IMPROVING AGRICULTURAL PERFORMANCE IN DEVELOPING NATIONS

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IN DEVELOPING NATIONS
(The Case of South and Southeast Asia)

The analysis reported here suggests the establishment of an Asian network of researchers in governmental agencies, universities, and research institutions to work initially on production-oriented questions (p. 4 and pp. 29-36). Other knowledgeable students of the problems, including Ford Foundation staff members with extended experience in Asia, question the heavy primary emphasis on production problems, as herein suggested, as well as the viability of an all-Asia network. They do not agree that an early focus on such questions as means of creating employment opportunities and improving income distribution -- the so-called "equity set" of problems -- is premature in the eyes of either Asian policy makers or researchers.

This paper, like others in this series, is a discussion piece which proposes one rather specific course of action. As such it is not intended to exclude alternative approaches for coming to grips with the important set of issues under consideration.
SUMMARY

1. There is a critical need for developing countries in South and Southeast Asia to strengthen their abilities to plan and manage agricultural development. Much has been accomplished in building the planning apparatus. But the quality of decisions at the policy and program levels has suffered from a lack of data and research directed to the economic and social factors which impede agricultural progress. This has resulted in misallocation and unproductive use of scarce resources, a situation which is likely to become even more serious in view of the growing complexity of development problems confronting the developing world.

2. A sampling of research activities in some major Asian countries reveals the inadequate base of knowledge available to the decision process. This situation applies to the entire spectrum of problems associated with sustaining production increases by the spread of new technology and coming to grips with the sequence of issues which it generates. Economic and social research activities of international bodies in the past have not contributed much that is considered useful by developing countries, except in some matters relating to trade policy. There is some scattered evidence of a more pointed research effort relevant to country policy problems.
particularly within India and in some international organizations. But such moves as may be undertaken will scarcely begin to meet policy research needs in the foreseeable future.

3. There are serious obstacles to improving the state of economic and social research. From the policy maker's view, such research as has been accomplished has not seemed germane to his priorities or provided him with enough location specific data to be useful. On the whole, policy makers have little confidence that the research community can make a significant contribution to the rational solution of policy issues. Nor have policy officials provided opportunities for researchers to make a significant contribution. Thus, researchers have not moved appreciably into policy oriented research. Although the research resource base in most countries is quite inadequate, the build-up of competence of individuals and institutions to do research has not been exploited.

4. Policy officials and researchers, particularly from outside the developing countries, do not order their priorities in the same way. Many western researchers now put prime emphasis on the implications of the "green revolution" for income distribution, employment prospects, and changes in social structure and institutions to accommodate rising aspirations of the people (e.g., land reform). Policy officials responsible for agricultural development, however, are still very largely concerned with the primary set of problems: increasing output to assure future food supplies for rapidly
increasing populations; development of domestic and export markets; and appropriate food and agriculture price policies related to these ends. They are not unaware of the other sets of problems and have accordingly modified some programs, particularly to widen participation by small farmers in technological advance. But they are not about to restructure entire policies and programs toward a frontal attack on these problems. This is clearly evident in the planned allocation of resources in India and the Philippines, which still concentrate on the areas with the best productive potential.

5. Perhaps in the end this policy will prove shortsighted but it will be difficult for the outside world to influence it. There is a growing restiveness toward foreign advice which in many cases has not had the advantage of an adequate research base. The state of knowledge on how to proceed in these areas is quite precarious. To accomplish an effective research program which would have some influence on policy would require the cooperation of national institutions to provide local research inputs. Policy officials deem information relating to their own specific situation necessary especially when issues involve long-standing customs, arrangements and institutions. This cooperation would be difficult to obtain when there is a differing emphasis on priorities and the issues involved are sensitive.

6. In order to assist and encourage Asian nations to strengthen policy oriented research, these circumstances prescribe a gradual and low-key strategy.
To begin with, activities should be pointed toward the priority areas which policy officials bear in mind and so designed as to begin to bridge communication and credibility between policy officials and researchers. In that process, the data base and research competence to deal with other issues would be formed. The aim should be to encourage research on later generation problems as quickly as circumstances allow.

7. The end goal is to build the in-country competence to improve the quality of its decision process by training researchers and developing a policy oriented research base. Because the level of national research competence is low in many countries, the contribution of foreign technicians is essential. Research should also focus on common problems among Asian countries in order to utilize research resources more efficiently, provide more insight than would result from separate national programs, and generate feedback among researchers across country lines which would help strengthen national research capabilities.

8. The program recommended in this report calls for the establishment of an Asian network of researchers in government agencies, universities and research institutions, assisted by selected foreign technicians presently working with those organizations. The network would be linked and serviced by a small staff which would help institutions organize for research and design research programs, train researchers, and assist in making the research reports meaningful to policy officials. A central facility would be required
as a place for training and communication among researchers and policy officials, collection of research findings pertinent to the subject matter being explored and to serve as a point of contact or clearing house for research activities pertinent to policy issues.

