THE CHANGING DYNAMICS OF GLOBAL AGRICULTURE

A Seminar/Workshop on Research Policy Implications for National Agricultural Research Systems

DSE/ZEL Feldafing
Germany
22-28 September 1988

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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. It also assists in the strengthening of research assistance agencies.

ISNAR has active advisory services and training programs.

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

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Wageningen, The Netherlands

Welcoming Addresses

H. R. Hemmer
Director General
Deutsche Stiftung für Internationale Entwicklung (DSE)
Berlin, Federal Republic of Germany

Ladies and gentlemen, distinguished guests:

On behalf of the German Foundation for International Development, I have the pleasure to welcome you to this international workshop on *The Changing Dynamics of Global Agriculture: Research Policy Implications for National Agricultural Research Systems*.

Before going a bit into the contents of this workshop, allow me a few minutes to introduce to you the Deutsche Stiftung für International Entwicklung, abbreviated DSE.

DSE, the German Foundation for International Development, is a private organization with a staff of about 400 people, which is financed by the federal and state governments of the Federal Republic of Germany. Its task is to contribute to the international exchange of experience on development problems and their solutions.

Our philosophy is that human resources development is the key to development; without developing human resources all attempts to accelerate the development process are to fail. With respect to development assistance, personal assistance is for us an important means of collaboration, which can sometimes be more efficient than many measures of financial and technical assistance. Or to say it differently: only a table standing on three stable legs – financial, technical, personnel collaboration – will be a really stable table!

Accordingly, the foundation has organized international conferences, seminars, and training courses for more than 60,000 people in the last 26 years, most of whom have come from the Third World. Presently the annual number of participants from developing countries is about 8000.

More than 60% of DSE's activities relate to on-the-job training of post-graduate professionals from Africa, Asia, and Latin America. Most of the training is done in the developing countries themselves, but it is also conducted in the Federal Republic of Germany and other industrialized countries.

Another DSE activity is the country-oriented preparation of German professionals who are going to serve in projects of our bilateral programs of technical and economic cooperation. DSE is also responsible for providing development policy documentation and information, as well as teaching materials for the different target groups.

Last – but certainly not least – DSE is responsible for preparing and organizing international and national conferences, seminars, workshops, and expert meetings for the exchange of knowledge and experience to help solve different kinds of development problems. In doing so, one of its aims is to mediate between science and policy on the one hand, and science and practice on the other hand. This is also one of our intentions in supporting this workshop.

Agriculture is a basis of livelihood for all mankind, but in particular in developing countries where major parts of the population still depend on agriculture as their main source of income.

Agriculture seen from a global perspective has become a dynamic force, especially in the last decades. Due to their agricultural policies, this has caused food surpluses in North America and Europe based upon high subsidies and a strong distortion of the domestic markets, which have not only led to affluent nutrition in these countries, but have disturbed the markets in many developing countries.

In developing countries, population growth combined with the rapid urbanization has led to an enforced need for higher agricultural production. To fulfill this need, research was called upon. The international research community, in cooperation with the national research systems in developing and developed countries, did a terrific job of raising the agricultural production in Asia and Latin America, and to a lesser extent also in Africa.

The reasons for these differences in development are manifold. Undoubtedly, the national agrarian policies – such as prices and credit policies – are of strong importance to explain the national differences in agricultural production. But certainly one can learn from the achievements in Asia and Latin America that successful implementation of research results needs good infrastructure development connected with industrial development. It was said years ago that development has to stand on two feet – and the movement of these feet has to be coordinated to joint complementary activities. Only if the intersectoral linkages are well established can a constant growth in agricultural production be achieved and the social consequences of this modernization process be kept to a tolerable level for those affected.

In fact, in a few developing countries, there have been food surpluses in certain years and with special products. But mostly the situation is still characterized by a rather

poor nutritional standard for many parts of the population in the Third World, so one should be cautious not to overestimate the effects of these few surpluses, because politicians in developed countries might easily draw misleading conclusions.

With raising agricultural production as a goal, not only an intensification of agricultural production took place, but also an extension of the area under cultivation. Both, but in particular the latter, have often led to ecological problems which, in some areas, already have destroyed the basis of agricultural production. So the call for the sustainability of agriculture has become more and more vigorous, and it seems this will become the major aim in the long run.

Here again, research is called upon to help solve the problem of higher agricultural production without destroying the ecological base of agriculture and with improving the standard of living. And because research needs support to fulfill this task, the international donor community is called upon as well.

