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Strengthening National Agricultural Research Systems in Asia

A Report of Discussions by Leaders of Agricultural Research Systems in 13 Asian Countries

Los Baños, Philippines
March 18 and 19, 1981

PNAAP 375

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Sponsors

- International Service for National Agricultural Research
- International Federation of Agricultural Research Systems for Development
- South East Asian Regional Center for Graduate Study and Research in Agriculture

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We note with a deep sense of loss the untimely death of Dr. J. D. Drilon, Jr., which occurred in June 1981 as these proceedings were in preparation. His role in the seminar was central, as co-sponsor as well as a contributor. His leadership and scholarship in this field leave a lasting mark.

Dr. J. D. Pages, manager of the Asia Research Management project in SEARCA, gave invaluable assistance and support in preparation of this report. We are grateful.

ISNAR

The Hague
June 1981

Foreword

High-ranking officers in Agricultural Research Systems of 13 Asian countries met at Los Baños, The Philippines, on March 18 and 19, 1981. They discussed many facets of National Agricultural Research Systems, emphasizing means of making the systems stronger.

The meeting was sponsored by three groups interested in the topic and the projected goal: The International Service for National Agricultural Research (ISNAR); The International Federation of Agricultural Research Systems for Development (IFARD); and the South East Asian Center for Graduate Study and Research in Agriculture (SEARCA). The sponsors share interest in the subject, but they have dinstinctly different roles. IFARD emphasizes the professional needs of its individual and institutional members among national agricultural research systems. SEARCA provides formal study and training opportunities associated with agricultural research in the region. ISNAR has an international mandate to assist in strengthening national systems and enhancing functional links between national and international bodies concerned with agricultural research.

In interaction with sponsors, the participants identified and illuminated issues and problems as perceived at their point of operation.

This document summarizes the main themes dealt with in the two-day meeting. It offers some definition of roles of both ISNAR and IFARD -- each is relatively new in its area of interest. But in the main the document reports what these leaders of national agricultural research systems in Asia had to say on the subject.

IFARD: International Federation of Agricultural Research Systems for Development

J. D. Drilon, Jr.,
Secretary-General

Summary of Presentation and Discussion[1]

Originated in 1977

IFARD originated in discussions among a number of national agricultural research leaders who were attending a conference held in 1977 at Bellagio, Italy. The organization was further defined and incorporated in Hong Kong in 1978.

The central intent of IFARD is to enhance agricultural development through strengthening national agricultural research systems, emphasizing exchange of experience and information, development and exchange of manpower and making recommendations on strategy for consideration by governments and international bodies concerned with agricultural development. Seven trustees guide IFARD, five serving as officers of the group: President M. S. Swaminathan (India); regional Vice Presidents S. W. Sadikin for Asia (Indonesia), Luis Marcano C. for Latin America (Venezuela) and William Agble for Africa (Ghana); Secretary-General J. D. Drilon, Jr. (Philippines) and Trustees M. R. Genel (Mexico) and I. E. Muriithi (Kenya).

Board of Trustees

IFARD began with a main target: to support the national research systems. The interest remains, having been joined by a philosophy of support for international research centers.

Coordinative role

The functional role of IFARD is defined as coordinative. While concerned with global issues in agricultural research and development, IFARD focuses special emphasis on regions: Asia, Africa and Latin America. Regional governing councils will be chosen by members of respective regions. Members are professional individuals and institutions, mainly those serving agricultural research in developing countries. Membership fees are one of two sources for the modest funds anticipated for IFARD operations. The other source is foundations or other bodies supporting international development.

Information flow

Cornucopia is the information organ of IFARD; it represents one medium in the group's emphasis on information flow. IFARD works to enhance information exchange within regions and will also try to obtain and disseminate information from relevant conferences, symposia and seminars in the region.

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[1] A digest of Dr. Drilon's oral statement on IFARD is Annex 1 to this report.

Part of the original motivation for steps that led to IFARD came with the then-pending emergence of ISNAR. At the time CGIAR-related institutes were mainly limited to the research element. National research leaders saw other important needs, especially manpower development. IFARD may contribute in another way to enhance the work of IARCs. CGIAR's own documents note some disappointment in the level of participation by developing-country representatives in its proceedings. IFARD activity may strengthen and widen the input of developing-country definitions of problems and needs, perhaps expanding the dialogue with regional and international bodies.

Expanding dialogue

ISNAR: International Service For National Agricultural Research

W. K. Gamble,
Director General

Summary of Presentation and Discussion[1]

ISNAR was created within the CGIAR system (Consultative Group for International Agricultural Research) and began operations in September 1980. It was chartered for a five-year period, with donor support assured, to be evaluated at that time with respect to a mission based on three main purposes: (1) to strengthen national agricultural research capabilities in developing countries; (2) to serve as a linking mechanism between international agricultural research centers (IARCs) and national agricultural research systems; and (3) to serve as an intermediary to promote bilateral cooperation in agricultural research.

Strengthen national agricultural research

With its primary focus on national agricultural research systems, ISNAR will - on request of a national government: review and help in planning and implementation of improved agricultural research programs; conduct workshops on national and regional agricultural research issues; conduct training on research management; carry out studies into elements that appear to be essential in research management; and carry out a program to provide information on research management issues.