9. It is proposed that the network initially engage in one or two carefully designed research projects of common interest to the nations which would begin to build the hard data and research base for policy decisions in the production, marketing and/or price areas. The information thus developed also has direct meaning for the issues of economic and social equity. As the network gains competence and proves itself in the eyes of policy officials, the problem areas explored could widen to encompass the major issues related to agricultural development.

The project which appears to have the most widespread support among Asian policy and planning officials responsible for agricultural development involves the establishment of a continuing system for obtaining costs and returns on representative farms in selected zones which yields information by size of farm, irrigated versus non-irrigated lands, cropping patterns (including multiple cropping), levels of technology, product/factor price relationships, etc. This would not only provide a base for policies and programs relating to production but also would yield insights on how the income effects vary among farmers, the labor requirements, and the economic size of farms -- necessary information for use of policy makers in directing attention to problems
of income distribution, employment and agrarian reform. It is also the kind of information for other countries which policy officials and researchers would find useful in comparing with their own. This project would create a solid information base for building research capabilities directly useful in policy and program management and evaluation of progress in agricultural development.

Interest was also expressed in comparative studies of food and agriculture price policies and in the contribution of marketing infrastructure to rural area development.

10. Asians should have a major voice in the organization and scale of such a program, priorities, and scope of research to be undertaken, and the location of the center facility. These matters should be taken up with a representative group of Asian policy officials and researchers. Potential sites which offer some advantages include Singapore, Hong Kong, Bangkok and the International Rice Research Institute at Los Baños. The latter offers some near term advantages in initiating the program although in the long run as the program grows to include an array of social science disciplines and possibly an in-house research capability, other locations may prove more desirable for access and communications. A possibility is a two-phase approach beginning with the IRRI location and in 4-5 years moving on to a separate facility at another location.

11. The network should be separate and independent, governed by a Committee
(if located at IRRI) or a Board of Directors composed mostly of Asians and chaired by a prominent Asian. Most of the costs would relate to operation of the Center, support of its staff and the foreign exchange requirements for travel and equipment for country programs. Some research grants would be necessary but a substantial part of the local costs would probably be borne by the countries.

12. The operation of such a network by providing location specific information should prove useful in strengthening research programs of international organizations concerned with agricultural development and in gaining credibility among Asian policy officials for research findings. The network center would also provide a clearing house for regional research activities relating to policy issues:

13. Coincident with the research program, it should be clearly understood that foreign assistance to improve the technical competence of planning authorities and to increase the number of individuals and institutions competent in the social sciences should be continued and enlarged.

14. The approach suggested here might well serve as a model for other regional research networks. A network is already developing in Latin America. Africa south of the Sahara and West Asia-North Africa offer other possibilities. As these may become realized, communication and exchange among the networks will make an important contribution to regional programs.

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Background for the Report

This report looks into the state of research and training activities which feed into the policy and program decision process for agricultural development and makes recommendations for strengthening those activities. It reflects the findings of a recent field trip to four large Asian countries -- the Philippines, Thailand, India, and Pakistan -- and to the major international organizations which are concerned with agricultural development.

The findings for Asia are probably relevant to other developing regions, although it is likely that the generations or sets of problems associated with agricultural development have converged with greater force on Asia, the home of the "green revolution", than elsewhere. F.A.O., in its recent State of Food and Agriculture reports, states that food output in developing nations in Asia (excluding mainland China) rose 4 per cent in 1969 over 1968, sufficient to yield a small gain on a per capita basis. Wheat and rice output, the principal components of change, rose 10 and 6 per cent respectively. On the other hand, food production per capita declined some 2 per cent in Latin America and the Near East, and 4 per cent in Africa.

Economic and Social Problems of Agricultural Development

The new technology in Asia and its consequences have raised many problems which are much more difficult for planning authorities to resolve than the single-minded pursuit of increasing output of a few food grains -- their main task only five years ago.
The problems of production remain. Some successes in the production of wheat and rice in recent years have not assured the future food supply for a region where there is rapid population growth (about 30 million persons a year) and where malnutrition is commonplace. High yielding varieties of wheat and rice still do not cover the larger part of the areas planted to these crops. Large regions and many cultivators have been bypassed. Emphasis on wheat and rice has diverted production from pulses, a major source of protein in India and Pakistan. Because in much of Asia, the population/land ratio is very high, there is need to exploit every opportunity to increase yields per hectare through use of improved varieties and associated inputs and services; through the economic exploitation of water resources to reduce the vagaries and risks of monsoon agriculture and to expand multiple cropping; and through provision of incentives to cultivators to provide the necessary motivation to move away from traditional agriculture. A sustained and more balanced increase in output must be tailored to respond to the nutritional and developmental needs of the people.

