scored well above *average* for content and usefulness in their work.

When they gave a single score for the workshop as a whole, nearly all participants marked one of the two top categories of *good* and *very good* – the scale went down to *average*, *fair*, and *poor*.

One item on overall reaction prompted people to make statements about main strengths and weaknesses of the workshop they had been through. Most of the strengths dealt with personal gains, including such statements as those quoted at the start and the following:

Exposure to things usually taken for granted makes you think management, wrote one Zimbabwe participant.

It highlighted some work aspects I knew existed but was not paying much attention to, reported one from Malawi.

A Tanzanian cited as a benefit to him, *Consideration of non-technical issues that may influence our effectiveness as research managers*.

Another, from Malawi, highlighted the range of issues in agricultural research management when he said he had gained *ability to recognize areas within the management system that can improve productivity*.

Participants were also asked to record items under weaknesses. Some were constructive notes that will help both organizers and trainers to prepare the next phase of the project. The bulk of such comments, however, dealt with physical factors – such as some monotony in meals or isolation from extra-curricular activities – rather than weaknesses in either concept or content of the workshop. A few felt that more material was presented than they could master in the time available. The next phase will return to such issues in greater depth.

The Subject Agenda

The five 1988 workshops included a total of 27 different topics. Workshops differed in subject mix and time allocation. Each had been tailored to its participant group in pre-planning by a national senior manager and the ISNAR project coordinator. Three main topic areas appeared on all workshops.

One area related to specifics of the agricultural research environment: for example, universities as part of the national agricultural research system, underscoring their role in agricultural research; also programming structure within the national agricultural research system (NARS); and linkages to extension services. National resource persons generally made these presentations, which put management principles into familiar contexts.

Another area, which usually occupied the major time allocation, was skills and processes in agricultural research management – such as strategic planning, program formulation, priority setting, and monitoring and evaluation. ISNAR resource persons took the leads here; often a national officer shared in some phases, especially with cases dealing with practices in their NARS.

The third main category dealt with more general management behavior concepts related to organizational effectiveness – leadership, delegating, communications, for example. A local or regional management specialist carried this area in most instances.

Participants gave good marks for the teaching approaches in most cases. Some of the overall workshop strengths were cited, such as in these statements from the Malawi workshop:

The workshop . . . subjected participants to real field problems and how to get around them.

There were a lot of exercises, thereby making the participants actively involved in the proceedings.

The training agenda for national research management workshops by SACCAR-ISNAR focus on needs of the NARS. And the learning laboratory utilizes local activities, such as a research farm visit in Malawi, to combine theory and reality.

The resource persons were conversant with our situation, hence they were giving examples that we have at one time experienced.

The Trainers

In terms of all the units, ISNAR staff taught about half the topics. The project coordinator and usually three staff members made up the ISNAR team for each workshop. They brought experiences from research and advisory services, as well as training programs within ISNAR. These broadly based teaching teams came into the interaction with different backgrounds, which enriched the learning experience for workshop participants; at the same time, as teachers they gained perspective on the range of problems, needs, methods, and concepts that make up agricultural research management in the broadest sense.

Participants liked the mix of local trainers with those from ISNAR. A Zambian noted as a strength: *It is certainly very encouraging to have seen so many local resource persons.* That, of course, bears directly on the project objective to work towards sustained management training capacity for agricultural research in the region. Evaluations covered quality of presentation as well as content; and, again, most were scored in the two highest of five evaluation categories.

A Treasure of Materials

A Tanzanian listed, as a high benefit, *the detailed treasure of notes under one cover.* He referred to the take-home handbook for the workshop. Each workshop had its handbook which preserved the background papers and presentations brought together by the individual trainers in that workshop.

By the end of 1988, the project had gathered 72 workshop papers, both those used in presentations and as reference material. Sixteen were by ISNAR writers; others represented varied sources – many were the local trainers who helped teach the workshops.

A *treasure* of videotaped materials was also on hand at the end of the year. This resource then numbered 50 tapes, with total running time of more than 50 hours. About half the programs were prepared by ISNAR staff, presenting areas of their expertise. Many were taped during workshops as national officers and trainers shared their presentations. As one Tanzanian said, *the use of videotapes greatly helped clarify matters in some lectures.*

These collections of written and audiovisual materials make up a significant asset that (1) serves the workshop program now, (2) can be used within countries in their own training, and (3) adds to ISNAR's library of tools and training materials.

The Years Ahead

The broad outlines of the years ahead for this project are already programmed. Four countries will each have two more national workshops: Malawi, Tanzania, Zambia, and Zimbabwe. Angola and Mozambique will join for a workshop in Portuguese in 1989. Two other 1989 events are: training in materials development on how to write case studies; and a train-the-trainer course in written communication – national systems will then have staff that can, in turn, train others on written communication.

Participants in SACCAR-ISNAR training broaden their acquaintance with both programs and personnel of many organizations, including external donors. A representative of CIDA, one of the project sponsors, took part in the Zimbabwe workshop.

Agricultural research policymakers from all nine countries will be invited to a regional workshop planned just for them; the emphasis will be on policies needed for sustainable agricultural research in development. Training is planned also for senior managers in skills of consulting – a way to help managers share their expertise within the region.