Global food surpluses with regional food deficits, intersectoral dependencies, and the threat of irreversibly destroyed environments are major dynamic factors which have to be taken into account when drafting research policy for the next decades.

Research policy needs thinking ahead of the actual developments. So this workshop offers a platform for you outstanding personalities to think ahead and formulate the necessary research policy recommendations and priorities, and to show realistic ways and means to have them implemented. ISNAR, in particular Dr. Emil Javier and Dr. Howard Elliott, deserve our gratitude for taking the lead in drafting and designing this workshop in such an excellent way. We would like to thank CTA for its support, in particular Dr. Treitz, who unfortunately could not attend our workshop, and Dr. Narrain. And, of course, we would like to express our appreciation that all of you have come such a long way to take part in this workshop. Such an excellent pool of knowledge which is gathered here makes me sure that this workshop will be a success.

Alexander von der Osten
Director General
International Service for National Agricultural Research
The Hague, The Netherlands

Let me start my words of welcome by paying tribute to our hosts – the German Foundation for International Development (DSE). We thank our friends at DSE for their hospitality in hosting this event, their collaboration in organizing the program, and their warm welcome here at Feldafing. They have provided us with the setting for a pleasant and highly productive meeting. Let us make use of it.

It is a pleasure for me to extend to you a cordial welcome on behalf of ISNAR as one of the three cosponsors of this workshop. My greetings go to a diverse group of people that have assembled here to work together:

- NARS leaders and policymakers from developing countries;
- research leaders, researchers, and policymakers from the industrialized world;
- representatives from international development agencies (FAO and IICA);
- representatives of bilateral development assistance agencies (CIRAD and GTZ);
- a colleague from a sister organization in the CGIAR (IFPRI);
- our collaborating partners from the cosponsors (DSE and CTA);
- in short, friends and colleagues interested in the issues before us.

Let me say a few words about this meeting – its historical perspective, its organization and sponsorship, and my expectations about the outcome and results.

Historical perspective. This workshop is loosely linked to a long-standing tradition: a series of annual policy seminars organized by Vernon Ruttan at the University of Minnesota. These seminars brought together scientists, policymakers, and development assistance people from both developing countries and the industrialized world. The seminars were appreciated for the relevance of the topics and the mix of the audience. While there are historical links, this workshop is different. It differs in organization, sponsorship, thrust, and expected outcomes.

Organization and sponsorship. This is a workshop – not a seminar. Emphasis is on interaction and participation; on working together on a common agenda towards a common objective.

The event is organized and sponsored jointly by three partners: DSE, CTA (the Technical Centre for Agricultural and Rural Cooperation of the EEC/ACP Lomé Convention), and ISNAR. This partnership works well. We are different, we have different objectives, mandates, and skills, and we complement each other. What is important is that we share a common goal – to contribute towards technological progress for development in the developing world.

Results and outcome of this workshop. I have three things in mind:

- A set of practical conclusions tha will be useful to both NARS leaders and policymakers as they make decisions on the future orientation of agricultural research, the direction of technology development, and their priority choices guiding the allocation of scarce resources – in short, pratical guidelines for research policy formulation.

- A set of recommendations about the practical implications of all this on NARS. Here, I look at policy, organizational, and management aspects of NARS – the factors that largely determine NARS productivity.

- An action agenda on some specific issues for NARS, and for those of us who work with NARS in support of their objectives.

My emphasis is on practical results that NARS leaders can use in their decision making. The range of participants assembled here should guarantee precisely that: a focus on practical results. NARS leaders present here will ensure that in our discussions we capture the real issues – as seen from their perspective. To facilitate this, the workshop focuses on the broader context and policy environment in which NARS are working.

Choice of topics. Our agenda is ambitious. We face four major topics:

- food surpluses and their research policy implications;

- linking growth in agriculture with growth in the rest of the economy;

- sustainability of agricultural production environments;

- mobilizing and sustaining support for agricultural research.

A central theme cutting across our deliberations this coming week relates to the productivity and sustainability of NARS – the productivity and sustainability of national technology-generation capacities in the developing world. As you well know, this subject is close to our heart at ISNAR.

We see as our central task to assist developing countries in their efforts:

- to strengthen their NARS;

- to increase the productivity of their NARS (through enhanced capacities in the areas of research policy, organization, and management);

- to increase the flow of resources to agricultural research and technology generation.

We know, of course, that productivity of a research system and its capacity to generate commitment and mobilize funding are closely related.

