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**LINKAGE OF INSTITUTIONS AND
SERVICES SUPPORTING
AGRICULTURAL DEVELOPMENT
IN ASIA**

**Report on the Second Asian
Agricultural College and University Seminar**

**The Philippines
April 24 - May 3, 1972**

Edited by JUAN F. JAMIAS

ASIAN ASSOCIATION OF AGRICULTURAL COLLEGES
AND UNIVERSITIES, INC.
College, Laguna, Philippines
1972

OBJECTIVES OF THE SECOND ASIAN AGRICULTURAL COLLEGE AND UNIVERSITY SEMINAR

1. To continue the exchange of information among Asian agricultural colleges and universities regarding the strategies for building agricultural institutions and for bringing them into the mainstream of national agricultural development.
2. To observe the relationships of agricultural universities to other government agencies and to private organizations which serve agricultural development.
3. To consider the formation of an Asian Association of Agricultural Colleges and Universities which will promote the future interchange of information, ideas, and experiences among Asian agricultural leaders.

SPONSORS OF THE SEMINAR:

- * INTERIM ORGANIZING COMMITTEE OF THE SECOND SEMINAR
- * UNIVERSITY OF THE PHILIPPINES AT LOS BAÑOS
- * SOUTHEAST ASIAN REGIONAL CENTER FOR GRADUATE STUDY AND RESEARCH IN AGRICULTURE
- * NATIONAL FOOD AND AGRICULTURE COUNCIL, PHILIPPINES
- * ASSOCIATION OF COLLEGES OF AGRICULTURE IN THE PHILIPPINES
- * UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT

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Washington, D. C. 20503

FOREWORD

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"Linkage of Institutions and Services Supporting Agricultural Development" is more than a seminar theme. The theme succinctly expresses the objectives and aspirations of the Asian Association of Agricultural Colleges and Universities, an infant organization born during the Second Asian Agricultural College and University Seminar.

Tacitly and fittingly, it has become the theme of the AAACU. It points the way to achieve full academic relevance, for relevance of the academe in Asia can be fully achieved, not through the usual engagement in intellectual activities and academic exercises within the confines of the campus, but through its effective and functional linkages with off-campus institutions and services supporting the development of rural Asia.

The theme also highlights the realities and true issues of Asian agricultural development problems, such as isolated existence and independent operations of agricultural agencies whose roles and responsibilities are supposed to be interlocking, wasteful duplication of functions and services, and inefficient use of limited technical manpower, physical resources and financial capabilities. With this theme that hits the nail on the head, the Asian Association hopes to move forward by staunchly advocating cooperation and seeking to build the most effective system of services to agriculture.

We, the organizers of the Second Asian Agricultural College and University Seminar, are grateful to all those who helped make the Seminar possible and successful. We owe a debt of gratitude to the U.S. Agency for International Development (AID), the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA), the National Food and Agriculture Council (NFAC) of the Philippines, the Association of Colleges of Agriculture in the Philippines (ACAP) and the University of the Philippines at Los Baños (UPLB) for providing financial and moral support. We also express our deep appreciation to Dr.

J. A. Rigney, Dean for International Programs of the N.C. State University, who ably served as member-consultant of the organizing committee; Dr. R. W. Cummings and Dr. F. W. Parker who drew on their many years of experience in Asia to provide valuable assistance and guidance; Dr. D. L. Umali, FAO Assistant Director-General, Dr. H. Brooks James, Vice-President for Research and Public Program, University of North Carolina, Dean N. K. Anant Rao of the College of Agriculture, G. B. Pant University of Agriculture and Technology, and Ing. Leonel Robles, Director of Instituto Tecnologico de Estudios Superiores, all of whom responded to our call and honored us by developing for us the basic background papers.

Dr. M. C. Chakrabandhu, Rector of Kasetsart University and Co-chairman of the Seminar, provided a charismatic and influential leadership without which the Seminar would not have been as successful. Last but not least of those who deserve special mention are Dr. C. P. Habito, FAO Consultant in Bangkok and Dr. C. C. Jesena, Jr., ACAP Executive Secretary, who generously shared with us their time and talent in the management of the seminar affairs.

To all others who, in one way or another, directly or indirectly helped us manage a successful seminar, we cannot adequately express our appreciation and thanks.

A handwritten signature in black ink, appearing to read 'F. A. Bernardo', with a stylized flourish at the end.

F. A. BERNARDO
Seminar Chairman and Director of Graduate Studies,
University of the Philippines College of Agriculture

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Agency for International Development
Washington, D. C. 20523

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TOWARD STRENGTHENING THE LINKAGES OF AGRICULTURAL INSTITUTIONS AND SERVICES

Opening Remarks

M. C. CHAKRABANDHU
Rector, Kasetsart University
Thailand

When the first Asian agricultural college and university seminar was held in Thailand and India on September 20-October 5, 1970, those of us who enthusiastically participated felt that it was a very successful attempt at exchanging information on the strategies of institution building. After participating in that traveling seminar which started in Thailand and moved to India, we went home tired but exceedingly satisfied with the outcome. As it turned out later, the success of the seminar was far beyond expectation, for it generated a chain of events in the different countries represented. This chain of events consisted of national institution building seminars and coordinative activities reflecting a general recognition of the need to strengthen the linkages of institutions and services supporting agricultural development.

It is easy to see why there is a need to strengthen these linkages and services. At present, the rate of development in institution building and of the increase in the activities of colleges and universities of agriculture in Asia have been quite spectacular. Evidently, there is a growing demand for exchange of ideas and sharing of experience as well as visitation among these academic institutions.

Beyond our regional shores the feeling that we should share experience and expertise has likewise taken root. During the meet-

ing of the Land Grant Colleges' Association recently held at Purdue University, it was felt that the idea of capitalizing on benefits arising out of such a meeting should and could be recapitulated in Asia where it is most feasible. Through the effort of Dr. Frank Parker, USAID began to transform the idea into reality. Thus, North Carolina State University was given the contract to organize a seminar for agricultural colleges and universities of Asia. The responsibility for this important task was assigned to Dr. Ralph W. Cummings, who was ably assisted by Dean Jack A. Rigney.

We are witnesses to the fact that our first seminar did not only create greater awareness of the need to strengthen institutions and institutional ties to achieve agricultural and rural development, but also drew out many important committee recommendations in the areas of instruction, research and extension. These various recommendations have undoubtedly proven to be useful to many of the participants who are in a position to initiate steps for the improvement of the plans, programs and activities of their respective colleges, universities or ministries of agriculture.

Among the important points of agreement during the first seminar was the need for a mechanism for exchange of information on a continuing basis among Asian agricultural colleges and universities. It was suggested that this mechanism might possibly take the form of an Asian Association of Agricultural Colleges and Universities, now a concrete proposal that we shall tackle later in this seminar.

To ensure that the momentum generated by the first seminar is not lost, the Committee on Follow-up decided to set up the interim organizing committee for the proposed association, which included, besides a chairman, Vice Chancellor K. C. Naik as the Vice-Chairman, Dr. F. A. Bernardo as the Secretary, Dr. Jannes H. Hutasoit and Dean Hyun Koo Pyo as members, and Dr. Frank W. Parker, Dr. Ralph W. Cummings and Dr. D. C. Kimmel as consultants. Among the accomplishments of the Committee have been the publication of nine issues of the Seminar Newsletter to keep everyone concerned regularly informed and the drafting of the proposed constitution and by-laws for the association.

As mentioned before, we were fortunate to have with us during the first seminar aside from Dr. Ralph W. Cummings and

Dr. Jack A. Rigney of North Carolina State University, Dr. Frank Parker, who has never truly retired because of his sustained interest in the welfare of Asian countries, and other representatives of international organizations. Today, we are again fortunate to have these three gentlemen and other equally eminent men in international work. Their mere presence is encouraging and reassuring.

You will note in the program for the second seminar that we have a very heavy schedule beginning today until May 2, 1972. The program includes four basic background papers to be presented by distinguished speakers and several papers on selected Philippine institutions revolving around the theme: "Linkage of Institutions and Services Supporting Agricultural Development." Each institution or country representative will also have a chance to present his country report.

The field trips should prove very interesting because we shall have a chance to observe some of the most innovative and exciting action programs in the villages. I am urging everyone to join these trips. We have also scheduled a visit to the U.P. College of Agriculture Central Experiment Station and the International Rice Research Institute so that you may have the opportunity to see their field experiments and demonstration plots. Since the IRRI had its 10th anniversary celebration last April 20-21, you can be sure to see an impressive display of rice varieties and field trials.