In some instances, national workshops will be tailored to particular special needs. The training thus integrates with ISNAR's advisory service activity and connects directly with the events in their own NARS. For example, Tanzania will focus on training that reinforces the work they and ISNAR are doing on strategic planning for agricultural research. A workshop in Malawi will be related to the master planning work there. In Zimbabwe, a workshop will deal with managing nationally coordinated research programs, which are targeted on research for communal farming areas of that country.

ISNAR Activities With

African Countries - 1988

Botswana

Four researchers from Botswana took part in a three-country workshop on agricultural research management. This was the first regional workshop in the SACCAR/ISNAR project for nine Southern African countries.

Burkina Faso

Long-term collaboration with the national research institute, INERA, continued. Advisory support this year focused on regionalizing research activities, the research programming process, and research-extension linkages. Burkina Faso was represented at the Sahelian Africa regional workshop on agricultural research management.

Burundi

A diagnostic review was carried out by a two-person ISNAR team. The head of the research institute, ISABU, scheduled an early visit in 1989 to The Hague to begin efforts to implement actions suggested by the reviewers.

Cameroon

An ISNAR research management specialist was outposted to Cameroon in 1988. He and two headquarters staff members worked with four research stations and university faculty on setting priorities for agricultural research. The ISNAR specialist gave support in procedures to get and computerize information needed for program budgeting. Cameroon staff provided training on written and oral communication throughout the system, following up on ISNAR's train-the-trainer workshop. A Cameroon manager was one of eight NARS leaders invited to be part of ISNAR's Expert Consultation workshop in 1988.

Côte d'Ivoire

Côte d'Ivoire will collaborate in the research-technology transfer project as a case-study country. Local researchers were selected to work on the study.

Ethiopia

An Ethiopian manager was one of eight NARS leaders invited to be part of ISNAR's Expert Consultation workshop in 1988. Plans were laid for ISNAR to conduct a national research management workshop in Ethiopia early in 1989.

The Gambia

The country established a national agricultural research board and took other steps to strengthen the national system: job descriptions and terms of service for researchers, task forces to review research proposals, and program budgeting. The Gambia was represented at the Sahelian Africa workshop on agricultural research management.

Ghana

An exploratory mission was followed by a full review of the NARS. ISNAR serves in an advisory role as Ghanaians carry out the diagnostic review of their own system.

Guinea

A small ISNAR review team carried out a diagnostic mission in 1988. Follow-up discussions continue related to major actions suggested to restore the nation's capacity in agricultural research.

Guinea-Bissau

An exploratory visit was made to Guinea-Bissau, and plans were made for a workshop in 1989. A representative attended the Sahelian Africa regional workshop on agricultural research management.

Kenya

Three research centers improved program formulation processes and set up ways to involve several disciplines in defining problems and carrying out research. KARI, the national agricultural research institute, approved a new salary structure for its researchers. A research manager from Kenya was invited as one of eight NARS leaders to take part in the Expert Consultation in 1988.

Lesotho
Lesotho was the site for the first regional training event in the SACCAR/ISNAR Southern African Agricultural Research Training project. Eleven of its agricultural research staff took part in the workshop.

Madagascar
ISNAR helped Madagascar conduct a research management seminar in FOFIFA, the national research organization. At the request of FOFIFA, ISNAR collaborated in a long-term plan for agricultural research; then ISNAR took the lead in preparing a project – based on that plan – for negotiation with external sources of funding.

Malawi
Thirty-four persons from the research system took part in the second annual workshop of the SACCAR/ISNAR project. A research manager from Malawi was invited as one of eight NARS leaders to take part in the Expert Consultation in 1988.

Mali
An ISNAR team carried out a diagnostic review of the NARS in Mali. A long-term planning exercise was started immediately, with ISNAR asked to provide methodology and support to the Mali planning task forces. Mali was represented at the Sahelian Africa regional workshop on agricultural research management.

Niger
ISNAR aided Niger's long-term planning process in 1987. When the country moved this year to produce a medium-term plan (for an external investment project), it turned to ISNAR for methodological support. Niger was represented at the Sahelian Africa regional workshop on agricultural research management.

Nigeria
Nigeria was the site of ISNAR's only review this year of a single component of a NARS. The team examined the Nigerian Institute for Oil Palm Research. Nigeria will collaborate in the ISNAR study of research-technology transfer linkages. A research manager from Nigeria was invited as one of eight NARS leaders to take part in the Expert Consultation in 1988.

Rwanda
Consultation continued as Rwanda implemented proposals from the 1987 study of its farming-systems research. Other changes in policy, organization, and management were made in the national institute, ISAR. At ISAR's request, an ISNAR adviser helped Rwandans develop a proposal to decentralize some research to regional centers. ISAR moved also to strengthen its contacts and improve materials for linking with extension units. An ISNAR resident research management specialist ended his work there during 1988.

Senegal
ISNAR is collaborating closely with the national institute, ISRA, in a study of human resource management in NARS. Two on-site missions were devoted to gathering data for analysis of the system and its procedures. The collaboration continues as ISRA implements broad recommendations. Dakar, Senegal, was the site of a regional agricultural research management workshop for francophone African research managers.