Marketing, trade and price problems flow from production successes. Modest increases in output translate into substantial commercial marketings which tend to overwhelm traditional marketing and processing facilities as illustrated in the Punjab and Tamil-Nadu States of India in the last few years. Moreover, the marketing infrastructure, including roads, is also important for the flow of production inputs for modernized agriculture to the cultivators. The development of marketing systems becomes more difficult as programs to bring new technology
reach out into previously untouched areas and a larger variety of products becomes involved.

As many large grain importing nations approach self-sufficiency, the problems of surpluses will require changes in policies conducive to price stability and to encouraging needed shifts in patterns of production. Furthermore, there is always need to adjust the conflict between the need for incentive prices to producers and the political desirability of low food prices to consumers.

All of this suggests that in the next few years, many countries will need to redeploy resources in agriculture toward meeting domestic demand requirements more precisely and exploiting such opportunities for trade as may be found. Thailand, which has traditionally depended on rice exports for which world markets are declining, has already begun to diversify its exports to try to maintain foreign exchange earnings. The F.A.O. Medium Term Outlook for Cereals estimates that the requirements for cereals of major importing developing nations in Asia will decline some 40 per cent from 1969 to 1973.

Employment and income-distribution problems have gained prominence quite recently. Unemployment in developing countries has reached very high levels. David Morse, formerly of ILO, makes the rough estimate that 75 million persons are now unemployed (not including the underemployed) and predicts that 225 million more will enter the labor force during the 1970's. While it is clear that agriculture cannot absorb this onrush, policies and programs need to be oriented to maximize employment opportunities without significantly foregoing the gains to be obtained
from technological advance. This involves policy with respect to mechanization and a careful analysis of the additional product and added labor use or labor displacement resulting from various types of mechanization. Subsidies, taxes and quotas are some of the policy instruments involved. Settlement schemes on new lands are a possible outlet but such opportunities in most Asian countries are quite limited.

The uneven incidence of the "green revolution" has brought a widening disparity between areas and between individuals who participate and those who do not, although it is difficult to find quantitative expressions of this development. In fact, non-participants may well suffer to some extent from prices depressed by increased output of participants. Long-standing landlord-tenant relationships are being disrupted by the economic advantages afforded to landlords who cultivate their own holdings. With a large labor surplus, the multitude of landless laborers has found it difficult to share in increasing agricultural income. The level of rural discontent has risen appreciably, no doubt partly due to this uneven impact of technological change.

Problems of social structure and social change present the most difficult area and the area least amenable to analytic content partly because of the multiple disciplines they involve. Customs, arrangements and institutions rooted in the long

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1/ This applies to the economy as a whole. The ability of the economy to absorb labor can be thwarted by economic policies which make capital inexpensive relative to labor.

2/ Associated with gains in agricultural income is the additional problem of mobilizing the resulting savings for total economic development. This has been the traditional way for developing the non agricultural sector and its employment potential.
history of traditional agriculture and rural life frequently are not adaptable to modernized agriculture. Technology and market economies alter the aspirations of people and change the way they live and work. Landlord-tenant relationships and the moot question of land reform are cases in point. Few village credit cooperatives have developed into viable institutions for meeting farm production credit needs, particularly those of the small cultivator. Nor have credit cooperatives demonstrated a capacity to mobilize savings for investment in agricultural development. Institutional forms which can successfully undertake the responsibility for local rural development are lacking.

Research: the Missing Element for Policy and Program Decisions

This cataloguing of some of the economic and social problems related to agricultural development leads to the conclusion that the coming decade will critically test the ability of Asian nations to plan and manage their agricultural development. The agricultural sciences have begun to build the technological base for improving productivity and conditions of life for rural people. Most of these nations now accept agricultural research in the sciences as a route that must be pursued. The record of recent years in increasing food output and forestalling famine in some Asian countries is impressive testimony to their growing commitment to research employing the physical and biological sciences.

But developing nations, in general, have been slow to appreciate the value of research on the non-technological factors affecting agricultural development -- economic, social and institutional -- which are just as essential. Such research
provides the basis for rational establishment of policy, the determination of national priorities, and efficient allocation and use of resources available to attain them. To a large degree, for the lack of such research, developing countries have not made the best use of their resources, thereby slowing the pace of agricultural growth and depriving their people of the benefits that could flow from a faster rate of development. No doubt these add to a very large amount foregone each year. A recent study by Michael Nelson of Resources for the Future, evaluating irrigation projects in tropical lands, concludes that on average less than 25 per cent of the goals foreseen for the projects were realized.

Why is this so? Developing countries have planning groups with varying degrees of expertise, quite frequently augmented by foreign advisors. Many efforts have been made to strengthen the planning mechanism further with both internal and external sources. USAID has given a high priority in future programs on the development of institutional competence of central governments, particularly ministries of agriculture, to plan and manage agricultural programs, and to provide services to the agricultural sector. Other international bodies have also shaped their programs in this direction.