In view of the interest of several organizations in the timely theme of the seminar and the usefulness of the program to participating countries, the seminar had to be sponsored by several institutions and agencies. The Interim Organizing Committee and the U.P. at Los Baños invited the National Food and Agriculture Council of the Philippines, the Association of Colleges of Agriculture of the Philippines and the Southeast Asian Regional Center for Graduate Study and Research in Agriculture to co-sponsor and support the seminar. Their involvement and deep interest in the objectives of the seminar is a tacit recognition of the need for linkages of institutions to attain common objectives in agricultural and rural development work.

With the strong representations we have today from the leading institutions of 13 Asian countries, I cannot help feeling opti-

mistic about the prospects of this second Asian seminar. I feel confident that with the full participation, cooperation and support of the participants, we shall be able to achieve our major objective which is the promotion of stronger ties and cooperative efforts for the mutual benefit of our respective institutions and for the advancement of agriculture in our own countries.

OUR COMMON PROBLEMS, CHALLENGES AND OPPORTUNITIES IN THE SEVENTIES

An Address

S. P. LCPEZ
President, University of the Philippines

The agricultural university in the 1970's must be committed to national development. It needs to reexamine its curricular offerings for relevance to development to establish priorities in research, and to diffuse new technology to the villages more effectively. The university must show the way to economic progress with a social justice. It must build strong linkages with other agricultural institutions and services and promote academic interchange leading to the emergence of a multi-campus post-graduate school of agriculture in Asia.

When for the first time the Asian agricultural colleges and universities met in an international seminar in 1970, the seed of regional cooperation and progress in one more field was sown on Asian soil. There is no doubt that the seed has taken root and grown into a mature plant which is now in bloom as evidenced by the many follow-up activities, including this second seminar.

The Second Asian Seminar of Agricultural Colleges and Universities is significant in many ways. First of all, it has a very timely and meaningful theme, which is "Linkage of Institutions and Services Supporting Agricultural Development". This well-chosen theme calls for ever greater attention to the urgent need for an inter-institutional approach and for cooperative effort toward the development of agriculture and natural resources. It underscores the fact that rapid and balanced agricultural develop-

ment could take place in developing countries only through the joint efforts of the various agricultural institutions and agencies — both government and private, national and international. For this reason the Second Asian Seminar is not limited to university officials. High—ranking officials of the ministries of agriculture and ministries of education of Asian countries and representatives of international organizations are with us today to help us forge ever stronger institutional ties to get agriculture moving.

Secondly, the seminar includes the presentation of basic background papers on critical topics, such as the role of agricultural universities, the criteria to be used in the establishment of priorities in the allocation of resources, and the relation of population to economic growth as well as how the university addresses itself to this problem. Recognizing the capabilities and reputation of the selected speakers, we can be sure that their papers will provide us with new insights and innovative, if not revolutionary, ideas.

The seminar also includes field trips to new rural development projects and programs in Laguna province involving the University of the Philippines and to those in Central Luzon involving the Philippine Rural Reconstruction Movement and the Nueva Ecija Land Reform Integrated Program. We cannot overemphasize the relevance of these field trips to the theme of the seminar. They will show the participants the problems, successes, and dynamics of rural development projects on which the inter-disciplinary, inter-agency and institutional approach is used.

Finally, the seminar will include a consideration of the proposed Asian Association of Agricultural Colleges and Universities, a positive step towards ensuring academic interchange on a continuing basis.

The Second Asian Seminar is historically significant in the sense that it is called upon to lay down the foundation of international cooperation in agricultural development on a continental scale through the initiative of Asians themselves. With the exception of Japan, the economy of Asian countries is predominantly agricultural. About 70 per cent of the population of Asia depends on agriculture for its livelihood. On the average, about 60 per cent of every Asian country's foreign exchange

earnings comes from agriculture-related exports, and about 30 per cent of current imports consists of agricultural commodities. More than 50 per cent of the gross national product comes from the agricultural sector. The rate of population growth in most Asian countries is among the highest in the world. We can never overstress the importance of agricultural development in our countries, for agriculture is the basis of industrialization. Industrialization is not possible without first promoting the economic well-being and raising the purchasing power of the people to enable them to buy the products of industry.

I will next deal with the common problems and challenges facing us today and the opportunities that we must grasp to resolve the burning issues of the 1970's.

First, at a time when the clamour for relevance comes incessantly from press and public, and especially from the students, the university, particularly the agricultural university, must be a committed agent of national development. The university must come down from its ivory tower to serve the people in more ways than training high-level manpower. In this regard, the United States land grant concept of a university with its equal emphasis on instruction, research, and extension serves as an excellent model. We take pride in recalling that the U.P. at Los Baños, having adopted this concept more than 20 years ago, has actually demonstrated its effectiveness as an agent of national development. It has turned out graduates who are now occupying positions of responsibility and leadership in the government and in the private sector. It has been doing 85 per cent of the agricultural research in the country and has been providing leadership in the exploration of better methods in rural development work. Moreover, U.P. at Los Baños has been instrumental through its faculty in shaping national policies and programs in the field of agricultural and rural development. More recently, the new agricultural universities in India and Pakistan have also demonstrated the effectiveness of the land-grant approach to agricultural education and development. It behooves us therefore to recommend strongly to others the adoption of the land-grant concept of a university.

Second, it is necessary to reexamine the curricular offerings of agricultural institutions to make them more relevant and res-

ponsive to national development needs. This would call for a critical survey of manpower requirements in the agricultural sector, including those in forestry, veterinary medicine, fisheries and community development work. Gunnar Myrdal, in his *Asian Drama*, pointed to the need in developing countries, particularly in Southeast Asia, for more vocational and technical training at the secondary level. He stressed that "this training can be integrated with actual job situations and become a kind of apprenticeship". It, therefore, appears that we need a new approach to supply the lower and middle-level manpower requirements of a developing agricultural country. The Barrio Development School, a cooperative pilot project of the U.P. College of Agriculture and the Philippine Board of National Education, is an approach which is a radical departure from the traditional. You will have a chance to make observations on this during your field trip.

Considering that agriculture is not only an art and a science but also a business, any curricular reform should also strengthen the business aspect of training. Enough technology is now available to enable any intelligent farmer to produce an abundant crop or raise healthy livestock, but the economic, technical and social problems attendant to post-harvest handling, processing, shipping and marketing are still to be solved. For this reason, the institution of strong agricultural business management programs is imperative.

Third, considering that every agricultural college or university in developing countries operates under financial, physical, and personnel constraints, the establishment of priorities in research is absolutely essential. While the academic freedom of the faculty should be respected, there is need for certain administrative procedures to prevent random and wasteful proliferation of their research activities. Accordingly, we have established in the U.P. a University Research Council with responsibility to chart the general direction of the research program of the university as a whole and provide guidelines to make the faculty research efforts responsive to national needs.

Because of the strength of its staff and the academic freedom the latter enjoys, an agricultural university can play a vital role in the development of a national agricultural research system an-

chored on the concepts of relevance, excellence and cooperation. In this regard, we should all be reminded of the specific recommendations made by the Committee on Agricultural Research during the first seminar.

Fourth, any agricultural university, to be true to its mission as an agent of change, must use its energies and resources to explore ways and means of facilitating and making more effective the diffusion of new technology to the villages. It must lead in experimentation and critical studies to remove bottlenecks and open up new avenues for government agencies whose primary function is to disseminate information to the farmers and assist them in the development of their resources.

The art and technique of organizing viable farmers' cooperatives needs greater attention than is usually given to it. Too many farmers' cooperatives in the Philippines and in other countries were formed only to die a slow, lingering death during the last decade in spite of vigorous government financial assistance. This disturbing fact points to the need for a careful analysis of interacting technological, economic, social and political factors so that foolproof methodologies may be evolved.

Fifth, any proponent of concerted effort in economic development must not overlook the social and cultural aspects of growth and modernization. Over the years, the experience of various countries in varying stages of development shows that neither the rise in GNP nor an advance in agricultural productivity or industrialization necessarily leads to a higher standard of living and the well-being of a nation. All too often, economic progress disrupts social structures, renders the environment unhealthy, and concentrates wealth in the hands of a few. These only succeed in giving rise to apathy and discontent among the masses who are constantly beset by the problem of sheer survival. It is the obligation of any public university to serve as a critic of society and agent of change for the welfare and benefit of the greater bulk of the people. The university must show the way to achieve economic progress under a regime of social justice.

Sixth, we are all in agreement that in a developing country all the agricultural services must function as a unified whole if rapid agricultural development is to be expected. National development

requires the interplay of various inputs and services in the proper proportions and sequence. While there are many institutions and services involved in agricultural work, the role of a strong agricultural university and an equally strong ministry of agriculture is of paramount importance. The university as a manpower training and research center and the ministry as the government agency in charge of implementing national action programs in agriculture must have strong and enduring linkages based on mutual respect and recognition of the significance of different functions. These must be so designed as to be mutually beneficial.