Somalia
Somalia renewed collaboration with ISNAR, asking for support in updating recommendations made in the 1984 ISNAR review. An ISNAR staff member and a consultant went on an exploratory mission to the institutes for livestock and environmental research.

Swaziland
Four persons from its NARS took part in a three-country regional research management workshop, carried out under the SACCAR/ISNAR training project for Southern Africa.

Tanzania
An ISNAR staff member participated in the SPAAR initiative to help Tanzania in developing its master plan for a 15-year span. A case study in the research-technology transfer linkage project will be carried out here. A research manager from Tanzania was invited as one of eight NARS leaders to take part in the Expert Consultation in 1988.

Uganda
Two ISNAR staff members were invited to work with a FAO team advising Uganda on rehabilitating the nation's agricultural sector. One serves as co-leader of a team focusing on the research system.

Zaire
An ISNAR staff member helped leaders of the NARS engage an experienced international specialist to lead the work for a medium-term agricultural research plan.

Zambia
Twenty-nine of its NARS personnel took part in the national workshop in the SACCAR/ISNAR training project. A research manager from Zambia was invited as one of eight NARS leaders to take part in the Expert Consultation in 1988.

Zimbabwe

The final draft reporting the earlier ISNAR-DR&SS review was delivered in 1988. A number of actions were begun in implementing recommendations. They included: creation of a research planning unit; changes in regional centers; organizing the research-extension linkage; and increasing focus of research for farmers in communal areas. Thirty-two persons attended the SACCAR/ISNAR training project, the first of four national workshops planned. A case study will be carried out here in the ISNAR research-technology transfer linkage project. A research manager from Zimbabwe was invited as one of eight NARS leaders to take part in the Expert Consultation in 1988.

Regional

SACCAR/ISNAR

The first regional agricultural research management workshop of the SACCAR/ISNAR project was carried out in 1988. Participants from Botswana, Lesotho, and Swaziland met in Lesotho with ISNAR and regional or national trainers.

Sahelian Africa

Chiefs of centers and stations and program coordinators attended the regional research management workshop in Dakar, Senegal. The nine countries represented were: Burkina Faso, Cape Verde, The Gambia, Guinea-Bissau, Mauritania, Mali, Niger, Senegal, and Chad.

ISNAR Activities With

Asia-Pacific Countries - 1988

Bangladesh

Contact continued in relation to the Bangladesh national plan for agricultural research. A research management specialist was outposted to Bangladesh to collaborate on creating and implementing the plan.

Indonesia

Collaboration continued on development of management information systems. Headquarters and outposted ISNAR staff helped AARD staff extend its information system from the one pilot-study institute of 1987 to others this year. Early work began in the ACIAR/ISNAR study of procedures for setting research priorities. AARD is the subject of one of four national studies in the Asia-Pacific region.

Philippines

Responding to a request by PCARRD, ISNAR played key roles in a management workshop for Philippine research managers. In other consultations, ISNAR staff discussed organization issues and management information systems. One of the case studies of research-technology transfer linkages will be done in the Philippines. The local team of researchers met with the ISNAR coordinator for a workshop on study procedures.

Laos

An ISNAR team reviewed agricultural research in Laos in 1988. Its report offered many recommendations for developing a national system from the small and scattered elements.

Sri Lanka

ISNAR collaboration with CARP, the national Council for Agricultural Research Planning, continued in 1988. An ISNAR consultant worked with CARP officers on establishing the council and setting up procedures. On several visits, other ISNAR staff advanced the work to develop a management information system, as well as contributing to the project by the Federal Republic of Germany aid agency, GTZ. Sri Lanka was selected to collaborate in the research-technology transfer linkage study.

Regional

ISNAR collaboration continued with ACIAR (Australia) on studies of priority-setting methods in four Asia-Pacific countries. Proceedings of the agricultural research management workshop were published this year. The regional workshop was held in Western Samoa in September 1987.

ISNAR Activities with

Latin America-Caribbean Countries - 1988

Argentina

ISNAR staff consulted with INTA on its plans for decentralizing to regional centers. Three ISNAR working papers on monitoring and evaluation of agricultural research were translated and used in INTA training on research management. An ISNAR staff member researched material there for a training case on joint ventures of government research with the private sector.

Chile

Chile moved to integrate research and extension staffs and strengthen publications and varietal distributions as means of improving linkages with extension and the private sector – needs identified in the 1987 review. ISNAR gave additional help in planning a system for monitoring and evaluating research and the transfer of technology.

Colombia

The pilot study in the research-technology transfer linkage project was carried through in 1988. Early stages of the pilot were done late in 1987.

Costa Rica

Costa Rica made progress on most of seven points-of-action targets set up for the year, including: a national research plan; focusing on fewer research programs; setting up linkages to policymakers and research clients; training station managers. IICA collaborates in this continuing relationship. A case study in the research-technology transfer project will be carried through in Costa Rica.

Dominican Republic

A case study in the research-technology transfer project will be carried through in the Dominican Republic.