Review on request

In its review activities, ISNAR will emphasize identification of constraints on agricultural production; national priorities for agriculture within the nation's development policy; status of the agricultural research system and its capabilities; and availability of tested and economically sound technologies for the major crops in the country's agriculture. ISNAR will review and formulate development

Identify constraints

1 A digest of Dr. Gamble's oral statement is Annex 2 to this report

Collaborate in plans

plans in collaboration with persons within the system - not as an outsider. It will work closely with the national system as developmental plans are carried out, including efforts to obtain additional essential resources from donors and from the national government.

National systems essential

Strong national research systems are essential for more rapid agricultural development. The ultimate aim of IARC technology-developing efforts cannot be achieved without national systems where the materials can be tested and adapted to circumstances of their farmers; localized problems which IARCs cannot deal with call for national research capacity.

ISNAR views the national system broadly, interfacing the producer, the extension worker, the researcher, the research manager and the policy maker.

Questions and responses

Discussants suggested that the task is a heavy one, especially with the five-year period to show results. Questions dealt with such items as: Is agricultural production, narrowly defined, the limit of ISNAR's area of concern? (ISNAR will look to the national government to define the issue according to its desired approach; ISNAR suggests broadening beyond strict production on the farmers' fields). ISNAR is part of the CGIAR, does that mean it will deal mainly with the relations of national systems to the IARCs? (IARCs are one significant type of resource in the total system; ISNAR will seek to establish links that utilize their output along with many other institutions throughout the world). Does the ISNAR service carry a fee to the country? (Review, planning and implementation of a development plan will be funded from ISNAR's core resources; special projects that may be part of that plan will be funded from other sources, which ISNAR will help secure.)

Much of the seminar dealt further with ISNAR's role and operational approaches.

National Agricultural Research

Four main types of institutions doing research are to be found in national agricultural research systems in Asia, although not all will be found in each country. The four include: agriculturally oriented universities, which emphasize basic research and training for research workers; commodity-, discipline-, or problem-oriented research institutes; government research stations or departments; and private research organizations, usually dealing with one commodity.

National council

In many countries there is a national council or institute which has responsibility for policies, priorities and coordination of national activities in agricultural research. Sketches of several differing national systems are presented in Annex 3.

The national bodies may differ in structure and mandate. However, they typically link national goals, research capabilities and farmers' needs.

They fulfill roles in coordination and determination of priorities within agricultural research.

Source of information

They differ in their means of establishing their base for assigning priorities: some seek information from farmers and those serving at local levels as well as from higher levels; some apparently rely on council representation to reflect needs.

In some instances, the councils initiate studies or reports that lead to national priorities as set by planning commissions.

Leader personality a variable

Informal, as well as formal, actions and deliberations influence the relationships of such a council with other organs of government; the chart on paper may not disclose the whole story. It may be enlightening to study systems and institutions for characteristics that provide stability and continuity; the study should also consider personalities involved. It was noted that choice of leadership is one important variable that determines why one system may work better than another.

High-ranking leaders in national agricultural research systems in Asia showed many points of agreement in identifying problems or subjects of continuing concern.

Integration - fragmentation: Most participants agreed that integration is important and desirable in policy and priorities for agricultural research from a national standpoint. (Integration implies a well-defined structure and relationships in the patterns of resource allocation and administration.) These leaders also recognized that fragmentation (different functions decentralized to different organizations) may be effective. It often stems from the need to put special emphasis on a limited area. Scientists themselves tend to prefer fragmentation, with associated independence.

Separate institutes

A fairly common situation, although national councils or institutes exist, is for there to be developed a separate institute to deal with a particular problem. The reason may be institutional - that the constraints of Civil Service rules can be avoided, increasing flexibility in determining salaries and operational procedures; it may permit a stronger focus than would be possible for a single department in a multi-discipline body; it may be politically more feasible.

In different ministries

A common problem seen as a barrier to integration is that the administrative bases for different relevant units are themselves separate. Food-related research and extension, for example, may call for coordination across several ministries. Often research and extension are in different ministries.

Meet in farmers fields

Research and Extension: In the typical national system research and extension are separate. Some countries originally had them together and separation came later. In one case discussed, extension maintains a specific liaison group as an essential link to research. In one country, a concern is how to give extension personnel a status comparable to that of agricultural research workers; in another country the concern is just the opposite. These men agreed that extension - with close ties to the needs of farmers and means of getting useful information to the farmers - is an essential partner with research. Where there is not a close working partnership, the research staff will have to do some extension work; both the extension and research competences should meet in the farmer's field.

Involve university by contract

Higher education and university research: The delegates reinforced the idea of the agricultural university. They were not necessarily agreed whether its administrative base should be in education or in agriculture. There was an indication that the agricultural education, especially as related to training and continuing education for field extension workers and for farmers, should be overseen by agriculture. University research in agriculture is important, the participants said, but a national council cannot rely only on university researchers: their interest may, for good reason, be on basic research or in pursuing particular lines of personal interest; they may not be immediately responsive to council priorities; and the university may not have a mandate for "outside" research. Often the council can find means to get needed research from universities by funding through special contracts.

Evaluation: Both scientists and scientific institutions should be evaluated periodically. So, too, should the councils be evaluated. Participants suggested evaluation at perhaps five-year intervals, since research seldom produces immediate results. Some methods of evaluation suggested include:

workshops which receive and integrate work from many stations (the All-India annual workshops were cited specifically); scientific panels within the council; inspection teams that visit stations and institutions at scheduled intervals, five years for example.