Seventh, the move to form an Association of Asian Agricultural Colleges and Universities should serve to promote academic interchange and lead to the emergence of a multi-campus postgraduate school in Asia.

Today, although centers of excellence in research and progressive institutions of higher learning exist in different Asian countries, only a few are noted for their postgraduate programs in agriculture. It is for this reason that most Asian students go to western countries for postgraduate work. Yet, some agricultural colleges or universities in Asia are noted for certain peaks of academic excellence, and centers of excellence in agricultural research exist in Asia in the form of national or international research institutes. It is hoped that through the efforts of the Association, a mechanism can be developed to facilitate academic interchange, accreditation and the rapid diffusion of innovative ideas and new approaches.

Ultimately, the objective should be the establishment of a coordinated Postgraduate School of Agriculture in Asia. It is envisioned that a Vietnamese, Indonesian, Thai or Filipino student, after completing course work in his home country, could go to Malaysia for thesis work in rubber technology, or to Thailand or India for course work in agricultural engineering, after which he would return to his own country to undertake a relevant thesis work. This concept of a multi-campus Postgraduate School where accreditation and academic interchange is facilitated will not only provide stronger academic programs for Asians. It will also make postgraduate work for Asians more relevant, more economical and less conducive to the "brain drain".

I would like to refer at this point to a meeting which I attended three weeks ago at UNESCO, Paris, convoked to consider the establishment of a United Nations University. What emerged from our discussions was the concept of an international university, radically different from the traditional university in that it would consist of a Coordinating Center for Research, with which new or existing institutes, national or international, which are acknowledged centers of excellence, are to be affiliated. It would, therefore, be on the same pattern as the proposed multi-campus Postgraduate School of Agriculture in Asia. In unity we can find the solutions to many of our common problems.

**Part 1: The Agricultural University's
Relationship With Other Agencies
and Institutions**

**THE AGRICULTURAL UNIVERSITY'S RELATIONSHIP
WITH OTHER AGENCIES AND INSTITUTIONS
SERVING AGRICULTURAL DEVELOPMENT**

D. L. UMALI

**Assistant Director-General and Regional Representative
of Asia and the Far East, Food and Agriculture Organization**

In this basic paper, the author identifies four types of relationship between agricultural university and agricultural agencies and institutions serving agricultural development and describes how they work. In the first type, the clientele-service relationship, the agricultural university renders professional services to other agricultural organizations and institutions such as the land reform agency and the National Board of Education. In the second type, the agricultural university receives services from private foundations and the business sectors which support scholarship and research programs. In the third type, there is mutual, cooperative give-and-take relationship with research institutes, other educational institutions serving agriculture, the Ministries of Agriculture and Education, and the extension and community development agencies. The fourth type is the one in which the agricultural university exercises leadership among other institutions which also do instruction, research and public service geared to agricultural development.

Many of the highly significant events taking place in the world today and which are bound to affect the course of history are taking place in Asia and the Far East. Among these events are dramatic changes in the political, educational and agricultural areas of living. Developments in the agricultural and educational sectors are our common concern in this Second Asian Seminar, particularly as they would influence the pace and stride that agricultural development should take in order to cope with the related

problems of population control, rural employment, malnutrition, environmental pollution, and a more equitable distribution of the fruits of agricultural production.

The planners of this historic seminar have structured the activities of this two-week meeting around the role, functions, and responsibilities of agricultural institutions in enhancing agricultural development individually and collectively. I am, therefore, happy to have been invited to participate in this Meeting because my own personal, professional and official concerns relative to agricultural development coincide with those of this gathering.

Definition of the Agricultural University

Our discussion of the agricultural university's relationships with other agencies and institutions serving agricultural development should start with our definition of a university. We agree with Mosher that the university is "an involved community of learners. The special concern of everyone in a university — whether faculty or student — is to learn: to learn about man, . . . about the world in which we live, to learn the dimensions of the problems we all face and about ways of solving or alleviating or learning to live with them, to learn about the tools at our disposal, both material and intellectual, and how to use them." In an involved community of learners, each member "has a responsibility to the other members . . . so that professors conduct their classes, seminars and laboratory sessions in such a way that it is clear to students that they are expected to make an input also; they should be actors; they are not an audience."

Especially for the developing countries in Asia, a university, particularly an agricultural one, should also be an institution of development without sacrificing its academic functions. It should be committed to the mission of improving the life of the rural people. It should have a vision of rural problems in their entirety. For the people, especially the rural folk, it should be a source of light and inspiration for a life of dignity and happiness. In all this, the institution should respond to the developmental needs of the farm people. It must at all times keep in touch with the people and with agencies, both government and private, that have something to do with people.

Focus of Development

Until recently, natural resources were the focal point of development. Long denied recognition of its importance, the human resources is now being rightly considered as the true and only logical focus of development. Human capital is what we have in abundance in Asia.

Human resources are the most important factor of development and the true state of their development and well-being reflects the overall national development. Human resource development is influenced by (1) natural resources, (2) agricultural education and training, (3) government agricultural policies and programs, and (4) agricultural development facilities and services which include marketing, transportation, production incentives, availability of supplies and equipment, changing technology, production credit and group action (See Figure 1).

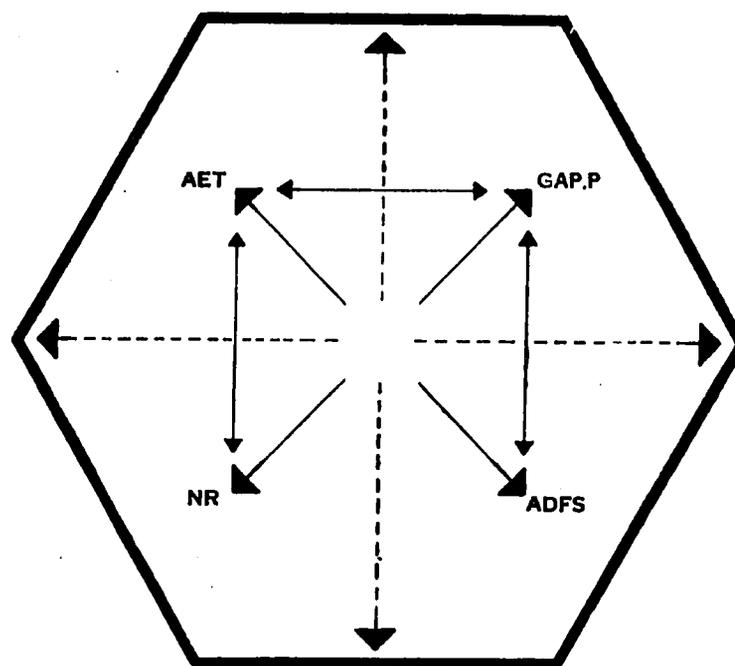


FIGURE 1. Scheme for Agricultural/Rural Development with Focus on Human Resources.

The amount and quality of interaction between the aforementioned factors and human resources affect the resulting agricultural and rural development.

Relationship of Agricultural Institutions with Agricultural Agencies

Our primary interest in this Seminar is the influence of agricultural universities and colleges on the development of rural communities. Our specific concern is the relationship of the agricultural university with other agencies and institutions serving agricultural development.

Four types of relationships are identifiable. The first is the clientele-service relationship in which the agricultural university renders professional services to other agricultural organizations or institutions. Examples of this type of relationship are those involving services of the agricultural university to the land reform and land settlement agencies, to the National Board of Education, and to other government agencies on a one-way basis.

The second type of relationship has the agricultural university receiving services from private foundations, banks and the business sectors which support scholarship/fellowship and research programs.

The third type of relationship is the mutual, cooperative give-and-take relationship with (1) research institutes, (2) other educational institutions serving agriculture, (3) the Ministries (or Departments) of Agriculture and Education, and (4) the extension and community development agencies.

The fourth and, perhaps, the highest type of relationship has the agricultural university exercising leadership among other institutions which are similarly engaged in instruction, research and public service geared to agricultural development (See Figure 2).

Obviously, if the relationship between the agricultural university and other agricultural institutions is to result in the enhancement of agricultural development, an effective and smooth interaction must be achieved. Mosher suggests three different procedures:¹ (1) a clear definition of each organization's res-

¹ Mosher, A.T., "Cooperation Among Agricultural Institutions," Seminar on Agricultural Institution Cooperation held at Kasetsart University, Thailand, March 13-15, 1972.