Ecuador

A diagnostic review was carried out in 1988 by a joint ISNAR/ IICA team.

Uruguay

Liaison continues as Uruguay designs a new structure for agricultural research. Special help was given in 1988 on plans for an autonomous national research institute and on a special study, with Uruguayans, of human resource management needs. The country is included in a study of returns on investment in agricultural research (by ISNAR and University of Minnesota, U.S.A.).

ISNAR Activities with

West Asia-North Africa Countries - 1988

Jordan

A national workshop on planning and programming agricultural research focused on four areas: setting priorities, formulating and budgeting for the program, monitoring and evaluating, and linking research with technology transfer units.

Morocco

With advisory backup from ISNAR, Morocco moved ahead in its development of computerized program budgeting. That work was broadened to provide computerized information handling for other research management needs.

Sudan

Forty-five policy and research leaders attended a report-back workshop in 1988, based on the 1987 ATMS review. A second national seminar, on programming and budgeting, related to recommendations coming from the earlier review.

Syria

Planning and programming procedures of the Syrian NARS were reviewed by an ISNAR staff member. The report, as requested by Syria, suggested ways of strengthening these elements of research management.

Yemen Arab Republic

An ISNAR staff member made an exploratory visit to the NARS in 1988.

ISNAR Publications 1988

Catalog of Publications/
Catalogue des Publications/
Catálogo de Publicaciones 1988

Newsletters

No. 8 - October 1988
No. 9 - December 1988

Annual Report 1987
Rapport Annuel 1987
Informe Anual 1987

Reprint No. 4 Role of research in transforming traditional agriculture: An Emerging Perspective

Reports of Diagnostic Reviews

Analyse de la Structure et de la Gestion de l'Institut de la Recherche Agronomique (IRA) et de l'Institut de Recherches Zootechniques (IRZ) du Cameroun. (Executive summaries also produced in French and English.)

Fortalecimiento del Sistema de Investigación Agropecuaria y Transferencía de Tecnología. Report to the Government of Costa Rica.

Las Relaciones entre la Investigación Agropecuaria y La Transferencía de Tecnología: El Caso de Chile

A Review of the Department of Research and Specialist Services (DR&SS), Zimbabwe

Workshop Proceedings

The Planning and Management of Agricultural Research in the South Pacific (Asian Development Bank/ACIAR/ CTA/IRETA/ISNAR)

The Agricultural Technology Management System in the Sudan (AOAD/ISNAR)

Working Papers

No. 9 Organization, Financial, and Human Resources Issues Facing West African Agricultural Research Systems

No. 10 Priority Setting in Agricultural Research

No. 10F L'Etablissement des Priorités dans le Domaine de la Recherche Agricole

No. 11 NARS Linkages in Technology Generation and Technology Transfer

No. 12 The Logical Framework in Research Planning and Evaluation

No. 13 Project Management Techniques for Performance Monitoring

No. 14 Monitoring and Evaluation in the Management of Agricultural Research

No. 15 Human Resource Management for Agricultural Research: Overview and Issues

No. 16 Management Issues in the Collection and Use of Information on Research Personnel

No. 17 Program Formulation in National Agricultural Research

No. 18 Human Resource Management for National Agricultural Research: Lessons from ISNAR's Experience

Publications from the On-farm, Client-oriented Research Project

Case Studies

No.1 Zambia: Organization and Management of the Adaptive Research Planning Team (ARPT), Research Branch, Ministry of Agriculture and Water Development

No.2 Guatemala: Organización y Manejo de la Investigación en Finca en el Instituto de Ciencia y Tecnología Agricolas (ICTA)

Comparative Studies

No.1 Strengthening the Integration of On-Farm Client-Oriented Research and Experiment Station Research in National Agricultural Research Systems (NARS): Management Lessons from Nine Country Case Studies

No.2 Organization and Management of Field Activities in On-farm Research: A Review of Experience in Nine Countries

ISNAR Consultants - 1988

The following persons shared in our work as consultants in 1988.

J. R. Anderson, University of New England, Armidale, Australia
Participated as ISNAR consultant on an FAO team in preparation of the Pakistan Agricultural Research Project.

Seth Beckerman, Pittsburgh, PA, U.S.A.
Edited proceedings of the Agricultural Research Policy Seminar/Workshop, Feldafing, FGR.

Kurt Berger, Palm Oil Research Institute of Malaysia, Kuala Lumpur, Malaysia
Member of the review team for the Nigerian Institute for Oil Palm Research.

Stephen Biggs, University of East Anglia, Norwich, U.K.
Participated in the ISNAR study on the organization and management of on-farm research in national agricultural research systems.

Jim Bingen, East Lansing, Michigan State University, MI, U.S.A.
Participated in the ISNAR study on the organization and management of on-farm research in national agricultural research systems.

Rupert Brown, University of Kent, Kent, U.K.
Assisted ISNAR in the preparation of a background document on intergroup relations and human resource management for the project on agricultural research-technology transfer linkage.

Jean-Marie Buresi, Le Caylar, France
Assisted the National Working Group of Malagasy researchers.