Strengthening institutions

Suggestions for strengthening the performance of an agricultural research institution:

- Provide high degree of autonomy; fiscal autonomy to match administrative autonomy.
- Base resource allocation on the environment and level of research development peculiar to the country (not on guidelines generalized from elsewhere).
- Maintain flexibility in both management and operations.
- Establish the institution around a problem-orientation rather than discipline-orientation.
- Establish personnel policies that encourage:
  + teamwork rather than competition among individual scientists;
  + problem-orientation rather than discipline-orientation;
  + programs that are scientist-centered rather than post-centered (scientist can take his rank and achievements with him and can thus move to a new site);
  + coupling of duties of the scientist with the rights of the scientist.

Manpower Development for Agricultural Research

Training and retaining

Three themes recurred in talks about manpower development for national agricultural research: training to give the young researcher (often urban-reared) a base to encourage relevant research consistent with farmers' situations; retaining productive researchers in the research system; training support staff (auditors, personnel directors, experiment station managers, etc.) so they enhance the researcher's efforts rather than represent barriers, as may often occur.

Practical experience

These research leaders emphasized the need for practical experience, including experience in doing field production tasks, as part of induction training for new staff. In one country, a new staff person may work for one or two years with an experienced researcher (or with an extension worker) to learn the practical problems of the farmers who are to be helped. In another the induction process includes a month of general background training then six months of field work with the assigned crop, going through a full production cycle.

Most considered it important that induction training include attention to national research priorities, problems such as infrastructure faced in extending new technologies, and the organization and management of agricultural research.

Chance to develop

Capable researchers are encouraged to remain in the system by professional development opportunities, good salaries and working conditions. The discussants emphasized the need for professional development opportunities. Most expect and support their competent personnel to pursue further studies, in-country and abroad. One requires an M.S. after three working years and start of Ph.D. work, if appropriate, within the next three years. All want to emphasize a tie to practical experience: a researcher going abroad should have worked with the subject of his or her focus; and the person will be expected to work with it upon return.

A wider context

While main attention was focused on training for the researcher, needs for manpower development were given a wider context, embracing training for (1) research policy manager, (2) research manager, (3) research worker, (4) the extension worker, and (5) the farmer. One participant suggested that the international centers focus some training on politicans!

Tell needs to the universities

Individuals asked how they could better reflect training needs to the universities, in order that the recent graduate could be integrated into the research program more rapidly; so he would not have to be trained from the beginning on the job. They added that training should equip the young workers to cope with problems they encounter, such as equipment for which no local staff has been trained, how to get necessary supplies, how to make a car run and other non-research realities. In one country, the research system finances research projects for selected university professors as a way to get them into the field to see and experience the problems of doing studies beyond laboratories and experiment stations.

Some specific objectives for university-trained agriculturists were suggested: training for the first-degree level should make the graduate a broadbased production specialist in crops or animals, with operating skills and a grasp of underlying theory - as a crops or animal husbandman, the graduate should be at least equal to the good, practicing farmer. Training at the M.Sc. level should produce subject matter specialists with a broad base; a crop protection specialist, for example, should have competence in entomology, plant pathology and nematology.

Beyond subject competence

In addition to subject training, additional competences were stated according to the focus of one's work. An agronomist going into extension should be trained in techniques and methodology or both communication and extension. The agronomist

going into research should have training in research philosophy and methodology, including practical training in instrument operation.

"Relevance based" training

The term "relevance based" training was introduced from the IRRI training program. Its essence is to present a training program that fits the tasks the trainee will do when he or she returns to the job. If the person is a Ph.D. candidate abroad, the research should be done under the situation to which he or she will return.

Scientists may be managers

It was also noted that training is needed by persons at the level of scientist. They need help in project planning, evaluation, monitoring and other management tasks. The South East Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA) offers graduate training in research and research leadership, plus shortterm training programs in research management.

Looking for institutions

ISNAR is looking for more institutions that have capability to carry out manpower development programs for agricultural research. Training for support staff and managerial training are particular interests. ISNAR will devote staff time to finding potentially interested institutions and exploring ways to develop the programs needed by the research systems.

Agricultural Research and Production

"Junction boxes"

Discussion of agricultural research and production keyed on the linkage between research and application in the farmers' fields. Much attention was devoted to whether an extension service (as a separate and distinct entity) was needed and to connections (one called them "junction boxes") between research and extension as they now exist. There was consensus that linkages are needed - to assure that the researcher has the farmer's needs in mind and to get adapted technology to the farmer.

Separate or one?

Some discussants suggested that separate units were necessary, at least in countries with large geographic areas and diverse technological needs. Most favored close links between research and extension: linked at all levels top to bottom, not simply at top and/or bottom. They suggested ways to foster the linkages, including seconding persons from one service to another for several years.

Some suggested that it might be necessary, at least for a decade or more, to maintain separate units, but their work should be moved toward a single entity. This should permit research to express concern and seek ways to speed the dissemination of its findings; extension workers should be free to put out trials for adaptation and improvement of the

technology coming from research. The line between the two services, it was suggested, should not be as marked as that indicated by separate funding; the area of cross-over should be wide and grow wider.

May only be tradition

Some agreed that the idea of a separate extension service may simply be a matter of tradition. How many filters, one asked, should there be to interpret or misinterpret between the farmer and the researcher?

Several expressed interest in pursuing the possibility of projects to test propositions of merging research and extension. It was suggested that through SEARCA and ISNAR, utilizing both grant and national counterpart funds, such arrangements could be tried.