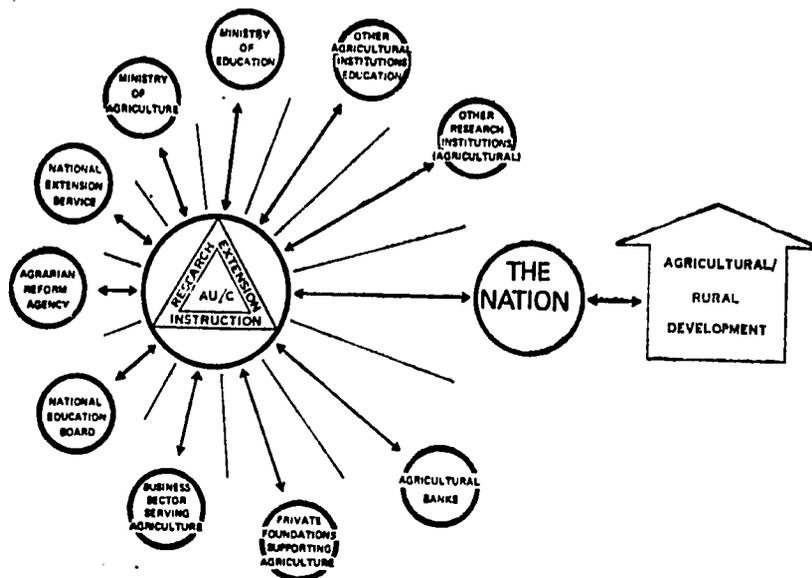


FIGURE 2. The Agricultural University/College and Other Agencies and Institutions Serving Agriculture.

possibility to avoid an overlapping of function, (2) executive coordination, i.e., putting the organizations serving different functions among which close interaction is needed under the same administrator, and (3) consultative cooperation and coordination. The latter involves continuous and repeated adjustment among largely autonomous organizations through a process of consultation and joint decision-making, informed by a free flow of ideas about and among the different organizations.

Mosher emphasizes that "it is important to recognize these three different but complementary methods of achieving effective interaction among agricultural organizations because each has a distinctive contribution to make. One is not better than the others intrinsically, but each can accomplish a given objective best under specific sets of circumstances. The first is always important: each organization should have clearly defined functions, and those functions should not overlap except for good cause... Executive coordination (cannot) achieve smooth interaction among organizations with poorly defined or overlapping functions. Consul-

tative cooperation among autonomous organizations cannot achieve effective interaction if the responsibilities of each organization are not specific and clearly [stated]. The choice between executive coordination and consultative cooperation should vary with the nature, number and size of the organizations that are involved."

We are now confronted with the task of attaining the most effective interaction among various agricultural institutions which all aim at facilitating agricultural development as an instrument to improve life for the farmer and his family and for the whole nation.

The Agricultural University and Research Institution

The agricultural university needs to build not only strong on-campus programs of research but also cooperative research projects on common problems with other research institutions on the national, regional and international levels. The University of the Philippines College of Agriculture has set up patterns of research activities that deserve to be emulated and expanded.

To have an effective research program, the agricultural university should be provided with adequate funding including travel funds for its faculty so they can be exposed to the actual situations and problems within the country. This exposure should enable the faculty to acquire the experience that is so essential in developing a "feel" for the national problems of agriculture and rural life beyond the narrow confines of the classrooms, laboratories, and experimental farm.

The Agricultural University and Extension Agencies

An agricultural university should be concerned with extension activities extended directly to the farmers, other agricultural organizations, and agricultural policy-makers.

Faculty members of agricultural universities are prone to talk too much among themselves, but not enough with the farmers in the villages from whom they can draw so much stimulation and inspiration. Besides bringing the benefits of modern technology to the farmer, a faculty member will do well to work with the

latter to find scientific explanations for effective practices that the farmer himself cannot explain.

The agricultural university must extend assistance to other agricultural institutions for the improvement of instruction, research and extension activities. Towards this end, it may organize conferences, seminars, workshops, short courses, and a system of short-term faculty loans aimed at upgrading sister institutions in need of assistance.

An important extension role of the agricultural university which has become understood and appreciated only lately relates to its policy or advisory role in agriculture and agricultural education. Influencing government policy-making in the right direction should be an ever-increasing concern of the agricultural university if agricultural policies and legislation are to be properly geared to nation-building and national development. This role underscores the advisability of having a viable policy and planning unit in the agricultural university. The university should represent the agricultural sector in meetings of government entities that lay down policies affecting agricultural development.

The Agricultural University and Other Agricultural Education Institutions

It is incumbent upon the agricultural university to assert its leadership in agricultural education among other agricultural education institutions. This function is virtually thrust upon it by the prestige that it has earned for itself. Logically, this prestige rests on the quality of its faculty and facilities and is inevitably reflected in the quality of its programs of instruction, research and extension.

The prestige of an educational institution can only be earned through the painstaking process of maturation and solid achievement. An agricultural education institution grows and attains maturity in stages, not in sudden artificial spurts of legislation.

The UPCA Experience in Extension

When the late Dean Copeland established the U.P. College of Agriculture in 1909, his initial objective was to train people to teach agriculture. Since there were not enough high school gra-

duates who could enroll, he started with elementary school graduates.

Later on, he found to his dismay that there was not much to teach because there was so little technical knowledge about tropical agriculture available then. And so he and his associates and successors added research to the instruction function of the institution and encouraged it to the extent that the students were required to undertake a experimental research as a prerequisite to graduation. This practice was enforced without modification for 40 years.

In 1959, when I became Dean of the UPCA, I realized that the institution could not afford to be an island remote from the people. I decided that it was about time to bring the UPCA to the people, to whom it belonged, anyway. Hence, we developed our extension program and raised it to the same level as instruction and research. The UPCA established the Office of Extension Education on equal footing with the Offices of Instruction and of Research. At the same time, the UPCA extended its campus to the villages by utilizing the Farm and Home Development approach to extension.

We brought our experiments to the farms and villages to demonstrate them right on the farmers' own locale. At the same time, we strengthened the social sciences discipline so that the social objective of the technologies that were developed for the rural population could be properly understood and appreciated.

We started giving extension workers, the true agents of behavioral change among the farmers and villagers, the recognition they deserved by providing them with proper support, logistics and training.

There was a time when agricultural extension or village work was looked down upon on the campus. I still remember being accused by some people of indulging in mediocre activities when I gave my attention and support to our budding extension program. My critics held the view that extension work was fit only for those who could not qualify for intellectual and office work in the various government bureaus and agencies. It is gratifying to note that this kind of thinking and attitude has virtually vanished, for the extension man has now attained a stature and prestige equal to that of his colleagues in instruction and research.

I must admit that in many ways I am very unsophisticated and often unacademic in my approach to science and technology because I always view development in terms of the small farmers.

Cooperation with Other Institutions

To help accelerate the process of agricultural development, agricultural education institutions may cooperate in estimating and training manpower, preparing teaching materials, doing applied research, and engaging in agricultural extension services. To these should, perhaps, be added one more area, i.e., institution-building, which is a very significant concern of this Seminar.

The overall program of manpower training for agricultural development is the joint concern and responsibility of all agricultural education institutions within the country and to some extent within the region. Each agricultural institution should determine its share of the manpower development needs in agriculture. Through the initiative and under the leadership of the agricultural universities, a system of determining the manpower needs for the agricultural development of the country may be devised and a schedule of allocation for training in each institution can be set up and implemented. One of the emerging problems of inter-institution cooperation is how to make use of each institution's capabilities and strengths in a cooperative manner to attain the goals of manpower development for agriculture.

To help government policy-makers and program planners, every agricultural university should conduct problem-solving research. Cooperative research among these institutions will make up for the dearth of specialists in certain vital areas of individual institutions. The leadership and initiative of the stronger institutions will go a long way in bringing about the desired relationship.

As in research, the extension service needs of the various sections of a country as well as the various countries of the region vary. Each university must develop an extension program and an approach suitable to the specific needs of its service area. However, each institution can benefit from insights, ideas, and innovative practices developed by another; an inter-institutional relationship among them can generate more responsive and more effective extension approaches for the benefit of the Asian farmer.

Even before an Association of Agricultural Universities and Colleges in Asia is formally established, the proposed association has already chalked up one significant achievement: it is the strong awareness of and enthusiasm for institution building that has been generated among Asian agricultural universities. The First Asian Seminar has been notably successful in this respect, and this Second Seminar is bolstering the gains that have thus far been made.

Constraints on Effective Interaction

To foster effective interaction among agricultural organizations, it is well to recognize the nature of the constraints that limit or prevent it.

Mosher sees seven such constraints: (1) the overlapping and/or competing objectives of different organizations, (2) strategic gaps in organizational arrangements, (3) secondary or complementary activities of organizations in addition to their primary function, (4) dependence of career advancement of personnel on established goals of the agency rather than on the achievement of better interaction with other agencies, (5) autonomous funding of particular activities, (6) "boundary maintenance" or bureaucratic jealousy, and (7) the tendency to become preoccupied with daily routine activities at the expense of ways of improving inter-institutional interaction.

Factors Facilitating Effective Interaction

While there are many constraints on effective interaction among agricultural organizations, there are also a number of factors that will facilitate it.