Mohamed Chaalala, Tunis, Tunisia
Assisted the National Working Group of Malagasy researchers.

Simon Chater, Devon, U.K.
Edited teaching aids on methodologies for setting priorities among different lines of agricultural research.

John Coulter, Mayfield, East Sussex, U.K.
Served as a member of the Advisory Board for the research-technology transfer linkage project.

Rogelio Cuyno, University of the Philippines, Los Baños, College, Laguna, Philippines
Developed training material for the Malawi workshop and adapted the materials developed by the working group on research-technology transfer linkages into pedagogical materials.

Ruben Echeverría, Rutgers University, New Brunswick, NJ, U.S.A.
Prepared an issues paper on private sector research and technology transfer in the Third World with implications for public research and extension systems.

Johnson Ekpere, University of Ibadan, Ibadan, Nigeria
Member of the review team for the Nigerian Institute for Oil Palm Research.

Robert Ellinger, Victoria, Australia
Participated in a review of the national agricultural research system of the Lao People's Democratic Republic.

Paul Engel, Ministry of Agriculture and Fisheries, The Hague, Netherlands
Collaborated with ISNAR on the study of linkages between agricultural research and technology transfer.

Peter Ewell, Cornell University, Ithaca, NY, U.S.A.
Contributed to the ISNAR study on the organization and management of on-farm research in national agricultural research systems.

Jan Ferwerda, Wageningen, Netherlands
Member of the review team for the Nigerian Institute for Oil Palm Research.

Sarita Gomez, The Hague, Netherlands
Translation of the 1987 edition of the Annual Report.

William P. Gormbley, Wilton, CT, U.S.A.
Assisted in the review of and provided recommendations on ISNAR management practices.

Fred Haworth, Devon, U.K.
Prepared a paper for internal guidance on the planning and development of national agricultural research systems.

M. O. Kayode, University of Ibadan, Ibidan, Nigeria
Member of the review team for the Nigerian Institute for Oil Palm Research.

K. Robert Kern, Ames, IA, U.S.A.
Prepared the annual report of ISNAR activities in 1987.

F. Labouesse, Institut National de la Recherche Agronomique, Montpellier, France
Participated in review of the Malian national agricultural research system.

Darlene Lapointe, The Hague, Netherlands
Translated and edited portions of the Senegal report on human resources.

Marie de Lattre, Paris, France
Adapted and presented training material for the ISNAR-AGIR Research Management Workshop in Saly Portudal, Senegal.

David K. Leonard, University of California, Berkeley, CA, U.S.A.
Served as a member of the advisory board for the research-technology transfer linkage project.

Luis Marcano, Fundacion Servicio para el Agricultor, Caracas, Venezuela
Consulted with the Ministry of Agriculture and Livestock in Costa Rica on strengthening the management of their research stations.

F. McDonagh, London, U.K.
Edited the ISNAR/IRETA workshop proceedings on the management of agricultural research in the South Pacific.

J. Meunier, Institut de Recherche pour les Huiles et les Oléagineux, Montpellier, France
Member of the review team for the Nigerian Institute for Oil Palm Research.

Barry Nestel, Surrey, U.K.
Involved with ISNAR activities in Indonesia, in advisory work for Sri Lanka and Bangladesh, and in report writing.

Silas Pego, Agricultural Research Institute of Portugal, Braga, Portugal
Worked on issues related to maize research planning in Laos.

Susan Poats, University of Florida, Gainesville, FL, U.S.A.
Contributed to the ISNAR study on the organization and management of on-farm research in national agricultural research systems.

Jaap Reijmerink, Amsterdam, Netherlands
Assisted the National Working Group of Malagasy researchers in writing a basic document for the Agricultural Research Master Plan.

Ulf Renborg, Swedish University of Agricultural Sciences, Uppsala, Sweden
Assisted with planning and organization of the International Agricultural Research Policy Seminar in Feldafing, FRG in April 1988.

Niels Roling, Agricultural University, Wageningen, Netherlands
Served as a member of the advisory board for the research-technology transfer linkage project.

Peter Rood, University of East Anglia, Norwich, U.K.
Revised and edited the Nepal case study in the OFCOR project for publication.

Jonathan Sands, The Hague, Netherlands
Provided assistance and advice with regard to the Project Management Process of ISNAR and on various elements of microcomputer work.

David Shoesmith, New York, NY, U.S.A.
Assisted the National Working Group of Malagasy researchers.

Monteze Snyder, Bonneau, SC, U.S.A.
Participated in activities of the research-technology transfer linkage project core group; prepared guidelines and training materials for country case studies; reviewed and edited drafts of project documents and drafted an initial project proposal for a country case study in Egypt.

Burton Swanson, University of Illinois, Urbana, IL, U.S.A.
Served as a member of the Advisory Board for the research-technology transfer linkage project.

Annabel Torres, The Hague, Netherlands
Translated the Coffee Chapter of the Columbian Case Study from English into Spanish.

Eduardo Trigo, Inter-American Institute for Cooperation in Agriculture, San Jose, Costa Rica
Participated as a member of the Advisory Board for the research-technology transfer linkage project.