That linkage resembles a chicken-and-egg situation:

- research needs adequate support to be productive and offer solutions to technological problems of its client groups, but at the same time,

- a NARS needs to be productive and show results to generate support. It needs to "sell".

In the course of this workshop we shall look at both sides of the equation. We shall do this from two perspectives, global and regional.

We shall ask ourselves:

- How can we help African NARS to increase the productivity of their research systems? What can we do to sustain the recent growth of their systems?

- How can we help some of the Asian research systems overcome the second-generation problems they are presently facing?

- What can we do to stabilize the support for Latin American NARS – to reduce the effects of fluctuations, and past and present cycles of support levels.

I am confident that jointly we shall find answers and contribute some practical solutions. My colleagues and I look forward to working with you.

T.M. Narain
Technical Adviser
Technical Centre for Agricultural and Rural Cooperation (CTA)
Wageningen, The Netherlands

It is an honor and a privilege for me, on behalf of the Technical Centre for Agricultural and Rural Cooperation (CTA), to thank you all for your presence at this workshop. For the benefit of those present here who are not well acquainted with CTA, I would like to say a few words about the role and activities of the Centre.

The initials CTA are derived from the French title *Centre Technique de Cooperation Agricole et Rurale*. The Centre has had its headquarters in Ede-Wageningen in the Netherlands since 1984. It was conceived during the negotiations of the Second Lomé Convention, which is a series of cooperative arrangements between the 12 member states of the European Community and 66 states of Africa, the Caribbean, and the Pacific (ACP). Thus the Centre is a joint EC-ACP institution established within the agricultural cooperation chapter of the Lomé Convention.

Its specific purpose is to facilitate the access of ACP states to information on agriculture required for their agricultural and rural development.

The Centre is not a research organization, and therefore is not a source of knowledge and information. It relies on research organizations and other institutions that generate knowledge and results. CTA's goal is to assist and enhance the flow of agricultural information systems.

CTA collaborates with existing organizations to provide up-to-date agricultural information to ACP citizens to enable them to make informed choices about the options for agricultural and rural development.

The Centre is engaged in these activities:

- question-and-answer service;
- assistance to document centers and libraries;
- studies;
- publications;
- workshops and seminars.

Question-and-Answer Service

Because the Centre is at the disposal of ACP states to provide information about agriculture and rural development, the Centre had to have a question-and-answer service.

Publications

However, because the Centre is very young, it did not wait for questions to arrive, but was actively engaged in stimulating ACP nationals by informing them of the existence of the Centre and of the potential benefits they could derive from it. To do this, it launched the bimonthly information bulletin *SPORE*.

Publishing is an important activity of CTA. Among CTA's publications are proceedings of workshops, studies undertaken on behalf of CTA, joint publication of manuals with well-known publishers, and translation of important books and bulletins which are available in only one language.

Studies

CTA finances a few studies on areas of concern to a group of countries in a region or for the ACP group as a whole; these include agroforestry, food trends, and compilation of directories of information sources.

Workshops

CTA believes that workshops provide opportunities for the staff responsible for agricultural and rural development in the various countries to meet and become better acquainted so that they may communicate more freely and with confidence. Workshops are occasions for exchanging general experience, as well as for further discussions on specific topics. The discussions become a compilation of up-to-date knowledge on the topic, which can subsequently be synthesized and made available to all concerned.

CTA is contributing to the financing of this workshop with this idea in mind. The results of the sessions can serve as background for planning future activities so that they recognise the global issues ivolved in the formulation of national agricultural research systems.

I would like, on behalf of CTA, to thank the organizers very much for the excellent arrangements made for the workshop, and DSE in particular for providing the venue.

I wish us all a successful workshop. Thank you very much.

Expectations of the Ministry of Economic Cooperation

R.D. Schurig
Ministry of Economic Cooperation
Bonn, Federal Republic of Germany

I wish to convey to you all the good wishes of the Federal Minister for Economic Cooperation, Mr. Hans Klein. He is taking part at present in the annual World Bank meeting, which as you know, takes place this year in Berlin. Even though our meeting here does not quite have the same number of participants as the Berlin meeting – there are at the moment some 10,000 people assembled in Berlin – I feel nevertheless that the subject we are dealing with deserves priority within the scope of development cooperation. We are discussing the status and tasks of national research today, and even more so, in the future. The importance of the subject is underlined by the fact that we have three institutions responsible for this workshop.

Another subject is the responsibility to be attached to agricultural research in developed countries, as well as to the international agricultural research centers, for agricultural development, and also the development of national research in Third World countries. Finally, we must accept jointly the challenges to agricultural science in the years to come.