In the first place, although there is not one completely logical way of dividing the various functions of different organizations, some means can be found to have one or another organization perform a specific function. Second, the central and complementary functions of each organization can be defined and the complementary functions of other organizations recognized. Third, it will help to have an administratively manageable pattern of organizations. Fourth, it is very important that personal interaction at frequent intervals among officials of different organizations be maintained. Fifth, interaction can be improved by having a number of organizations depend on a com-

mon source of financial support. Sixth, some sort of forum outside of normal administrative procedures, such as professional journals, can be provided for a continuous reexamination of patterns of organization and the roles and methods of each organization. Finally, common commitment to the larger goals of agricultural growth and more equitable income distribution will facilitate effective interaction.

Problems and Realities in the Seventies

Because population has been increasing in the developing countries of Asia and the Far East, the need to produce more food has become urgent. The unprecedented rate of population growth in recent years has meant that the chances of feeding the new millions of people — and even then inadequately — have come to depend largely on the last-minute applications of technology. These applications have often produced social side effects which created other problems. Similarly, there have always been large segments of people in these developing countries with little or no work, and the tremendous increase in population has suddenly created multitudes of unemployed. Inequalities of wealth and opportunities have always existed, and with modern communications reaching almost all rural and urban areas, the underprivileged have become much more conscious of economic and social injustices and much more articulate and determined to redress these situations. Even the problems of malnutrition and the problems of environment, which seem new but have actually been accumulating over the years have now burst upon public complacency. The combination of economic and social problems in the developing countries has now reached a highly dangerous stage. It is imperative, therefore, that the activities of the agricultural institution should not be dealt with in isolation from the problems of unemployment, social injustice, population growth, malnutrition, and environmental pollution.

These are universal problems that affect every developing nation in the seventies. The effectiveness with which they can be resolved will in no small measure be influenced by the consequences of the interaction of agricultural universities with other agricultural institutions towards the enhancement of agricultural and rural development.

EXCERPTS FROM THE DISCUSSION

Three Points on the Role of the University in Agricultural Extension. The paper seems to say that the faculty member can discuss farming problems directly with the farmer instead of transmitting the modern techniques through the extension workers. What I am rather afraid of is that the faculty member would talk to the farmer in a different language.

The second point: The paper said that the agricultural university must extend assistance to other agricultural institutions in the areas of instruction, research, and extension activities. I have observed, however, that the assistance offered by the agricultural university to the other institutions is rather limited. Most of the time the university is loaded with instruction. Furthermore, not every professor can teach the extension workers. I would like to ask the speaker how these organizations can work closely and what activities they can undertake.

The third point: Dean Umali mentioned that when he was dean of the UP College of Agriculture he developed an extension program that extended assistance and services to the village. I would like to know from his experience how this extension program could be correlated or coordinated with the national extension program. There might be some coordination and overlapping.

SHOULD FACULTY MEMBERS TALK DIRECTLY TO THE FARMERS?

Dean Umali answered this question thus: We made it a point to have our faculty members, our scientists, talk to the people so that they would know the farmers' actual needs and problems. In fact, we always remind our scientists, faculty members, and extension workers not to tell the farmer what to do. We tell our faculty members, "Don't hand to him a program of approaches." Our job is to listen to the farmer, to purify his

thoughts, to put these thoughts together, and to design or plan a program for his farm, family or business.

Very often our mistake is to hand down things to the farmers without knowing the realities of the situation. We often make a mistake for them which we should not do. Let them make the mistake so they will learn. Let us listen to them. You'll find out that as you listen to them, maybe you will get 450 silly ideas, but from these you will get five or six novel ideas that will be relevant to their own needs.

We are training in the UPCA extension workers. If we have no exposure to the practical life of the people in the rural areas, what kind of teaching are we going to have? It will have to be very bookish. This is the reason why Dean Chang has established a social laboratory in the villages. This is where our extension workers and our scientists go. This is a place where the extension people undergo training. Now they listen to the farmers.

The social laboratory is also a place where all the government agencies are given the chance to work together to provide a progressive rural structure so that the small farmers will be productive and progressive.

Coordinating UPCA's Extension Activities with Those of the National Extension Agency. At one time we operated our projects practically independent of the national extension agency. We would pick our village and test our ideas there. But when the village project became successful, the farmers would rather first consult us before the extension agents. This hurts the extension agencies and we have realized our mistake.

Now, whenever we go to the village, it is always in consultation with the extension agencies in the village.

And of course, the extension work conducted by the UPCA is very limited in scope. It is strictly for extension education, for research, for demonstrations. We are not trying to displace our national extension agency. We are just trying to develop a pattern or model of extension which can be duplicated or multiplied by the extension agencies.

Finally, there is no substitute for continuous dialogue. As I said in my paper, we sit down together, threshing out the kinks, and the differences and the misunderstanding.

On the Progress of Small Farms. I do not agree with the claim that to achieve progress, you must have big farms and you must have big farmers. No. History will show that small farms can be much more effective, productive and efficient than the biggest farm you have ever known. The productivity in Taiwan per unit hectare, the productivity of land in Japan is very high. The farms in Europe and in the United States will show that if you provide the favorable climate and the progressive rural structure where you have the technology, extension men, market centers, feeder roads, irrigation water and farm demonstrations, the farmer would be as efficient as any other farmer in the world.

The University and Extension Work in Taiwan. The university helps extension work a lot. Extension work is not done by the university directly. For example, if the Department of Agriculture and Forestry wants some extension workers, the Department asks the university to give these workers training for one week, one month, half a year, or one full year. Thus the extension workers mostly trained personnel for extension are with the Department of Agriculture and Forestry. Some of them belong to the sugar experiment stations. We also have in the university a radio program. We have, furthermore, a special committee in the university for extension. The members meet and discuss about extension work, but these serve agricultural extension indirectly.

Follow-up Comment on Extension Work in Taiwan. It seems that this is a situation which is not unique to the Republic of China. There are many countries in the region where the university may be related to the Ministry of Education. The extension work or research work may be closely related to agriculture and there is the problem of establishing some linkage to enable the teaching structure in the college of agriculture to be most relevant to training the kind of people that will get the appropriate orienta-

tion so that the people that it will turn out will be effective in serving agriculture. There are problems of linkage in many of the countries in the region.

Extension Work in Turkey. At Ataturk University, we have a director of extension service and his responsibility is not limited to agricultural work. We believe that economic development is also the concern of other faculties. The medical faculty, business faculty, science faculty and leadership faculty each sends one member to the service with the director of extension coming from the agricultural faculty. They go as a team to the village where we have health centers and where agricultural extension men talk about the problems in agriculture. We don't diffuse knowledge only to the farmers. We bring the problems of the farmers, any kind of problem, to the university through the service. After talking to the specialists, we bring back the information to the village. I think that the university should have an extension service not only for agriculture but also for other areas as well. For instance, we have small medical stations in small villages where agriculturists can also establish contacts with the people.

**THE U.P. COLLEGE OF AGRICULTURE PROGRAMS:
LINKAGES WITH OTHER INSTITUTIONS AND
AGENCIES**

F. T. ORILLO

Dean, University of the Philippines College of Agriculture

In its commitment to the three basic functions of instruction, the U.P. College of Agriculture has a built-in response to national development. Linkages in the instruction function have been made with other agricultural colleges and schools all over the country highlighted by the organization, with the UPCA playing a key role, of the Association of Colleges of Agriculture in the Philippines in 1962. Its effective use of international assistance after the war helped it to become today's complex of a training and research institutions which provides a strong grouping of scientists, teachers and facilities. Other linkages with government and private agencies doing research and extension have also been established notably exemplified by the College's involvement in the national rice and corn production program which intensified in 1952 first through a cooperative varietal improvement program.

Four teachers and 12 students started the U.P. College of Agriculture with tents borrowed from an army camp serving as the first classrooms. Dr. Edwin B. Copeland, an American botanist, was the founder. The College of Agriculture opened on June 14, 1909, the first college established under the University of the Philippines and the first university college of agriculture founded in the tropics.

Instruction in agriculture was its main concern in the early days. Not long after, however, the faculty began to do research on their own realizing that it was the way to enrich what they were teaching to their students as well as to assist in solving the farming problems in the country. In 1918, the research activity in

the College became officially recognized when the agricultural experiment station was created through a legislative act. The accompanying grant of ₱125,000 bought more land, animals and equipment for the College.

As the research findings accumulated, the faculty also recognized the need to extend these findings to the public, their fellow teachers and scientists, and the farmers. The scientific journal of the College, now called the *Philippine Agriculturist*, came out in 1911. Popular bulletins for farmers written by faculty members began to be published in 1934. After World War II, with the flow of more generous support to the College from the government, international technical assistance programs, and private foundations and agencies, the research and extension activities intensified along with the College's expanded role in educating for leadership in agriculture.