Brian Webster, St. Ives, Cambridgshire, U.K.
Helped in establishing – in a joint venture with GTZ and World Bank – procedures for the formation of the new Council for Agricultural Research Policy in Sri Lanka.

Taiwo Williams, University of Ibadan, Ibadan, Nigeria
Served as a member of the Advisory Board for the research-technology transfer linkage project.

Christine Wilson, Norwich, U.K.
Revised and edited the paper on organization and management of Farmer Participation in Agricultural Research.

ISNAR Staff Participation - 1988

Many requests and invitations come each year for ISNAR staff to take part in events or programs sponsored by other organizations. We respond only to those where our contribution is needed, where benefits accrue to our collaborators as well as ourselves, and when time permits. Our staff reported the following participations in 1988.

January 20-22.
Rice Biotechnology Program Workshop, Rockefeller Foundation, Los Baños, Philippines. **E. Javier**, member of advisory board.

January 24-29.
EDI Agricultural Research Policy Seminar for West Africa, Yamoussoukro, Côte d'Ivoire. Presentations by **R.B. Contant**.

February 2-6.
Launching of the National Agricultural Research Board and Seminar on Planning of Agricultural Research, Banjul, The Gambia. Presentation by **T.A. Taylor**.

March 2-4.
International Course for Development Oriented Research in Agriculture, Wageningen, Netherlands. Presentations by **H. Hobbs** and **D. Wood**.

March 14-16.
CGIAR review meeting of Task Force on Maize and Cassava Research in 11 Coastal West African Countries. Continuing participation by **T.A. Taylor**, member of the task force.

March 15.
Public and Private Sector Investments in Agricultural Research: the Case of Maize. ISNAR, The Hague. Presentation by **R. Echeverría**.

March 15-17.
Meeting of committee established to review role of CGIAR secretariat, Washington, D.C., U.S.A. Continuing participation by **A. von der Osten**, committee member.

April 11-15.
Workshop consultation regarding proposal on Farming System Approach Support Project, Food and Agriculture Organization, Swedish International Development Agency, and Swedish Agricultural University, Uppsala, Sweden. Participation and paper by **D. Merrill-Sands**.

April 11-16.
CGIAR consultative meeting on Task Force Study in 11 Coastal West African Countries, Lome, Togo. Participation by **T.A. Taylor**.

April 13-14.
Workshop of research and extension leaders to reorganize into commodity programs and to set priorities, Ministry of Agriculture and Livestock (MAG), San José, Costa Rica. Participation by **H. Hobbs**.

April 18-21.
Biotechnology Seminar, U. S. Agency for International Development, Washington, D.C., U.S.A. Participation by **E. Javier**.

April 25-29.
SPAAR/Tanzania Workshop on Preparation for Master Planning of Agricultural Research in Tanzania, Arusha, Tanzania. Participation by **T.A. Taylor**.

May 30-June 7.
IFAD Seminar on Generation and Transfer of Technology for Poor Small Farmers: Issues and Options, Seoul, Korea. Paper by **A. von der Osten**.

June 6-17.
Evaluation mission of the Information Center for Low External Input Agriculture (ILEIA project) based at ETC Leusden, Netherlands, Dutch Ministry for Technical Cooperation. Presentation and participation by **W.A. Stoop**.

June 8-10.
Workshop on Decentralized Wheat Research and Training Activities within the CGIAR System, IICA, San José, Costa Rica. Participation by **H. Hobbs**.

June 22-23.
Technology Development and Changing Seed Supply Systems Conference, Development Research Institute of Tilburg University, the Netherlands. Paper by **R. Echeverría**.

June 27-29.
Seminar on Policies and Mobilization of Resources for Technological Innovation in Latin America, IICA and Instituto de Desarrollo Economico, Montevideo, Uruguay. Participation by **P. Goldsworthy**.

August 10.
Public and Private Sector Investments in Maize Research: the Case of Mexico and Guatemala. CIMMYT, El Batan, Mexico. Paper by **R. Echeverría**.

August 15-19.
International Conference on Dryland Farming, U.S. Department of Agriculture and Texas State Experiment Station, Amarillo, TX, U.S.A. Concluding address by **P. Goldsworthy**.

August 28-September 3.
Seminar on Mechanics of Evaluation in Agricultural Research Institutes in Latin America, ICA, IICA, PROCARDI, IDRC, and FAO, Paipa, Colombia. Participation by **P. Goldsworthy**.

September 6-8.
Workshop on Monitoring and Evaluation of Technical Activities of INTA, Direccion Nacional Asistente de Control y Evaluación and Direccion Nacional Superior of INTA, Córdoba, Argentina. Participation by **P. Goldsworthy**.

September 12.
Meeting of the supervisory committee of the AGRISK Project of CEDRES - University of Ouagadougou/University of Groningen, Ministry of Foreign Affairs, The Hague. **R. Contant**, committee member.

September 12-16.
International Agricultural Research Centers Workshop on Human Resource Development Through Training. International Potato Center, Lima, Peru. Participation by **H. Hobbs**.

September 26-28.
Costa Rica Policy Seminar on Organization and Structure of the National Research and Transfer Systems, Ministry of Agriculture, San José, Costa Rica. Presentation by **H. Hobbs**.