Two-way flow

A number of channels or methods were suggested to provide for two-way flow of information between researcher and the farmer, including:

- verification or adaptation trials in fields of the farmers, who often then become "extension" agents;
- giving responsibility to a research unit for influence in a specified area surrounding it, including responsibility to guide extension services in that area;
- Lab-to-Land program in which a group of researchers goes to a cluster of villages to study needs and find solutions;
- establishing personal acquaintance relationships between research leaders and several farmers;
- direct dissemination of findings to key farmers and building interaction with them;
- utilizing the research system to provide training for subject matter specialists, whether the latter are in research or in extension units (some believe that these specialists should be part of the research system to be in the mainstream with agricultural scientists);
- seconding researchers to work in the extension service and seconding extension personnel to work in production of a given commodity;
- demonstrations by scientists to show their technology to both extension service and to farmers;
- permit both research and extension persons to cross the line to work some in the other's areas.

This group also raised other issues that were not as fully explored:

Needs beyond production

A farmer has needs beyond technology of agricultural production - for drinking water, sanitation, health programs, information on nutrition, etc. He is not an agricultural producer 24 hours of every day.

Who is served?

On the whole, the research and extension systems are reaching the well- and medium-endowed farmer, with little going to the poorly endowed. Although the latter do not much affect national food production, they have the potential to contribute to an explosive situation in the future. One may speak of the need to adapt technology to the small farmers, but one should be aware that the size of the land base may limit severely the potential for such a farmer to gain from technology; there may be better ways for research to help such farmers.

International Cooperation and Technical Assistance in Agricultural Research

Three types of research organization were identified for consideration: international centers, national systems and bilateral and multilateral arrangements for cooperative activities. Views expressed seemed to indicate some unresolved conflicts within attitudes toward the different types and, especially, the relationships among them.

IARCs praised for genetics

International centers, for example, are esteemed for contributions they have made, especially for genetic collections and improvements beyond the capability of a national program and for developing specific training programs in support of technology packages. Yet some leaders suggested shortcomings in some areas of activity: failure to relate optimally to the national systems for testing and adaptation to local situations and failure to utilize national systems fully in outreach efforts.

National systems improved

During two decades that have passed since the origin of the IARCs, many national agricultural systems have made much improvement. Many have established strong crop breeding and testing programs with capability now to work on a collaborative relationship with an IARC; some have not developed to that extent, of course. Some have developed capability to take on training support programs themselves, perhaps to be trainers for less developed systems in their area.

Shift some functions

Developments have reached the place where IARCs might divert some functions to national systems. IARCs have operated with considerable freedom and in relative isolation from national programs, it was said.

A concept called "moving concentration" was introduced. Its meaning embraces a changing relationship of an IARC with a specific national program as the latter develops capability to do more things on its own. Specific objectives of the relationship would change over time; a dependency relationship would move toward a collaborative arrangement.

Room for IARCs and national systems

It was emphasized that there is plenty of room for both national programs and IARCs in agricultural development. Donors need to see, it was noted, that national programs are vital to successful adaptation and adoption of center-developed technology; if national systems aren't strong, support to IARCs will not achieve donor objectives. It is in the interests of donors to contribute to both.

Between country cooperation needed

The large gap in the system, some suggested, is in inter-country knowledge and cooperation. Researchers in one country do not know the achievements of a neighbor, yet there may be potentially useful materials or knowledge under development there. Cooperation between countries is possible (example given of a location-specific project involving Bhutan, Bangladesh and Nepal), but it is not easy. Usually a cooperative effort requires some outside funding, at least for a project coordinator. Cooperative financing is less likely to succeed than is coordinated research where certain projects are carried out within different countries. Where national funds are involved, there is the desire that they be applied to national priorities. "Cooperative research has worked", one said, "only when we got someone else's money to pay for it."

An individual country may need assistance from many places. Some may come from an IARC, other from a bilateral source. One problem is the amount of effort required to locate sources of information needed. It would be helpful if some group, perhaps ISNAR, served as a source on different kinds of services available.

Examples of coordination

Examples were noted of efforts to encourage coordination of research activities. The Asia Agricultural Research Coordinating Board helps in focusing attention on problems common to some countries in that region. (Common problems, one said, do not always yield to common solutions.) Donors to agricultural development programs in Africa have formed CADA (Concerted Action for Development in Africa) to coordinate their support activities. This was viewed as a

good step, with two cautions: there should be a strong force within countries to show their needs and priorities; donor money should not become a compulsive force in determining bilateral programs in the developing world.

Message to donors changing?

Some concern was expressed on the changing message to donors from developing countries. IARCs were pushed as the most needed development force; now donors are told they need to concentrate on national research systems. Both seem to be somewhat contradictory, but both can be justified. Donors were seen as receptive to and wanting to hear a strong voice from the developing countries. The IFARD mechanism may be useful and perhaps ISNAR can help bring that voice to the donors.

Communication at several interfaces

Communication linkages at several interfaces were brought out as needs/problems: One country does not know enough about the work and capabilities of its neighbor -- both may be working in isolation on the same problems; they might be able to get useful assistance and training opportunities if they were more aware of each other's activities. Language problems may occur in country-to-country interchanges, especially at levels of the research workers: only English permits those at the research level to reach across borders (in Asia).