This unprecedented growth influenced innovations in the College administrative structure. Today the Dean is assisted by a Director of Instruction, a Director of Research, and a Director of Extension Education, representing the three basic functions of the UPCA. In 1970, the U.P. Board of Regents created the Office of the Director of Graduate Studies in recognition of the accelerated growth of graduate programs at the UPCA and the need to integrate them with those of the U.P. College of Forestry nearby.

UPCA Becomes Nucleus of the Los Baños Complex

With the U.P. College of Agriculture as nucleus, nine training and/or research institutions with varying degrees of involvement in extension today thrive on the Los Baños campus. This aggrupation of research institutes are training centers covering different fields of agricultural study and services developed during the past decade. It is now known collectively as the Los Baños Complex.

The components of the Los Baños Complex are the U.P. College of Agriculture, College of Forestry, the Agricultural Credit and Cooperatives Institute and the Dairy Training and Research Institute — which are the U.P. units, and the affiliate units which include the Community Development Center, the Forest Products

Research and Industry Development Commission, the International Rice Research Institute, the Southeast Asian Regional Center for Graduate Study and Research in Agriculture, and the Rodent Research Center.

The seven institutes or centers consist of one international, four regional, and two national institutions established within the period from 1956 to 1968. The Complex provides a strong grouping of scientists, teachers, and facilities for agricultural and forestry research and education whose work encompasses the common aspirations of all mankind for a better life.

The UPCA Programs: Their Orientation

In its commitment to the three basic functions of instruction, research and extension, the U.P. College of Agriculture has a built-in response to national development. In the Philippines, agriculture has a dominant role in economic development. This fact defines to a large degree the direction of College programs.

The national economy has continued to be agriculture-based. The industry group of agriculture, forestry and fishery employs nearly 60 per cent of the total labor force. The next two ranking industries, manufacturing and commerce, each employs only about 10 per cent. The agriculture industry group leads in terms of contribution to the national income which is about a third of the total. The top nine export items of the country are all agriculture and forestry products. Closer to the concerns of Filipino families, the country still has to increase its production of many items of food and other basic needs to be sufficient. In the wake of these economic realities, the U.P. College of Agriculture has had to develop institutional strategies to relate its mission to national development while trying to reach the most effective means for achieving this goal.

Linkages in the Instruction Function

An educational institution with emphasis on higher education in agriculture, the objective of the College is to prepare effective citizens who will take up the leadership in agriculture in the country. Specifically, modern agriculture demands manpower for its expanded concerns including production, distribution, preservation and consumption. In the report of the College faculty

group which I appointed in 1970 to evolve a development program for the College in the seventies it was stressed that the College will continue to maintain the highest quality in its instruction program and make itself the center for graduate studies in agriculture and related sciences in the Philippines.

Still, because of the College's orientation to total national needs, the manpower building role of the UPCA must be viewed in the context of the overall system of agricultural education in the country. Besides the UPCA, there has been in the Philippines a number of other agricultural colleges (54 as of the latest count) and more than 90 vocational agriculture high schools spread out from the northernmost to the southernmost parts of the country. This pool of agricultural training institutions located in various regions could provide massive force for the development of the country through their institutional activities and programs.

With the UPCA playing a key role, the pioneering attempt to link the different agricultural colleges and universities was made in 1962 when the Association of Colleges of Agriculture in the Philippines, Inc. (ACAP) was formed. Today the ACAP is composed of 18 member institutions. The association has been significant in charting areas of common planning and action through the exchange of teachers and students among the different institutions and other projects tackled through the ACAP committees on instruction, research, extension, home economics, and library.

Impact of International Assistance Program

Almost completely destroyed during World War II, the U.P. College of Agriculture has been the recipient of international assistance support which in large part made possible the College's phenomenal growth as a center of higher education in agriculture. The first massive support program came under the Cornell University-Los Baños contract which was in operation from 1952 to 1960. This technical assistance contract was launched by the then Philippine Council for United States Aid and the then Mutual Security Agency (now USAID). During the eight-year tie-up between the two institutions, 51 professors from Cornell served at Los Baños to assist in strengthening the College's teaching, research and extension programs. Sixty-four members of the UPCA

faculty went to the United States for one to two years of graduate training. The partnership has been hailed as one of the outstanding successes in the U.S. aid program to developing countries.

Later, the determination to upgrade the capability of the College as an institution for advanced studies led to the joint UP-Cornell Graduate Education Program started in September 1963 and which terminates in June 1972. Funded by a Ford Foundation grant, it was, in essence, an exchange program of graduate assistants and visiting professors in five areas of graduate studies: natural resources, animal sciences, plant sciences, socio-economics and communications, and food science and nutrition. It included the improvement of facilities and services for expanded academic programs in international agricultural development both at Cornell and at Los Baños.

Meanwhile, the College in 1966 launched its Five-Year Development Program which is now about complete. In the expansion and improvement of the College's physical plant, new major buildings rose on the campus as well as dormitories and housing for the faculty and administrative personnel. Other facilities such as roads, bridges, sewerage, water and electrical works were built. In support of the five-year development plan designed to build up the human and physical resources of the College, the World Bank was tapped for a loan of \$6 million. The Congress of the Philippines provided P22 million as counterpart funds. Additional support were given by the Ford and Rockefeller Foundations particularly for the graduate education program.

A Regional Institutional Resource Grows

Since pre-war years, the U.P. College of Agriculture has had students from neighboring Southeast Asian countries. Their numbers have been increasing and Los Baños has had to respond more definitively as a regional institutional resource. When the Southeast Asian Ministers of Education Council (SEAMEC) selected Los Baños as the site of a regional center for graduate study and research in agriculture, the ever-growing relationships of Los Baños on the regional level became formalized. In 1967, the Southeast Asian Regional Center for Graduate Study and Research in Agriculture became a part of the Los Baños Complex.

With the organization of an Interim Project Office on July 1, 1969, the Center officially opened. The Center has been organized in close articulation with the College and the Center's programs are fused into the existing programs of the host institution. The SEARCA provides opportunities for the College to work on the regional level in advanced studies, cooperative research programs, and other areas of joint endeavor.

Linkages in Agricultural Research

As never before, the College's research facilities and capabilities are today called in many areas of pressing national concern. The pace is going to intensify rather than slacken for even the advances in a project has a way of bringing forth further challenges as in the second generation problems spawned by the rice research breakthroughs.

To get a brief but comprehensive picture of the variety and degree of linkages of the College with other institutions and agencies for the conduct of research, one may refer to the list of funding for research projects in the College in 1971-72 (See Table 1). Besides the research allocation of the UPCA from the budget of the University of the Philippines, there are a number of grants from other government agencies, private agencies and foundations and commercial companies. These include the National Food and Agriculture Council, the government's coordinating agency for national agricultural programs, the National Science Development Board, the National Research Council of the Philippines, and other government agencies, the Ford Foundation, the Rockefeller Foundation, and other private entities.

Through the National Food and Agriculture Council tie-ups, the College undertakes research programs in rice and corn production, intensified corn production, vegetable crops, downy mildew action project, sorghum, legumes and other upland crops, forage and pasture, multiple cropping, and rice applied research and training. In these programs or projects, the College engages in cooperative effort with agriculture service agencies such as the Bureau of Plant Industry and the Agricultural Productivity Commission which is the government's extension agency, agricultural colleges and universities such as the Central Philippine University at Iloilo in the Visayas. The College's involvement in the nation-

TABLE I. Resources For Research At UPCA, 1971-72

Agency	Amount
UPCA Research Budget	980,000
National Food and Agriculture Council	1,867,000
a. Rice & Corn Production Program	906,000
b. Intensified Corn Production Program	152,000
c. Research & Extension Program in Vegetable Crops	227,000
d. Downy Mildew Action Program	39,000
e. Upland Crops Program	325,000
f. Forage & Pasture Research	97,000
g. National Program on Multiple Cropping	30,000
h. Rice Applied Research & Training Program	91,000
NSDB Grants	765,200
NRCP Grants	408,500
PVTA Grant	290,000
PHILSUGIN Grant	65,000
UPCO Grant	258,000
a. Returning Ph.Ds	19,000
b. Staff Research	141,000
c. Graduate Research	98,000
UNICEF	6,500
Private Chemical Companies	21,800
La Granja Research & Training Center	240,000
T O T A L	₱4,902,000

al rice and corn production program illustrates the mechanics of the research linkages. Among the research agreements entered into by the College, the one on rice research started in 1952 has had the longest existence and the most fruitful results.

Work in the College on varietal improvement began as early as 1909 but mainly to collect local varieties, introduce foreign ones and to test these for adaptability. Varietal development through hybridization was started in 1918 by a former plant breeder in the UPCA, Dr. Nemesio Mendiola. However, it was only after World War II when these endeavors were intensified.