September 26-30.
Conference on Farmers and Food Systems, International Potato Center and Rockefeller Foundation, Lima, Peru. Papers by **P. Eyzaguirre, D. Kaimowitz, P. Marcotte**, and **D. Merrill-Sands**.

October 9-12.
Farming Systems Symposium, University of Arkansas, Fayetteville, AR, U.S.A. Keynote address by **D. Merrill-Sands**.

October 17-19.
Regional Symposium on Agricultural Research Network for the Gulf Cooperation Council (GCC) Countries, Kuwait. Presentations by **G. Hariri**.

October 19.
Second meeting of the Committee for Arab Agricultural Research (CAAR), Kuwait. Participation by **G. Hariri**.

November 28-29.
Second Costa Rica Policy Seminar on Organization and Structure of the National Research and Transfer System. Ministry of Agriculture, San José, Costa Rica. Presentations by **H. Hobbs**.

November 30-December 8.
Expert Advisory Committeee and Workshop on IITA Biological Control Program, Cotonou, Benin. Presentation by **T.A. Taylor**.

November 13-December 3.
EEC Mission to Kenya Agricultural Research Institute, Nairobi, Kenya. Participation by **W.A. Stoop**.

December 6-15.
Third General Conference of the Agricultural Research Center, Ministry of Agriculture and Land Reclamation, Cairo, Egypt. Paper by **A. von der Osten**.

December 9.
Meeting of the Board of the International Course for Development Oriented Research in Agriculture, Leuven, Belgium. Participation by **H.K. Jain**.

ISNAR Financial Highlights - 1988

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AUDITORS REPORT

We have examined the accompanying accounts for the year to December 31, 1988 of the International Service for National Agricultural Research (ISNAR).

Based on our examination, we are of the opinion that these accounts have been properly prepared using accounting principles consistent with those used in the preceding year to give the information required to be shown in accordance with the accounting procedures contained in the instructions issued by the Consultative Group on International Agricultural Research, Washington.

March 3, 1989

ISNAR

BALANCE SHEET
December 31, 1988

(stated in US dollars)

Currrent Assets	**1988**	**1987**
Cash	2,018,415	1,424,971
Receivables from Donors	252,507	595,378
Other Receivables	214,353	244,642
Prepayments	210,763	53,734
Total Current Assets	2,696,038	2,318,725
Fixed Assets		
Vehicles	23,234	23,234
Furnishings and Office Equipment	1,768,879	1,427,837
Total Fixed Assets	1,792,113	1,451,071
TOTAL ASSETS	**4,488,151**	**3,769,796**
Liabilities		
Advance received on 1989 Core donation	80,865	427,095
Accrued Expenses	1,003,063	1,046,557
Total Liabilities	1,083,928	1,473,652
Fund Balances		
Invested in Fixed Assets	1,792,113	1,451,071
Unexpended Funds:		
- Core-unrestricted	3,117	15,274
- Working Fund	1,650,000	1,150,000
- Special Projects	(41,007)	(320,201)
Total Fund Balances	3,404,223	2,296,144
TOTAL LIABILITIES AND CAPITAL	**4,488,151**	**3,769,796**

ISNAR

RECEIVABLES FROM DONORS AS AT DECEMBER 31, 1988

(stated in US dollars)

Donor		Amount Pledged in Original Currency	US$ Equivalent at time of Pledge		Payment in Original Currency	Received during the Year	Losses/Gains Arising on Exchange Differences	Balance Outstanding at the Year End
CORE UNRESTRICTED OPERATING GRANTS								
Australia	Aus$	225,000	162,600	Aus$	225,000	158,467	4,133	---0---
Belgium	BFrs	2,000,000	52,500	BFrs	---0---	---0---	---0---	52,500
Canada	Can$	550,000	423,100	Can$	550,000	440,710	(17,610)	---0---
EEC	ECU	500,000	651,900	ECU	500,000	555,963	95,937	---0---
Federal Rep. of Germany	DM	300,000	191,100	DM	300,000	173,857	17,243	---0---
France	FF	1,750,000	285,100	FF	1,750,000	277,470	7,630	---0---
IBRD	US$	1,550,000	1,550,000	US$	1,550,000	1,550,000	---0---	---0---
Italy	L	350,000,000	302,500	L	350,000,000	252,450	50,050	---0---
Japan	Yen	48,900,000	370,500	Yen	48,900,000	386,409	(15,909)	---0---
Netherlands	Dfl	900,000	493,660	Dfl	900,000	455,955	37,705	---0---
Philippines	US$	20,000	20,000	US$	16,993	16,993	---0---	3,007
Spain	US$	30,000	30,000	US$	30,000	30,000	---0---	---0---
Sweden	Skr	600,000	104,100	Skr	600,000	95,037	9,063	---0---
Switzerland	Swf	470,000	370,400	Swf	470,000	350,264	20,136	---0---
UK	PdsSt	142,000	268,000	PdsSt	142,000	251,793	16,207	---0---
USAID	US$	875,000	875,000	US$	875,000	875,000	---0---	---0---
IBRD/Stab.Fund	US$	397,000	397,000	US$	200,000	200,000	---0---	197,000
Total Core Unrestricted Operating Grants 1988			6,547,460			6,070,368	224,585	252,507
CORE RESTRICTED OPERATING GRANT								
Federal Rep. of Germany	DM	300,000	191,100	DM	300,000	173,420	17,680	---0---
Total Core Unrestricted and Restricted Operating Grants 1988			6,738,560			6,243,788	242,265	252,507
Applied to Working Fund			(500,000)					
Applied to Fixed Assets			(229,862)					
Unexpended Balance Prior Year			15,274					
TOTAL REVISED 1988 BUDGET			6,023,972					