But the quality of the policy and program decisions in the planning process depends on the hard facts and analyses from which rational decisions can be made, the choices of alternatives available to solve developmental problems and their consequences. For this, the stock of knowledge on which policy makers can draw is alarmingly small and inadequate to meet the accumulating and complex problems which developing nations face.
The Priorities Policy Officials Assign to Problem Areas

Although many Western economists and international research organizations would give the most emphasis to problems of employment and income distribution, discussions with Asian policy officials reveal their main concerns are still focused on production, marketing, trade and price problems. This does not mean that, in general, they are unaware of the seriousness of the other problems, but their approach is to adjust production and other programs to involve greater participation of small farmers and thus share the benefits of technology somewhat wider, rather than to mount a frontal attack on employment and income problems.

India has taken the most specific action in this area with the establishment of Small Farmers Development Agencies to orient programs for agricultural credit, minor irrigation and other resources so that operators of small but potentially viable farms can participate in the available technology. Employment opportunities for sub-marginal farmers and landless laborers are to be generated by development of marketing infrastructure and rural work programs, particularly in drought areas.

Even for India, it is clear that most resources for agricultural development will be directed toward the areas where the potential for increased output is greatest, that is, in the 100 districts out of 300 with better soil and water conditions, although some experimental work will be initiated in 22 dry land centers. The land reform program shows little activity; at this time it primarily involves the recording of tenurial arrangements.

In the Philippines, the new agricultural plan, which is centrally concerned with increasing food output, concentrates public investment in 17 provinces. This is
less than one-third of the total. Here, also, although there has been long-standing pressures for land reform, the plan calls for only one pilot land reform program in one province.

The conclusion seems to be that over the next 4 or 5 years, Asian countries will move cautiously and take few risks which commit them substantially on programs dealing with equity or social reform. This stems not so much from lack of knowledge on how to proceed, although that is substantially the case, as it does to the priorities they attach to other problem areas.

Almost in common, policy officials state their needs for information on which to base policy decisions concerns:

- The factors involved in spreading agricultural technology, particularly to small farmers; the production incentives required; the economics of irrigation, especially private tube wells; the effects of mechanization on increasing output and its implications for labor use; credit needs and most appropriate institutions for providing credit; and the economic returns from various systems of multiple cropping.

- Domestic demand requirements, particularly to meet nutritional needs and evaluation of potentials to export as a key to determining optimum cropping patterns.

- Needed adjustments in price policy and associated mechanisms in line with increasing productivity so as to obtain the desirable mix of products, minimize expenditures for price supports, expand domestic demand and make it economic to export.
The nature and size of the marketing infrastructure that will be needed, including the locations of roads, facilities and market towns, not only for providing access to producers and the orderly flow of products but also to provide primary and induce secondary employment.

The State of In-country Policy Oriented Research

With the exception of India, little organized research has been done which is useful in making agricultural policy or developing agricultural programs. Most countries have made cost-of-production surveys on a few major crops. These have proved of very little significance because of timing, inadequate research design and a tendency to aggregate so as to lose the meaning of variations in farm size, cropping systems and other factors as they relate to differences in cost structure.

There are signs, however, of substantial widening of the research effort, particularly in India, to apply more specifically to the policy issues with which officials are concerned.

India:  The 9 Agro-Economic Centers attached to the Ministry of Agriculture are now engaged in collecting data for the Small Farmer Program. This will provide some essential facts on the characteristics of these people and their production/information units, useful in designing and implementing programs.

Serious consideration is being given to a fairly ambitious research design which involves defining India agriculture into 30 agro-climatic zones; assembling the macro data available for each zone; surveys to determine the principal constraints to development in each; and a continuing evaluation of progress through a system of
farm budgeting (costs and returns) for typical or representative types of farms over time. A research program of this kind could provide the main building block of information for decisions relating to production policy.

The ministry is also developing competence in price analysis with proved forecasting models of wheat and rice prices and of supply response to prices for jute and sugarcane. As this work expands to encompass other major products, India will have a much better basis for establishing price policy and formulating development plans.

Although the ministry contains the largest resource of economists and statisticians (about 300), there is other research. For example, the National Council of Applied Economic Research has analyzed India's demand requirements for food grains in the 1970's and has recently concluded a survey of rural expenditures and savings; and the Institute of Economic Growth has some research underway on tenancy problems, farm mechanization and labor use and the employment impact of rural works programs.

It is evident that India is diminishing the research gap; that it has the potential in people and institutions to generate data and analyses for the policy maker, and that there is increasing direction toward that end. There is a major weakness, however, in an antiquated crop reporting system which is subject to large errors. This is a major block to more precise planning.

West Pakistan: Some research is underway. But with the planning organization in disarray, there is no sense of direction for developing a research
program. A small planning cell (2 people) was established in February, 1970, and is now assigned to Punjab State. Fertilizer price policy and subsidies was the major research project. Also a report was prepared on the distribution of agricultural income by districts. There is no evidence that these research reports entered into the policy process. The future of this cell is uncertain.