The great importance of past research for agricultural development processes is demonstrated not only by the example of agriculture in the industrial countries, but in a number of Third World countries as well.

The pressure which a growing population quite often places on soil reserves to ruthlessly pursue production increases, and the related danger of other damage to natural resources, is of increasing concern. Securing food and nutrition by a country's own efforts is no longer possible everywhere. Increases in agricultural production, despite and perhaps because of the widespread deployment of operational inputs and technology, may have reached the limits of what is ecologically acceptable, here as well as in many developing countries. To ignore these limits would, in the long run, destroy the basis of existence for future generations.

For a long time agricultural production increases have been the key task of international and national agricultural research, which culminated in the Green Revolution with its undisputed success. The high degree of food self-sufficiency that was attained in the countries of Asia and parts of Latin America – which formerly had been thought impossible – is an outstanding achievement. Today, the preservation of natural resources is a dominant theme, and is of importance to developing sustainable production while using natural possibilities to increase yields. This applies especially to marginal areas and the arid zones in Africa. Helplessly, we have had to accept that increasingly poor soil, spreading of the steppe, and desertification are the consequences of deforestation and subsequent unadapted production methods.

The prevention of such ecological damage is, in economic terms, perhaps of much greater importance than possible local production increases and profits. This represents a challenge to agricultural research, and at the same time, a responsibility which this research cannot evade.

The German Federal Government has been supporting international agricultural research for more than 15 years with ever-increasing contributions. These contributions today amount to a total of DM 290 million.

No doubt, international agricultural research centers have done remarkable work in the scientific sector. However, the results could have been even better and in some cases, more demand oriented, if cooperation between the national and international agricultural research institutes had been closer. This is particularly true for national research in African countries. The gap will widen further in the future as international agricultural research increasingly adopts methods of biotechnology and gene technology.

Research cannot be done in isolation, but must remain related to the operational level. In the final analysis, it is a service for the farmer, and this is the understanding which governs its financing. If research results were not practical they would indeed be too expensive. I think that neither donors nor Third World countries would be able to afford such luxury.

National research is the link between international research and the extension services. Both are of equal necessity. Problems connected with changes in research priorities and a growing world population can be resolved only if all concerned agree on the priciples. However, due to a lack of (or inadequate) institutions and a shortage of qualified personnel, many developing countries can not make full use of science and research as an integral part of their development efforts. It is important, therefore, to strengthen our partners where necessary, so that they will be able to fulfill their roles.

The donor countries, and the governments of the recipient countries as financiers, are called upon to act accordingly.

Of equal importance are partnerships and scientific exchange between institutes and universities in the developing and the industrial countries. In many developing countries, national researchers require not only technical equipment and advice, but they must also be given the feeling that they are independent equal partners within the framework of the overall task, who are in fact indispensable. I think all this is well known and has been reflected in the setting up of various institutions and programs. Let me just mention in this connection CTA, ISNAR, ICRA, and the activities of SPAAR within the scope of international agricultural research. Many bilateral and private programs and institutions, and also training institutions like DSE, also serve to strengthen national research.

I have been asked about the expectations the German Federal Government has about this workshop. The subjects that are being dealt with here, and the many well-versed participants are, so to speak, a guarantee for up-to-date and profound results. The expectations I have are in fact quite simple. I want to prevent this workshop from sharing the fate of many events of this nature, namely to come up with many good recommendations which, for a variety of reasons, will later on be simply filed away, and not be translated into practical work.

One might say, of course, that an exchange of ideas alone was worth the meeting. This is certainly true. But we should not be content with only that. Let us make recommendations which are practical and likely to be implemented. We have competent representatives from CTA, ISNAR, and SPAAR who can help us do this. Furthermore, we have representatives from national research institutions who can give us useful hints about how their countries and regions view the problems. Our aim should not be to put forward maximum demands, but to propose what is feasible. With this in mind I wish the meeting much success.

Expectations from a National Research Director

C.S. Serghiou
Director
Agricultural Research Institute
Nicosia, Cyprus

On behalf of my peers, distinguished leaders of national agricultural research systems and decision makers, I wish to express to the three sponsoring organizations our deep appreciation and heartfelt thanks for providing us the unique opportunity to participate in this profound – one is almost tempted to predict *historic* – international workshop held in this beautiful setting.