In 1952, Dr. D. L. Umali, then head of the plant division of the UPCA, and Dr. H. K. Hayes, a visiting professor under the Cornell-Los Baños contract, initiated the present National Coope-

native Rice Improvement Program. Financial support came from the then Philippine Council for United States Aid (now the National Economic Council) and the Mutual Security Agency (now the USAID).

In this cooperative program, the UPCA and the Bureau of Plant Industry, and later the IRRI and the Philippine Atomic Research Center, conduct coordinated research on varietal development. The new selections are then tested in different regions of the country in the BPI experiment stations and in selected agricultural colleges. The selections that perform well in the regional testing are presented to the Philippine Seed Board for approval. The Seed Board was created in 1953 under a special order of the Secretary of Agriculture and Natural Resources. The UPCA, BPI and IRRI increase the seeds of the recommended varieties. The Agricultural Productivity Commission helps increase further the recommended seeds and promotes their use by farmers.

The National Rice and Corn Production Law passed in 1958 has allocated for the College about ₱1 million yearly to support rice and corn research projects. In the past three years, this fund has been augmented with special funds from the National Food and Agriculture Council. During the past decade, two out of the four recommended upland varieties and three out of the 11 recommended lowland varieties were developed at the UPCA. The College lowland varieties, C4-63, C4-63G, and C4-137, were in 1970-71 planted on 360,000 hectares or 26 per cent of the area planted to improved varieties. They are highly recommended by the NFAC for planting in the vast areas recently ravaged by the destructive tungro disease.

The pattern followed in the rice production program is essentially that followed in the programs on corn, sorghum, legumes and other upland crops, and vegetables. There is no longer any doubt that the agricultural agencies and institutions must be integrated into cooperative work relationships if success in achieving national development goals is to be assured.

Linkages in Agricultural Extension

Spurred by the operation of the Cornell-Los Baños contract, extension work in 1952 began to be developed as an official function of the College. In 1954, the Extension and Publications

Office was set up to handle extension information and teaching activities. This office in 1962 became one of the academic departments of the College and is now called the Department of Agricultural Communications. In 1962, the Office of the Director of Extension Education was created officially recognizing the extension as a function at par with instruction and research. The ODEE coordinates the extension activities of the 15 technical departments of the College.

The research function defines the role of extension which is basically to disseminate the results of research in the College. In the Philippines, however, a specific agency, the Agricultural Productivity Commission is charged with the national agricultural extension program, i.e., for reaching the farmers and homemakers who are the end-users of agricultural technology. Thus, the thrust of College extension work is mainly to assist the different agencies and institutions in improving their staffs and in developing their programs. The main extension activities can be classified into five as follows: training which includes pre-service and in-service training for extension workers and for specialized subject-matter training in agriculture and home technology; information through the mass media; field trials conducted in farmers' field to determine the adaptability of different practices and to show farmers the advantages of the recommended practices; action research to gain first-hand information on the problems and needs of the farmers and a testing place for new approaches in conducting extension work; and staff support to the various activities of other agencies and institutions as well as individual farmers although in a limited way.

Future extensionists get professional training in the Department of Agricultural Education which offers the Bachelor of Science in Agricultural Extension curriculum. In-service training opportunities such as in rice production offer training programs ranging from one-week up to 10 months. Over the years the trainees have included farm management technicians of the Agricultural Productivity Commission, the Bureau of Plant Industry and other government agencies, representatives of the member-institutions of the Association of Colleges of Agriculture in the Philippines, Presidential Arm for Community Development, and trainees from foreign countries such as international volunteer

service personnel and extension personnel from other Southeast Asian countries. The subject-matter specialists in the College's technical departments assist workers in government agencies and individual farmers consider farming problems and ways of improving farming methods.

In support of the various extension projects carried out by the College, funds have been made available by the Ford Foundation, National Food and Agriculture Council, SEARCA, UNICEF, Bureau of National Education and International Development Research Council of Canada augmenting the basic U.P. budget support.

Studies on alternative approaches in extension work programmed for five years have been supported by the Ford Foundation under the joint UP-Cornell Graduate Education Program. Undertaken by the Farm and Home Development Office, this project enabled various treatments of technician support to be brought to farmers in 40 barrios in Laguna province. The findings in this action research project have been systematically recorded for feeding back to the College's classrooms.

The Barrio Development School Project at Bay, Laguna is a cooperative study of the UPCA and the Board of National Education. The aim of the project is principally to determine whether a non-college preparatory secondary school program is possible in a village setting and to determine the socio-impact of the school program on village life.

Other projects currently being undertaken and which have been made possible because of funding from outside agencies and institutions are the Social Laboratory project and the vocational education for out-of-school farm youth in Pila, Laguna, the Unified Rice Applied Research, Training and Information Project, the Multiple Cropping Extension Project, and the SF/PHI 34 project for training technicians for the grain industries.

Based at the Department of Agricultural Engineering, the SF/PHI 34 project draws its funding from the Philippine government and the United Nations Development Program. Other participating national and international agencies are the National Food and Agriculture Council, Agricultural Credit Administration, Agricultural Productivity Commission, Bureau of Plant In-

dustry, Central Bank of the Philippines, Development Bank of the Philippines, Philippine National Bank, Rice and Corn Administration, Rice and Corn Board, and SEARCA. The project backstops a World Bank Loan of \$14.3 million to the Philippines for financing private entrepreneurs in the grain installation business by providing training as well as maintaining the flow of information on grain processing.

THE U.P. COLLEGE OF FORESTRY PROGRAMS: LINKAGES WITH OTHER INSTITUTIONS AND AGENCIES

R. A. DEL CASTILLO

Officer-in-Charge, University of the Philippines College of Forestry

The facilities, staff resources, and academic programs of the U.P. College of Forestry including instruction, research and forestry extension are described. After the war, the College received technical assistance through contracts with Cornell University and the State University of New York and from the UN-FAO. It has cooperative programs in teaching, research and public service with various public and private institutions and agencies. However, the need for more and expanded linkages with available institutions and instrumentalities is recognized. Further opportunities for linkages that need to be established are cited.

The U.P. College of Forestry, a major unit of the University of the Philippines at Los Baños, is one of the five schools¹ in the country offering formal forestry education programs today. It is the oldest and most advanced in terms of facilities, staff resources, and academic programs.

Physical Facilities

The major facilities of the College include the administration and four academic buildings which are used to house the library² and the academic departments. In all, the buildings have a floor area of more than 60, 000 square feet. Two other buildings with a bed capacity of 252 are available for student housing.

¹The other four are: Institute of Forestry, Araneta University; Department of Forestry, Cagayan Valley Institute of Technology; College of Forestry, Central Mindanao University; and College of Forestry, Mindanao State University.

²Has a collection of more than 1,900 volumes and titles about half of which are books.

The modern laboratory facilities are designed to meet the requirements of advanced undergraduate and graduate course in forest biology, forest production, and forest utilization. The University-owned Makiling Forest with an area of 3,910 hectares serves as outdoor laboratory for both research and instruction.

Other facilities used for academic purposes include a greenhouse, an insectary, a sawmill, a 295-hectare botanical garden, a 2-hectare forest nursery, and several plantations of varying ages. Two guesthouses, a dining hall with a seating capacity of 120, a pavilion and a swimming pool are available for social activities and recreation.

Staff Resources

The quality and strength of the faculty are reflected in Table 1.

TABLE 1. Faculty Structure

	BS	MS	PhD	Total
Instructor	22	17	—	39
Asst. Prof.	2	15	1	18
Assoc. Prof.	1	3	4	8
Professor	—	—	2	2
T o t a l	25	35	7	67

The faculty development program of the College is in progress; at present, many are on study leave. At least eight are expected to return before the end of the year, three with the master's and five with the Ph. D. degrees.

In addition to the faculty staff, the College has in its employ more than 160 administrative and support personnel.

Current Programs

The three-fold functions of an educational institution are instruction, research and extension. While its prime responsibility is the training of the youth, the University endeavors to search for new knowledge and contribute to the progress and development of the nation through research and extension.

The current programs of the College are designed to meet these major responsibilities.

A. Academic Programs

1. *Ranger Certificate.* The Ranger curriculum is a sub-professional training program requiring two years of attendance in college. The curriculum is a blending of basic and practical courses on aspects of general forestry. It is designed to provide skills in forest administration, forest protection work, surveying and timber cruising, scaling and grading of timber products, and supervising forest construction and improvement including nursery and plantation establishment.

2. *Bachelor of Science in Forestry Degree.* The BSF curriculum is a five-year program which requires the completion of a total of 194 units for graduation. Implemented two years ago, the curriculum offers most of the general education and core forestry courses in the first three years. In the fourth year, the curriculum branches out into four major areas, namely, forest biological sciences, forest resources management, wood science and technology, and forestry extension.