ISNAR

STATEMENT OF SOURCE AND APPLICATION OF FUNDS

FOR THE YEAR ENDED DECEMBER 31, 1988

(stated in US dollars)

	Source of Funds	**1988**	**1987**
1.-	*Core Operations*		
	Unrestricted	5,817,598	4,382,161
	Restricted	191,100	306,790
	Unexpended balance from prior year	15,274	11,645
	Earned Income Applied to Core Operations	---0---	468,700
		6,023,972	5,169,296
2.-	*Capital*		
	Unrestricted	229,862	---0---
	Earned Income Applied to Capital	216,401	363,052
		446,263	363,052
3.-	*Working Fund*		
	Unexpended balance from prior year	1,150,000	650,000
	Applied to Working Fund	500,000	500,000
		1,650,00	1,150,00
4.-	*Special Projects* - Cumulative Income on Projects not Completed	3,907,312	2,362,718
	TOTAL SOURCE OF FUNDS	**12,027,547**	**9,045,066**
	Application of Funds		
1.-	*Core Operations*		
	Advisory Services to NARS	2,240,683	2,171,527
	Research	1,264,349	815,522
	Training	1,107,500	732,780
	Program Support	511,707	612,216
	Management & Administration	896,616	821,977
		6,020,855	5,154,022
2.-	*Capital*		
	Capital Additions	446,263	363,052
3.-	*Special Projects* - Cumulative Expenditure on Projects not Completed	3,948,319	2,682,919
4.-	*Unexpended Balance*		
	Core - Unrestricted	3,117	15,274
	Working Fund	1,650,000	1,150,000
	Special Projects	(41,007)	(320,201)
		1,612,110	845,073
	TOTAL APPLICATION OF FUNDS	**12,027,547**	**9,045,066**

Donors to Special Projects - 1988

Rockefeller Foundation for support of research fellows with responsibilities for research in the areas of the policy organization and management of national agricultural research. **$95,000.**

USAID/Jakarta for the Indonesia applied agricultural research project. **$109,372.**

Government of France for support of a research associate. **$51,000.**

Ohio State University under contract to USAID for ISNAR assistance in the establishment of an umbrella organization to manage agricultural research in Uganda. **$24,946.**

United Nations Development Programme (UNDP) for assistance in the reorganization of agricultural research in Zaïre. **$31,289.**

Overseas Development Administration (ODA/CDA) for the second phase of a management training program, Strengthening of Agricultural Research Management in Southern Africa. **$45,403.**

USAID/CDA for the second phase of a management training program, Strengthening of Agricultural Research Management in Southern Africa. **$217,202.**

Canadian International Development Agency (CIDA) for the second phase of a management training program, Strengthening of Agricultural Research Management in Southern Africa. **$140,231.**

Italian Government for a study of the agricultural research-technology transfer interface. **$540,000.**

Italian Government for the second phase of the organizational and managerial implications of on-farm research in NARS. **$384,000.**

Madagascar/IDA for technical assistance in agricultural research management provided by ISNAR to FOFIFA, the National Center for Research Applied to Rural Development. **$130,125.**

Ministry of Foreign Affairs, Department of International Development Coorperation DANIDA to support the preparation of a case study in Lesotho as part of a study on strategies and organizations for agricultural research in small developing countries. **$14,849.**

Australian Centre for International Agricultural Research (ACIAR)/Australian International Development Agency Bureau (AIDAB) to support a study on the potential use of biotechnology in the agriculture of developing countries. **$267,362.**

University of Wisconsin under contract to USAID for ISNAR assistance to the University of Wisconsin/Gambia agricultural research and diversification project. **$30,978.**

Food and Agriculture Organization (FAO) for agricultural research management technical assistance to Pakistan. **$2,689.**

Technical Centre for Agricultural and Rural Cooperation (CTA) to conduct a regional workshop on planning and management of agricultural research in the South Pacific. **$5,217.**

Asian Development Bank (ADB) to conduct a regional workshop on planning and management of agricultural research in the South Pacific. **$12,215.**

Australian Centre for International Agricultural Research (ACIAR) to conduct a regional workshop on planning and management of agricultural research in the South Pacific. **$11,170.**

Australian Centre for International Agricultural Research (ACIAR)/Australian International Development Agency Bureau (AIDAB) for collaboration on agricultural research priorities project. **$19,305.**

Government of France for a workshop on agricultural research management for the countries of the Sahel region of Africa. **$24,713.**

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International Service for National Agricultural Research

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