We have all perused the background information provided on the issues to be discussed, the quality of participants, and the structuring of the workshop, and we were delighted to confirm once more the wisdom, the organizational skills, and the standards of excellence of the sponsors. We were deeply impressed with the breadth of scope, the substance, the interrelatedness, the universality, and the urgency of the issues to be addressed.

Let me cite and briefly comment on them:

- food surpluses in several countries amidst persistent food deficits in others, and their research policy implications;
- sustainability of agricultural production environments;
- linking growth in agriculture with growth in the rest of the economy;
- mobilizing and sustaining support for agricultural research.

The status of food adequacy is distinctly different between developing and developed nations. As a rule, developing nations face a problem of persistent food deficits while surpluses are the privilege of developed nations. In this regard it must be considered that famine currently threatens large numbers of people in Africa, while millions of people in Asia and Latin America face extraordinary food shortages in the wake of natural calamities or civil strife. Food consumption per person, which has been declining in a large number of developing countries throughout this decade, decreased further in all developing regions in 1987, indicating a tragic rise in the number of

hungry people. More children are now suffering from malnutrition than a decade ago. According to United Nations estimates, over 14 million children under the age of five die needlessly every year from malnutrition and disease in the developing countries.

This disparity and these trends deeply concern the international community and should have implications for agriculture and food policies and for agricultural research policies.

There are serious signs of deterioration of agricultural environments which more often plague developing countries, but to some extent also developed countries. Such disastrous developments include deforestation, soil erosion, desertification, loss of land to other uses, and erosion of plant genetic resources, while intensified management systems are often accompanied by environmental pollution from excessive fertilizer use and indiscriminate pesticide applications.

Such environmental degradation poses a threat to the food security of present and future generations. Consequently, it is essential to pursue sustainable global food security through production systems which safeguard the natural resources and protect the environment.

One notes with concern that the extreme poverty of the rural populations and population pressure in many developing countries are among the major causes of environmental degradation. Exploitation such as excessive cultivation of slopes and overstocked rangelands cause serious losses of soil and water resources.

It is possible, however, to increase agricultural productivity without land degradation. With environmentally sound agricultural management and land-use planning, which take into account the specific conditions of different countries, many problems can be corrected before they become crises – possibly irreversible ones with serious consequences for the sustainability of agricultural environments and food security. It is prudent that environmentally sound agricultural management practices form an integral part of national food strategies, and that environmental concerns are integrated in economic development policies and programs.

Environmentally sound agricultural development programs, integrated into comprehensive development strategies, should receive sufficient attention when resources are allocated, while increased national and international support should also be provided to research which promotes sustainable agricultural environments and food security in developing countries.

The common premise in national development planning that agricultural gains and development will necessarily promote the growth of other sectors in a country's

economy, or the reverse situation, that gains in nonagricultural sectors will result in agricultural growth, is often not substantiated by the facts. It is therefore necessary to harmonize and converge policies, including agricultural research policies, so that gains in one sector of the economy are translated into gains in other sectors, and in this way the economy as a whole is enhanced.

Mobilizing and sustaining support for agricultural research is a topic that touches the heart of all agricultural research leaders. And the session on this topic viewed from different angles and perspectives is appropriately one of the richest with no less than eight contributions. It will be difficult even to cite the titles of the papers, much less the issues to be discussed, by a multitude of leading international scientists, policy analysts, and national agricultural research leaders.

It might be more appropriate to touch on the rationale of this session, and I do it drawing heavily on the background information.

There was a substantial investment in agricultural research in developing countries in the last two decades, but such support has been diminishing in recent years. The establishment of infrastructures beyond the foreseeable needs of countries, and beyond their capacity to sustain them, were contributing factors, as well as an increasing realization among donors that their initiatives should be coordinated and priorities ranked so that they would not compete for scarce national, scientific, managerial, and material resources.

This session will focus attention on major second-generation problems confronting national systems, along with views from eminent professionals of ways to deal with them successfully.

Many factors point to an increasingly interdependent world, to the increasing need for integrated approaches, and to the need for the development of coordinated policies at national and international levels. Food surpluses in many countries, amidst persistent food deficits in others, policies linking agricultural growth with growth in the rest of the economy, sustainability of agricultural production environments, and mobilizing and sustaining support for agricultural research, are all profound issues. They confront – although in a different manner – both developed and developing countries.

I feel very privileged to have the opportunity to participate in such a challenging conference. I look forward to an intellectually stimulating working environment, and to listening and interacting with eminent colleagues, international scientists, and policy analysts in molding the thoughts which should prevail in formulating rational, integrated, and environmentally sound agricultural research policies in our home countries.