SEARCA management course

SEARCA plays a role in encouraging discussion of research management issues; meetings held almost annually produce exchange of ideas and information on how to manage research. The organization is also developing a course on research management, having started with short courses. Four colleges in the Philippines now offer research management courses for credit.

One attempt to communicate with national policy makers is Technology, issued by PCARR. This periodical ranges from a few pages up to 12, presenting in simple verbiage information about developments in technology.

Languages and dialects are problems

Research leaders identified a pervasive communication problem within their countries. They need translations into local languages and dialects of research-based technology that can be used by farmers. PCARR has done some of this in collaboration with field organizations that have links directly with farmers.

Developed countries spend higher percentage

Much attention was focused on financial aspects of technical assistance. Leaders wonder what level of investment in agricultural research (in terms of gross agricultural production, gross national product or such figure) should be an appropriate target. They agreed that it was difficult even to compile accurate figures to define current expenditures. Some apparent credence was given to figures indicating that more advanced countries spend more in percentages as well as totals for agricultural research: USSR over 4%, USA about 3%, developing countries between 0.5% and 0.2% of gross agricultural product.

A resource allocation conference to be held later this year by IFARD, SEARCA and IDRC is expected to give more attention to the current levels of support and to identify problems in methodology for measuring investment in agricultural research.

Build budget from needs

Alternatives to a target percentage were favored by a number of participants: one, start from below to determine purposes and needs for funds; another, stay within the absorptive capacity of the available staff that can utilize and manage the resources effectively; a good investment may be based on the availability of a certain person and faith and confidence that certain things should be done at a particular stage in development.

Still, it was suggested that ISNAR would perform a service if it could develop a model to guide allocation decisions.

Economic benefit studies are being used to motivate policy makers toward stronger financial support. They can be used effectively in this way. It was noted, however, that they need to be used correctly and knowledgeably -- one country cited a 40% payoff for an introduced crop not related to its own research program.

Piecemeal support for manpower development

Two general problems were cited in the area of financial support from international agencies: support for manpower development tends to come on a piecemeal basis, as a percentage of a total project grant, and then disappear within a short period. Support is typically available for a project specified from the outside; it may result in more trained personnel in one area than needed, when there is too little support for a needed area.

Role of ISNAR in Strengthening National Agricultural Research

ISNAR not an outsider

ISNAR can help national agricultural research systems by reviewing them and suggesting improvements. ISNAR will not make assessment as an outsider, but will make it along with scientists and leaders in that country. The questions it will confront include: what are the kinds of agricultural production problems, what research has been geared to them, what have the payoffs been for that research, what is the situation on manpower and training for research manpower, what is the situation regarding research management? ISNAR cannot direct changes; it can use only its persuasive powers.

ISNAR is not a grant-making body. But it may, on request, prepare specific projects and attract grants from other sources.

Document donor interests

ISNAR could document interests of various donors and appraise needs of national systems from the other side. Also, it might identify some of the current growth points and trends in research organization and management, especially where a particular model has worked successfully.

Institution models for agricultural research organization was suggested as an area for future study by ISNAR. Both historial evolution and current performance should be studied in terms of accepted principles of institutional organization.

Help arrange assistance

ISNAR, or an agency like it, can play a vital role by consulting with different countries and drawing up strategy for agricultural research on the basis of an individual country or for situations where common factors exist. ISNAR can help arrange for less developed countries to receive technical assistance from more developed countries, especially on commodities or problems not covered by IARC's.

Information flow

Information flow was discussed from several viewpoints. One related to available information concerning research activities in other countries; CARIS was mentioned specifically, with concern expressed about the slowness with which information is reported and made available.

Research management bibliography

Another area brought up was information related to research management: there is both too little and too much. ISNAR intends to maintain a bibliography of about 1,000 titles on research management; from them will be selected about 100 that would be of interest to the serious scholar; from that 100 will be chosen 10 that can be synthesized, in not more than 10 pages each, and put into the hands of persons who are research managers.

Special mention was made of the difficulty in knowing of and getting potentially useful reports from many symposia, seminars and technical conferences that occur all over the world. It would be a service to many if one agency could gather this information and flash it to others.

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International Federation of Agricultural Research Systems for Development

Dr. Jose D. Drilon, Jr.
Secretary-General, IFARD

(A digest of the statement presented orally by Dr. Drilon)

It was some time in 1977 when the germ of the idea of IFARD became evident. The setting was a conference at Bellagio, Italy. At that time we had a meeting of IADS for a different purpose, but leaders of national research systems were invited to that meeting. As a side aspect, the national agricultural research systems leaders in attendance met informally. They discussed the possibility of organizing to effect a more beneficial relationship between the IARCs on the one hand and national agricultural research systems on the other hand. Many statements were placed on the table at that time. They justified the move to organize this federation. IFARD was organized there in 1977 but it was only in 1978 that we succeeded in having it incorporated in Hong Kong. It was decided that a Hong Kong corporate structure would provide the flexibility that we anticipated that IFARD would need.