The Pakistan Institute of Development Economics is more widely engaged in research and training activities than is the planning cell. The major research project is a survey of 600 cultivators in East Pakistan to uncover the problems impeding the spread of new technology. It covers irrigated and non-irrigated areas and measures how technology changes the distribution of income. Other topics include some continuing work on the economics of state and private tube wells in West Pakistan, the economic returns from mechanization (tractors) and the social costs. These are all relevant topics to policy issues. But despite the fact that the Board of Directors of the Institute hold high policy decisions, the Director does not feel that the work of the Institute is being used. The Institute has a research training program for carefully selected M.A.'s, after which they are sent abroad for further graduate training. Three foreign trained Ph. D.'s in agricultural economics are now on the staff.

The University of Lyallpur with 7 Ph. D.'s in agricultural economics does not appear to be contributing a significant research output and is outside the policy making framework.

**Thailand:** Little research on problems of agricultural development is in progress. The 200 employees of the Division of Agricultural Economics in the
Ministry of Agriculture are not for the greater part trained agricultural economists or statisticians. Research is limited to some cost of production surveys and a few farm management studies of government supervised farm enterprises. The Ministry of Economic Affairs is considering the establishment of an analytical unit to research problems relating to the rice premium and price supports. In this effort, the Ministry would enlist the assistance of faculty in some Thai universities.

The main core of research capabilities is at Kasetsart University where research topics for 7 masters theses scheduled to be completed in 1971 include: livestock marketing in Bangkok; analysis of incomes of farmers in an irrigation project in Northeast Thailand over a 5 year period; capital formation on rice and kenaf farms; a study of family structure in one rural locality; and agro-economic studies of production management systems involving corn, soybean and rice.

It should be noted that most policy officials concerned with agricultural development are not research minded. They give little encouragement to the small research communities. Thailand has, however, materially improved the crop reporting system for some major crops under the National Statistical Office.

The Philippines: Here again, the research record of the recent past has little to show; some cost of production studies for rice and a little work on the economics of tube wells are available. However, the Bureau of Agricultural Economics in the Ministry of Agriculture has underway a new project in cooperation with the University of the Philippines at Los Baños to evaluate the economic size of farms for different cropping systems by regions for land reform purposes; also a
survey of rural living levels in Central Luzon has been designed to provide information useful for land reform programs. With assistance from USDA/AID, a pilot project to improve crop statistics is underway in a province in Central Luzon.

At the University of the Philippines, there are 9 faculty members for higher instruction in agricultural economics of whom 6 are reported to be doing research on farm management, irrigation, labor use on farms, the effect of land reform on labor use, agricultural financing and agro-business. There were, however, no publications reporting research completed. The Department has 22 graduate students of whom 9 are working at IRRI, mostly on various economic aspects of rice production technology.

The School of Economics in Manila is planning to study why cooperatives fail but the research plan has not yet been thought through.

SEARCA (Southeast Asia Research Council for Agriculture), which is attached to the University of the Philippines at Los Baños, is having difficulty in surviving as a regional educational and research institute because Indonesia, Malaysia, Thailand and South Viet Nam are not funding as agreed. USAID has provided the initial financing for physical facilities. Presently 34 graduate students are enrolled, 2 of whom are in agricultural economics. Unless there is a change of heart of participating nations, SEARCA may become a Philippine institution with some foreign students.

The State of Research in International Organizations

The research component of most international bodies has not made a significant contribution to policy. There is evidence that they may be more effective in the future.
The East-West Center: This institution has a large education component performed through the University of Hawaii. Involved are some 500-600 degree and 1500 non degree foreign students. The research product so far has been disappointing. Scholars were transient and on completion of their projects, they left little of lasting value behind. The Center is now being reorganized into 5 institutes, each with a permanent core research staff: population, communications, food, technology and development, and culture learning. Initially the Food Institute plans to initiate research on agricultural diversification in cooperation with Asian institutions.

Economic Commission for Asia and the Far East (ECAFE): The primary focus of this organization is on regional trade and the harmonization of national commodity programs. For this ECAFE provides a useful forum. The research component is thin. The two major efforts in the past year concerned the economic and social consequences of the "green revolution"—a review of developments in Asia from available country statistics— and commodity trade in Asia. The main project for this year is to evaluate the potential for regional trade in industrial products and to identify methods of financing industrial exports. ECAFE has a continuing program for improving planning techniques and for providing member countries with short term planning experts. Member countries do not look to ECAFE as a resource base for agricultural development policy.

Food and Agriculture Organization (F.A.O.): This organization has some 700 professionals in the social sciences and statistics—200 in the home office and the remainder in the field. Most are absorbed in day-to-day operations with little time to devote to original research. Considerable effort goes into publishing country
statistics and assisting in the world agricultural census now underway. Similarly there is a large program for making projections on commodity supply/demand/trade. Much energy is consumed in servicing the many commodity committees established by the F.A.O. Conference. Along with the annual summary of developments published in the State of Food and Agriculture, there is a continuing program on the medium term outlook for grains in important exporting and importing countries.