Emerging national systems

Perhaps the single factor most responsible for the birth of IFARD at that time was the emergence of national research systems. In many parts of the world, nations were organizing their research systems. Some were away ahead, such as in Asia -- the Philippines, Indonesia, Malaysia and Thailand -- while in some places there was virtually no research system. Another factor that energized participants at that time was the notion that the IARCs had grown and seemed to be attracting the resources that could be allocated for research. Together with this was the fact that in many parts of the world there was difficulty in getting national governments to give attention to national research as a primary function. It seemed that there was lack of appreciation for the benefits that should come out of national research systems, and this notion was further worsened by the thinking that part of the reason was that resources were being allocated by governments more for the benefit of the IARCs. Statements were made by participants--some were inaccurate urging that the confederation of national research systems be formed, not only for research but for development itself. Such an entity could give attention to concerns which would enable the national agricultural research systems to balance the tendency towards devoting increasingly larger resources for the international agricultural research systems. Many objectives were placed on the table. Finally the agricultural research system leaders defined the objectives of IFARD:

IFARD objectives

1. To develop awareness of the importance of agricultural research systems in different parts of the world, including IARCs.

2. To consider this particular concern in relation to the flow of resources. (There was no complete understanding about how resources, in fact, are mobilized and made to flow to the

different institutes and other institution for research and development purposes.) Also there was concern for the question of agricultural technology flow. (Representatives thought that there was too much concentration on the work of the IARCs. And some held a myopic view that resulting agricultural technology was not of direct benefit to the national research system,) And there was the question of national pride, national concerns for the future. (It was thought that the national research systems are more germane to national concerns; it is at the national level that we find the front lines of research and development: ergo, the whole system should be geared towards the flow of benefits to national governments and nations.)

Activities

The charter of IFARD enumerates activities that constitute the targets of IFARD. One is the exchange of agricultural research experiences among world research institutions. Another is promotion of activities through the development and exchange of manpower. Another is providing coordination or supporting services to improve national and regional agricultural research systems. Another is formulating recommendations for consideration of strategy by governments and international bodies concerned with agricultural development.

Boost national systems

As an overall framework for the strategy of operation of IFARD, we are concerned with agricultural research; we also emphasize that under the charter we should not limit ourselves to research. We are concerned with other development processes, and we have concern about functions that occur in the international research centers and the national research systems. It is our job to exercise our vision and our efforts towards the development of policies and programs -- assisting in whatever ways possible the IARCs and the national research systems at the same time.

So far we have tried to boost national research systems through individual communication as well as on the basis of official communications. At the same time we have attempted to influence the IARCs -- mostly by informal communication.

At conferences such as this one today IFARD is trying, together with SEARCA and ISNAR, to achieve objectives that are included in its charter. Similar meetings have occurred in Africa and South America.

Promote IARCs

As the last item of this statement, we summarize the two challenges before IFARD: IFARD is committed to conduct activities that will (1) promote the development of the national research systems and (2) the development of the international agricultural research systems, as symbolized by this particular conference. These two objectives must go together; one might say that IFARD is interested in the well-being of the national research systems as well as the international agricultural research centers.

As a closing note we can cite the evolutionary process in the development of one international organization which attempted first to wave the flag of national research systems, but it is now also visibly waving the flag of the international agricultural research systems.

International Service for
National Agricultural Research

Dr. W.K. Gamble,
Director General, ISNAR

(A digest of the statement presented orally by Dr. Gamble)

We have seen in recent years a growing awareness of the important contribution that agricultural research can make towards improving the output of the agricultural sector and overall rural development. It has been recognized that agricultural research is the foundation of progress in rural areas. International and bilateral assistance for agricultural research has increased considerably in recent years. The international agricultural research centers of the CGIAR system have been strengthened by this investment. Their contributions towards the advancement of agricultural technology for developing countries has received wide attention, recognition, and appreciation.

National research capacity

There is now urgent need for increased assistance to national research program development, for a strong national research capacity is essential for the ultimate success of investments in international research and in dealing with localized problems. This is a point that some observers, in looking at the international centers, have not recognized sufficiently.

This is one of a series of meetings with leaders of national agricultural research programs. Recently we met with about 20 leaders of national programs in Africa: joining in sponsorship there were IFARD, the Kenya National Council for Science and Technology, and ISNAR. Today in San José, Costa Rica, there is a similar meeting arranged by IFARD, the InterAmerican Institute of Agricultural Sciences, and the Latin American Association of Agricultural Sciences. Alexander von der Osten is representing ISNAR at that meeting. In a period of about three weeks, then, we have met with you and others like you to learn, to exchange ideas, to look at the challenges of agriculture and the opportunities for research and development.

I approach this conference with great confidence because there is much that we can do together. ISNAR came to the scene at the right time and, we hope, to do the right things. I approach this meeting with great humility, because I know the task is tremendous and because I know that many here are more experienced than I in the issues and questions before use.

The 1977 Bellagio meeting was an important step in the establishment of IFARD, as Dr. Drilon recounted. Also from that meeting came a strong recommendation for establishment of ISNAR. That has now come about. And to bring us to the point here, let me quote from the constitution the three basic purposes for which ISNAR was established:

ISNAR purposes

1) The purpose of ISNAR is to help strengthen national agricultural research capabilities in developing countries. This includes assistance in identifying research problems and in formulating research strategies and policies, assistance in building up an adequate institutional

infrastructure and other research facilities, as well as in promoting specific national or regional research programs. The ultimate goal is to enable developing countries to plan, organize, manage and execute research more effectively from their own human, national and financial resources.

2) ISNAR will serve as a linkage mechanism between the International Agricultural Research Centres of the CGIAR system and national agricultural research institutions.

3) ISNAR will serve as intermediary between interested partners in order to promote bilateral cooperation in the field of agricultural research.