During the past year, F.A.O.'s major research report was on the Spread of High Yielding Varieties in the Philippines. This was largely based on available data (much from IRRI).

The Indicative World Plan was F.A.O.'s major project during the 1960's. Next year F.A.O. plans to issue a series of regional policy papers flowing from that work.

For the 1970's the employment problem has the priority. F.A.O. hopes to begin to generate local data rather than to depend on data available from secondary sources. The first project is planned for West Pakistan in cooperation with I.L.O. It will explore the effect of the spread of technology and of mechanization on employment. It is planned to engage local institutions in the research.

F.A.O. also plans to establish a small research group on agricultural development problems. This will begin in 1972 using the F.A.O. economists detailed to planning units in 30 countries as a source to provide local data. The Farm Management Unit has been expanded and is developing a farm management data bank from project studies. A standard farm management survey form is being developed.

A country economic reference file has been established. All pertinent reports for each of the 100 member countries are being assembled. F.A.O. also has
a substantial Documentation Center in which agricultural research is catalogued. The Center also provides technical assistance to developing nations to establish their own documentation center. Such a center for Southeast Asia will be established at SEARCA in Los Baños.

United Nations Research Institute for Social Development: This is a relatively small organization more distinctly sociology than economics. In the past it has tended to fragment its program but now it plans to concentrate on a few fields. A series of studies on regional planning is in process. The volume for South and Southeast Asia is the first. The approach is more descriptive than analytical.

A major study on cooperatives has been completed but is not yet cleared for discussion.

The major project for the current year is the Social Implications of the Green Revolution. The objective here is to describe the factors underlying the environment of social problems arising from the "green revolution" and to provide a prognosis for areas which have not yet entered into modernization. Field inquiries involving village studies in Asia, Latin America, and possibly Africa, are envisioned but the approach has not been developed nor does the project director foresee a standardized approach. It is planned to recruit staff within the country being investigated. UNDP has been requested to fund the study as Global Project No. 2.

OECD Development Center: OECD's research division ranges from 5 - 20 people depending on the number of consultants employed at any particular time. Each two years a major project is undertaken. The one in process is on employment in developing countries. A series of studies exploring different aspects of the problem in a number of countries will be synthesized into an overall study of technical change in agriculture and its effects on employment.
The next major study will concern untangling aid.

**OECD Agriculture Division:** This unit is working with F. A. O. on the implications of agricultural policies of developed nations on agricultural development of the less developed countries. A list of 25 policy issues has been identified which will be the basis of discussion in OECD conferences.

**Overseas Development Institute:** The work of Guy Hunter in rural development is pertinent. His primary interest is how to develop institutional forms for managing rural development locally, e.g., cooperatives, agricultural development corporations or a single local development agency. He has arranged for four inter-ministry working groups in India to evaluate rural development under different institutional forms in several areas. Hunter hopes to expand comparative analysis to Malaysia, East and West Africa and possibly Latin America. There is no detailed research design. Rather, the procedure is to discuss an outline of the questions relating to the subject matter following which the working group decides which subjects to investigate. This may weaken comparability among the studies.

**Institute of Development Studies -- Sussex:** Three staff members are studying changes due to technology on employment, income distribution, and credit in the Kosi irrigated area of North Bihar. They are working with a basic sample of 36 farmers with the aim of developing micro data at the farm level.

Another project is to bring together an inventory of village studies in India into an annotated bibliography with the findings recorded and methodology described. This inventory would be computerized. It is planned to include Pakistan,
Ceylon and some African and Latin American countries. The purpose is to focus on the nature and distribution of benefits resulting from development projects. Also, it is hoped that insights will be gained into other problems such as the factors affecting the viability of credit cooperatives.

How Policy Officials View Research Activities

It is not surprising that agricultural policy managers, with the recent exception of India, take a jaundiced view of the role of research in planning and managing agricultural development. There has been little research in the past which has been meaningful in the context of the problems to which they assign priorities. No policy official interviewed could recall offhand a social science research document prepared by an international organization which he found germane to his country in formulating policy or agricultural plans. The new emphasis of international organizations converging on problems of employment, income distribution and social change appears to be out of phase with the continued preoccupation of policy makers with production, marketing and price problems.

Policy officials also indict their own nationals as more interested in pursuing theory and methodology than in orienting research to major problem areas. They feel research is of poor quality and confusing in terms of its applicability in the planning process. But at the same time, they have provided little opportunity for researchers to make their contributions to policy issues.

The most important criteria planners set out for research is that it generate local data and the analysis be pertinent to specific conditions. They are not so much
interested in broad strategy as in what should be done in particular areas. They accept the added value of international comparative research on common problem areas when there is a national input involved but they also feel that this becomes less applicable to problems of equity, social justice and social reform because of differing situations, customs and institutions.

How to Improve Research and the Quality of Policy and Program Decisions

Granted that there is a clear need to greatly strengthen policy oriented research to improve the in-country capacity to plan and manage agricultural development, there are several factors of considerable force which prescribe a gradual, quiet approach to providing assistance.

First, there is little appreciation on the part of policy officials of the contribution research can make in their work. There is need to demonstrate the value of research and to begin freer communication between researchers and policy makers.

Second, receptivity to the idea of an international center for research on economic and social factors affecting development ranges from lukewarm to negative, partly because they do not want foreigners "mucking about" in sensitive areas but also because they are not impressed by what international efforts directed toward these problems have accomplished so far.

Third, to establish formally a center without the assurance of national links to generate new data especially at the micro level would be a very high risk venture. There is little to be gained from sifting over again the same data others have already worked. It might be difficult to establish national links formally in the present political
environment to explore problems of economic equity and social justice, although such research is needed and should be encouraged at every opportunity.

In these circumstances, the appropriate strategy at the beginning would be to encourage researchers in as many countries in Asia as can be mustered to develop the statistical and analytical base for one or two well designed research topics of priority interest to policy officials. From this, as research gains competence and credibility with policy officials, the effort could be augmented and the scope of problems being investigated widened.

It is recognized that priorities will change over time as development occurs. In fact, one of the objectives of research should be to engage the attention of policy officials in emerging problems. Thus, the initial program should be designed not only to provide an information and analytical base which improves the in-country capacity to manage an immediate set of problems but also to establish a base to move in on other problems before they become embroiled in the white heat of debate without a factual means for analysis.

As indicated earlier, it is clear that the problems associated with spreading new technology rank foremost. In order to get a handle on such questions as how technology pays off, the production incentives (including product/factor price relationships) necessary to secure its adoption under various conditions and in various areas, the economic returns from irrigation and the multiple cropping patterns it makes possible, the credit requirements, and the effects of mechanization, the first need is a system which will generate information. There was considerable interest both on
the part of policy officials and researchers in a continuing matrix of typical or representative farm units which would provide cultivator costs and returns by such variables as size, irrigated and non-irrigated, level of technology, cropping systems and geographic location, much as the proposed plan for India's 30 agro-climatic zones. It would build on some work underway in several Asian countries. (Indonesia also has underway a large farm management survey covering some 26 areas during a full crop season.) Further, it was recognized that comparative studies based on standardized data among countries would likely yield more information than the in-country study alone. It is unlikely that national averages would have much meaning for comparison but some locations in a number of countries might be quite similar. (The data would also make a valuable addition to the F.A.O. farm management data bank which would be available for other researchers.) In the beginning the program would be largely a statistical operation with few policy implications. That would come later as researchers and policy people learned to use the system for analysis. Nor would the information gathered be limited in usefulness to the set of problems associated with production. For example, it would provide data relating to comparative advantage to produce and export certain commodities, the consequences of technological change for employment and income distribution, and the economic size of a farm unit in considering land reform programs.

A second order of research could be a comparative study of price policy. Food and agricultural price policy for a food deficit country may well need to be modified as the nation approaches self-sufficiency in food grains. This is the situation for several Asian countries. Programs involving the accumulation of stocks and
and price supports can be very expensive. By the same token, price policies for grain exporting countries whose markets are dwindling, also may need to be adjusted more toward encouraging production of other products. There have been some writings on price policy. But few contain the quantitative content which would enable policy makers to understand the economic consequences of various policy decisions. In past years, USDA arranged a series of studies of long range supply and demand for farm products in developing countries, most of which were conducted by national institutions. Some studies developed a few basic relationships on price and income elasticities and supply responses to price changes. This is essential information for managing the course of development via the price mechanism. There needs to be an organized effort to develop such data in each country. This should lead into a comparative study of the effects of price policy on development.

There is also some common interest in a study of how marketing infrastructure contributes to rural development. Many nations look to this as a major means for creating employment but there are few facts. Here a comparative study of selected cases in developing countries would be very helpful.

The Means for Accomplishing the Program

An international research network

It would seem desirable to add very few new foreign faces and to make the most of people and institutions now in place. One might consider a network made up of Asians from government agencies, research institutions and universities. They might be assisted by part time efforts of selected personnel from the Foundations, the Agricultural Development Council and Harvard Development Advisory Service
presently assigned to these Asian organizations as the prime mechanism by which the program is undertaken. 3/ Although it should be distinctly viewed as a program of Asian nationals, continuing involvement of foreign experts would be needed until researchers are better trained and research is firmly integrated in the planning process.

Present programs of these assisting organizations have the potential for including in the international network The Philippines, Thailand, India, Pakistan, Indonesia, South Korea, Malaysia, and possibly Nepal and Ceylon. This would cover the bulk of the developing world in South and Southeast Asia outside the Communist influence. 4/

There is need for adding two highly qualified economists to take the lead in developing standard research designs to insure comparability; to assist local institutions to organize for research; to periodically review progress and consult on problems that are bound to develop; to conduct training and working sessions and seminars which bring researchers together to discuss methodology and plan activities; and to afford a means for bridging the communications gap between researchers and policy officials. Further, they should take the responsibility for systematically building up information, and providing a point of contact or clearing house for research activities pertinent to the subject matter being explored.