Let me add a comment concerning each of the last two items. We cannot really be a "linkage mechanism", but we can facilitate cooperation. We see ourselves doing it two ways: one is to get to know national programs; also our staff has responsibility to know thoroughly the programs of each of the international centers. As we visit various countries, we can bring to the attention of national agricultural leaders some of the things that are going on in centers outside their regions. For example, IRRI and ICRISAT are known in Asia. But there are things going on at IITA in Africa that are relevant to part of Asia but are not known there--such as land management, farming systems research, even some of the upland work. We have been able to bring that to the attention of national leaders. On the other side, as we visit international centers, we can identify for them some of the places we think they should visit. ISNAR is not a linkage mechanism, but it can help to facilitate the linkage.

Facilitate linkage

As an intermediary, point 3, ISNAR sees one of its roles as being an advocate for national programs, an advocate to gain resources for a national research system to carry out a program that has been determined to be viable and valid. There is a particular role ISNAR can play here in helping donors to identify especially good research programs and to help national program leaders to identify donor sources interested in their area.

The three purposes quoted from the constitution give the broad framework for ISNAR's activities. They do not, however, state sufficiently the real reason for strengthening national research: A strong national research capacity is vital for (a) ultimate success of investments in international research and (b) for success in solving localized problems. The basic concern is to strengthen the national research systems in order that such systems can generate or adapt technology that is suitable to farming conditions and commodities important to their national development objectives. It is believed that the ultimate aim of the CGIAR system can only be achieved if the capacity in research management is so adequately developed that countries can test, adapt, and implement newly developed technologies, including those from the international centers.

The real reasons

What does it mean to strengthen national agricultural research programs?, and how does an institution such as ISNAR go about it? We don't have specific answers, but we have set ourselves some areas of activity on which we will focus our efforts. These include five things that we're trying to do, things we think need to be tested, as possibilities at least:

Areas of activity

1. First is direct involvement, on request, to review national and regional agricultural research systems or sub-systems, and

to assist in planning and implementation of improved agricultural research development programs. We do this only on request, a request from a national government; we respond if we have resources, and if there is really a commitment to have it done.

Let me say that we are not interested in going around the world and helping people plan unrealistic or unreasonable programs. Five years from now we don't want anyone able to say, "You have been chasing around and making plans, but nothing has happened." We are concerned with implementation in a certain important way. I see us being strong advocates of the plan that is agreed upon, working closely with the country over the years to see that the system gets support needed from donors and support needed from its own national government. I emphasize the latter because I think the lack of strong national commitment and support has been one condition often found in programs that failed.
Sometimes an external agency can help national program people get strong support they need from their own government.

Workshops; training

2. On our own initiative, we plan and conduct workshops on regional and national issues, such as this one, to gain and exchange ideas and to get inputs to help in our own program.

3. We plan and conduct workshops and training programs on research management issues.

4. We will plan and conduct special studies of agricultural research development systems. We will seek to determine elements which appear to be essential for succesful programs, taking into account social, economic, political, and other conditions under which they operate.

Studies

I have observed over the years that, as you look at certain countries, you know that one is doing well in agriculture and another is not doing well. Yet both seem to have about the same kind of resources. Why does one do well and another not? We would likt to work with you to see if there are any models that suggest answers (which I personally doubt); we want to look for essential ingredients, why one system works and why another fails.
This isn't knowledge for ourselves; it is knowledge that we hope -- with you -- to bring to the attention of planners and decision makers within national programs.

5. The final thing we propose to do is to carry out a communication and information program, working with national systems to improve their communication program. We will try to provide relevant, readable information on research management issues.

Information

Many of us have read about the economic benefits from agricultural research; there are exceedingly good returns in many cases. Unfortunately, most of these documents are written for economists by other economists, and they may be barely intelligible to many of us. I've seen a number of these over the last few months. They have good information. If you could get this message to your policy makers, you could begin to get considerable support. We hope to deal with some of these topics on a humanized basis, in concise, readable form. We will be looking to you to help us know whom we should contact and the kind of information we can get from them that will be useful in decision making. Out of this work will come case studies that will be used in seminars and workshops for decision makers.

Another subject we wish to discuss with you, and to work on with you, is what I call "upward communication". Actually, I'm not sure whether its "upward" or "outward"; what I'm talking about is directing communication to the policy makers about the output of research institutions. Some international centers have used their research highlights reports to give key points of research concisely, in a well-illustrated document, one that

reports the impact of the research on the rural population Those documents are probably directed mainly to the donor audience; it's important that we recognize that we must have that support.

We want to help as you and others build systems that play a truly important role in a development process for agriculture as part of total national development. This requires research that identifies, at the farm level or in policy or in infrastructure, the constraints that truly limit production. We ther need a research program that is highly responsive, ordering priorities which can be met within available human and financial resources. Many research problems studied (at least in Africa, where I have had the most experience) are those perceived by the scientist; they are not the problems found by going to the farm level or looking at constraints or agricultural policies.

Problems at the farm level

As we look at national programs and begin our analyses, these are points we'll consider: (They are not new to you; I state them to give an idea of how we are looking at the situation.)

First, is always what are the constraints on agricultural production in the country and what are the priorities?

Second, what are the leading issues that must be addressed in terms of human, biological, policy, and infrastructure; who must address them, in what time frame, and with what resources?

Third, what is the state of research which documents these points in a development plan and strategy for agriculture?

Fourth, are the goals for agriculture well stated and widely understood--for its own development and in relation to the national government?