4/ In the interests of homogeneity among nations, there may well be something to be said for separate research networks in South and Southeast Asia. However, research competence in India would be a strong point in developing a combined network and experiences in parts of India and Pakistan could well be pertinent to problems of Southeast Asia.
Possible locations for the central facility

These functions would require a fixed facility. Possible sites might well include Singapore, Hong Kong, Bangkok, the International Rice Research Institute at Los Banos and the Southeast Asia Research Council attached to the University of the Philippines also at Los Banos.

Attachment to IRRI may appear to offer the most favorable conditions for getting the program off to a quick start. Present library and meeting facilities would likely be largely adequate for the program although some additional housing and perhaps office space for the small staff would be required. IRRI has a core of excellent economic research particularly related to rice production technology and multiple cropping which would strengthen the regional research program. It is also nearby SEARCA if that body should evolve into a viable regional research and training center for Southeast Asia, including an F.A.O. sponsored documentation center for agriculture. Further, the program would gain some initial thrust and credibility from association with an organization in which policy officials have confidence.

On the other side, it should be recognized that the character of the international research program that should develop over time would outrun the IRRI production oriented activities. Further, as the program grows and widens in scope, perhaps including an in-house research staff, the advantages of location at IRRI would diminish and a separate and independent facility be more appropriate. A possibility to be considered is a two-step approach beginning with an initial period of 4-5 years at IRRI and then a permanent site thereafter.
The proposed program focuses on training nationals to do policy oriented research by participation in selected research projects and by experiences to be derived from the feedback effect which flows from workshops and training seminars organized on an inter-country basis. Further, the program seeks to develop in each country centers of excellence capable to engage in policy oriented research and integrate it firmly in the policy and planning process for agricultural development. These centers could be economic research units in ministries of planning or agriculture, universities or research institutions. Some potential organizations have been identified in the review of research in India, Pakistan, Thailand and the Philippines earlier in this report.

The new data and analyses generated by the network, much of which would be location specific, would strengthen the research capabilities of international agencies and widen the impact their research findings might have on policy officials.

Nor should the research network detract from support for other research activities by outside agencies. The research void is large. Some researchers will have interests in important problems which fall outside the immediate focus of research projects of the network. An important function of the network center is to provide a point of reference or clearing house where information on research activities in the region is brought together.

Costs

Initially and for an interim period of perhaps 5 years, the network and its center would require roughly $300,000 to $400,000 for annual operating expenses.
$150,000-$200,000 would be required for the center staff including
2 foreign researchers and supporting Asian research assistants and clerks,
consultants on special aspects, travel, equipment and supplies, publications etc.

Similar amounts would be needed to assist research in 8-10 Asian
countries. In some, most local costs would be borne within the nation. Outside
assistance would be required to meet foreign exchange costs, particularly for
foreign travel and equipment. Research grants to supplement inadequate salaries
of researchers particularly in universities might also be necessary.

If the program is located at IRRI, initial capital costs would probably
not exceed $150,000 for housing and additional office space. If established else-
where, the cost of facilities might run $300,000-$350,000, or if suitable facilities
could be leased $50,000-$70,000 a year.

These are very rough measures of the magnitude of the financial obligations
that may be involved. They would need to be worked out in detail for the various
locations that may be considered.

Organization and Operation

Such an undertaking should be an Asian program shaped by Asian needs as
Asians see them. A representative group of policy officials and researchers should
be convened to take up the issues relating to organization, scale and method of
operation, scope of work, including selection of priority research problems, and
location of the central facility. With respect to location, the views of IRRI manage-
ment as to possible locations at that site should be explored.
In organizing the network, it is important to establish and maintain an independent and international posture.

If IRRI should turn out to be the most advantageous site and if it were acceptable both to the Asians and IRRI management, donor assistance could be channeled through IRRI. However, a research committee composed largely of Asian policy officials and researchers and chaired by an outstanding Asian would have the responsibility for formulating policy with respect to research programs and for allocating research grants to national institutions or individuals. The central staff would implement the program under the direction of the committee. It would be well to include on the committee a few non Asians with high research qualifications, including representatives of other regional networks that may be established.

If a location other than IRRI is selected, the organization should be incorporated as an independent body with its own Board of Directors who would carry out these functions.

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The proposed program should be viewed as only a beginning. As research develops and moves into other areas of concern to policy makers, and has gained some credibility, there may well come an appropriate time to bring in other disciplines in addition to economics (some competence in sociology might well be added rather early in the program), and to establish a significant in-house research capability. The latter
would seem to be some 4 or 5 years away. At such time, there will be need to
review the needs of the network organizationally and financially for carrying on an
expanding, sustained research program.