Fifth, to what degree for major crops is there an improved technology that has been tested under farm conditions and found relevant and economically viable under existing policy and pricing structures?

As we look at these questions, we can see that external sources can help in documentation, analysis, planning and implementation. But they can help only if there is accurate, relevant information for decision making. And that information must come from sources within the country.

Elements in research system

Here I would like to note key elements required in a research system or in planning for a research system (at least these are the assumptions with which we're starting):

1. There must be an understanding of the existing system. In no country are we starting at zero. We must understand what exists, its strengths, weaknesses, and linkages among several agencies that serve the agricultural sector. In most countries more than a single ministry is involved, so we must look at the total structure; we must also look at the interface between farmers, the extension service, and research. I always stress that we look at them more or less in that order: the interface between the farmers, then the extension service, then research. Too often we look at the interface between research and extension but not at the whole system with the farmer at the focal point.

2. We must understand how the agricultural sector fits into the total plan for national development.

3. We wish to look at a regular means to evaluate the implementation of the eventual plan and modifications required in the light of experience.

4. It is important that there be means quickly to achieve visible positive results from a new plan, something that the public and administrators can see clearly and promptly.

5. In order for any plan to work, there must be a strong commitment from government at a high level; commitment to the plan, its objectives, and to the provision of necessary resources.

6. There must be a strategy to move research along a desired path, one that fully recognizes the cultural, social, and political context in which it is to function.

7. There must be a clear statement of the interaction to occur among the various agencies, institutions, or people engaged in different parts of the system. There are many institutions. A farmer tends to see his problem as a farm problem, his total economic system; he doesn't separate his needs into water, trees, livestock, and so on just because institutions may. We must have means to interrelate the institutions when they reach the farmer.

8. A well-developed time frame is required for implementing the plan; financial and staff needs must be well documented, with a well-planned budget to assure funding for all essential costs (not just for staff); essential infrastructure must be in place, one in keeping with staff and research needs. (Note that I indicated "essential" as a key point, and I emphasize that infrastructure should be in keeping with needs not wishes.)

9. A well-thought-out schedule for staff training and development is required--in keeping with needs, ordered priorities, and implementation plans, with evaluation procedures that will keep the plan current.

10. A procedure is needed to communicate an understanding of objectives to all parties concerned and to keep them informed.

You have other ideas and suggestions you can help us see how ISNAR can best work with national programs. I would emphasize again the point of well-designed and well-articulated plans.

Donor interest

There is strong interest in the donor community to support national agricultural research systems, but these donors want to see well-developed, realistic plans documented with essential data on constraints, policy, organizations, plus clear evidence of a system open from producer to extension worker to research staff to policy makers and all the way back.

ISNAR is in its formative stage. It has established a framework of activities, but the framework must be tested against field conditions to know what modifications are in order. We welcome this opportunity to meet with you, to discuss with you, to learn from you and to be with you in these days and years ahead.

Annex 3

Sketches of National Agricultural Research Systems : Six Asian Countries

Oldest of the current national organizations for agricultural research in South and East Africa, is the Indian Council for Agricultural Research, which is discussed briefly below. Many organizations have much less history than 52 years of ICAR. The brief and greatly simplified sketches here suggest some of the different approaches to be found among current arrangements at national level to manage or coordinate agricultural research activities.

Malaysia. The Malaysian Agricultural Research and Development Institute (MARDI) relates to a number of units for research on individual commodities. A separate institute, for palm oil research, was established in 1980, and there has been thought of creating other commodity research institutes. Under that arrangement, MARDI would function as a research council.

Bangladesh. The Bangladesh Agricultural Research Council (BARC) has approval responsibility for all research proposals for agricultural research conducted within six ministeries. Single-crop institutes are discouraged, and integration functions for higher education, research, and extension are carried out by the Bangladesh Agricultural Research Institute (BARI).

Republic of China. Four types of agricultural research institutions function here. Two operate without formal links to the government's Council for Planning and Development (CAPD): agricultural colleges and commodity- or mission-oriented research institutes. Officials of the two types meet with CAPD annually to discuss agricultural research. Two types of research institutions come under the influence of CAPD, the government's agricultural research agencies and experiment stations.
The government also funds some research carried out by colleges and institutes.

Republic of Korea. Twelve experiment stations and agricultural institutes function under a research bureau of the office of Rural Development (ORD). The associated staffs include 800 researchers and 8.000 extension workers. Close ties exist with agricultural colleges: ORD provides funds for some university research; some ORD staff teach in universities; and university professors may do research on government stations.

Philippines. The Philippines Council for Agriculture and Resources Research (PCARR) performs a number of functions in the planning of research. Its secretariat involves commodity teams (research and extension leaders) in preparing papers annually on research priorities. The PCARR governing council deliberates and makes final approval of priorities that ultimately go to the Ministry of Budget for funding. A technical panel comprised of representatives of various ministeries advise the director general. Political, technological, economic and social aspects are considered throughout these planning processes.

India. Well-established institutions relate to agricultural research in India. The Indian Agricultural Research Institute (IARI) and state agricultural universities provide programs in higher education, research, and extension in agriculture. The Indian Council for Agricultural Research plays a key role in allocation of resources for agricultural research activities of the agricultural universities. Another uniqueness of ICAR is its National Academy of Agricultural Research Management, which trains administrative staff for agricultural research institutes.

(Sketches are based on discussions by seminar participants and on materials obtained through studies by SEARCA and shared by Dr. J.D. Drilon, Jr.)