The present BSF curriculum is an improvement over the old 4-year program in that it provides a strong background in the humanities, biological and physical sciences and basic forestry subjects. Graduates of the new curriculum are expected to be better prepared to do research and graduate work.

3. *The Graduate Programs.* Two programs on the graduate level are available at the college. These are the Master of Forestry and the Master of Science in Forestry degrees. The former emphasizes techniques while the latter is oriented towards research.

Both programs allow specialization along the fields of forest biological sciences, forest resources management, and wood science and technology.

4. *Short-Term Training Programs.* The Manpower Training in Forestry. Upon the request of the Vietnamese government through SEARCA, the College is developing a three-month intensive training program in forest production and wood processing. It will consist of two months of classroom work and one month of

on-the-job training in any of the following fields, namely, re-forestation forest management, timber harvesting and wood processing.

The objective of the project is to accelerate manpower development to provide the needs of the growing wood-based industries in Vietnam. The project calls for the training of at least 14 Vietnamese officials who will in turn become trainers in their country.

Other Training Programs. Occasionally, the College through the Department of Forestry Extension, holds seminars and other training programs such as the Makiling Conservation Education Conference Workshop, Trainers Training in Forestry Extension, Leadership Institute in Forestry Extension, UPCF-BPS First Forest Conservation Institute for Teachers Trainers, In-service Training for Forest Conservation Officers, UPCF-BPS Seminar for School Administrators, and others. The training courses range from one to 30 days duration.

Student Enrolment

Student population has levelled off to an average enrolment of 600 students per semester. During the second semester of the academic year 1971-72, the enrolment was 535 distributed thus: 492 undergraduates, 33 graduate students, and 10 cross-registrants from the U.P. College of Agriculture.

The U.P. College of Forestry serves both local and foreign students. However, there are significantly more foreign students in the graduate than in the undergraduate programs. Table 2 shows the distribution of graduate students by country.

TABLE 2. Distribution of Graduate Students by Country

Country	No. of Students	%
Khmer Republic	1	3.0
Philippines	13	39.4
Thailand	15	45.5
Vietnam	4	12.1

Scholarships

During the past semester, 71 students enjoyed any of the various scholarships available to deserving students. Both the government and the private sectors support the scholarship program of the College as indicated in Table 3.

TABLE 3. Scholarships, 1971-72

	Undergraduate	Graduate
<i>Government Scholarships</i>		
Bureau of Forestry	34	—
FORPRIDECOM	—	4
Reforestation Administration	13	—
National Science Development Board	1	1
SEARCA	—	6
U.P. Scholarships	2	—
<i>Wood Industry Scholarships</i>		
Don Gonzalo 4-H Forestry	3	—
Insular Lumber Company	1	—
Misamis Lumber Company	1	—
Nasipit Lumber Company	3	—
Sta. Clara Lumber Company	1	—
Weyerhaeuser Phil., Inc.	—	1

Graduates

At the close of the 1971-72 academic year, the College graduated 77 students, 22 with the Ranger Certificate, 52 with the Bachelor of Science in Forestry degree, 1 with the Master of Forestry degree and 2 with the Master of Science in Forestry degree. Table 4 shows the breakdown of these figures by semester.

TABLE 4. Graduates by Semester, 1971-72

	Summer 71	First Sem. 71-72	Second Sem. 71-72	Total
Ranger Certificate	4	3	15	22
Bachelor of Science in Forestry	13	5	34	52
Master of Forestry	—	—	1	1
Master of Science in Forestry	—	1	1	2

B. Research Programs

The research programs now undertaken or proposed by the College covers the following fields:

1. Forest Biology including Taxonomy, Plant Physiology, Forest Tree Improvement, Forest Ecology, Forest Pathology and Entomology, and Wildlife Management.

2. Forest Production including Silviculture — forest soils, forest nursery and plantation, tree improvement, silvicultural systems; Timber Management — forest mensuration, timber management planning, forestry economics, timber harvesting, protection; Watershed Management — forest hydrology, sedimentation, erosion and control, water yields; Forest Range Management — range, utilization and improvement, protection and management; and Forest Recreation Management.

3. Forest Utilization including Wood anatomy and identification; Physical and mechanical properties of wood and wood-based products; Wood Processing — log conversion, machining, seasoning, preservation and impregnation; Wood Adhesives, gluing and lamination; Wood quality and environmental relationships; and Wood chemistry and products development.

4. Sociological Aspects of Forestry including Forest industry and its relationship to socio-economic development in rural areas; Attitudes of forest users towards the conversion of forest resources; and Forestry information work and forest protection aspects.

The research staff of the College is composed of faculty members undertaking research and some advanced undergraduate and graduate students under the guidance of faculty advisers. Support personnel consists of research assistants, technicians and laborers.

Laboratory facilities for instruction are also used in research and experimentation. Additional facilities include the research facilities of the U.P. College of Agriculture, the Los Baños Forest Experiment Station of the Bureau of Forestry, and the Forest Products Research and Industries Development Commission. Many members of the research staff makes use of the services of the Los Baños Computing Center in the organization and analysis of research data. Other computations requiring greater storage facilities are processed in the IBM 360 of the U.P. Computing Center in Diliman.

The College has cooperative research projects with the Bureau of Forestry, Reforestation Administration and some logging firms such as the Nasipit Lumber and Bislig Bay Lumber companies. Other institutions and agencies supporting research projects of the College include the Natural Science Research Council, Social Science Research Council, Agricultural Development Commission, and the National Science Development Board. A number of research project proposals have been submitted to the Food and Agriculture Organization and the International Research and Development Center of Canada for support.

The research outlets include the *Philippine Forest* published by the Society of Filipino Foresters, *The Philippine Lumberman*, *Forest and Farms*, the *Philippine Journal of Forestry*, *Asia Wood*, and bulletins published by the College.

C. Forestry Extension. The public information activities of the College, carried out primarily thru the Department of Forestry Extension, include:

1. Information work using all possible media such as the press, radio, and to a certain extent, television. In addition to news and feature articles occasionally published in the daily papers and weekly magazines, the College maintains regular publications and prints circulars and bulletins on forestry and forest conservation matters. Five radio programs are maintained in different radio stations and radio releases are produced for more than a hundred stations.
2. Public presentation of films and filmstrips designed to create public awareness of the values of forests.
3. Seminar and training courses on forestry practices and conservation for government agents, teachers and youth organizations.
4. Forest Conservation Education Program in the public elementary school with the cooperation of the Department of Education.
5. Makiling Forest Conservation Education Program designed to prevent further destruction of the part of Makiling Forest which is owned by the University of the Philippines.
6. Cooperative projects undertaken with the government, the wood industry and civic organizations.

7. Providing resource persons to seminars and other training programs.

8. Distribution of seeds and other planting materials for ground beautification and reforestation purposes.

In addition to the office of the Department of Forestry Extension on campus, the College maintains a Regional Forestry Extension Office in Baguio. A similar office will be established in Mindanao soon.

Linkages with Other Institutions and Agencies

Linkages for Development

The College suffered much during World War II. The burning of the main building destroyed records of students, library resources, laboratory equipment, and research information including data on sample plots which had been collected over the past several years before the war. Nevertheless, the College continued to operate but there was urgent need for assistance to rebuild its resources.

On the recommendation of the National Economic Council of the Philippine government, the U.S. Foreign Operations Administration favorably considered the request of the College for assistance in the early 50's. The College made substantial progress during the period covered by technical assistance contracts with foreign universities supported by the U.S. and Philippine governments. Among the major developments largely attributed to these technical assistance programs are (1) increased faculty strength, (2) modernization of the undergraduate curricula, (3) development of graduate programs, (4) expansion of facilities, and (5) formulation of public information and education program.

a. Contract with Cornell University. The assistance program started in 1957 covered a period of three years. It was financed by the U.S. International Cooperation Administration and the National Economic Council.

b. Contract with the State University of New York (SUNY contract). Similar to the Cornell program, the SUNY contract was jointly supported by the U.S. Agency for International Development and the National Economic Council. According to program projections of the State University of New York, the

technical assistance contract should have covered a period of nine years in order to achieve its long range objectives. The contract however had to be terminated after five years, in 1956, for lack of funds.

c. UN-FAO Technical Assistance. The UN-FAO Technical mission to the Philippines organized a team composed of leading forestry educators to develop a program of graduate instruction and research in forestry, develop new fields of study, and prepare a project proposal for the development of forestry and research to be supported by the United Nations. The team worked with the staff of the College from November 1, 1966 to January 6, 1967 and proposed the establishment of a Tropical Forestry Center for Postgraduate Education and Research at the University of the Philippines College of Forestry under the United Nations Development Program special fund project. However, the proposal was given low priority by the Philippine government and did not materialize.

The College continues to develop its faculty through limited fellowships and assistantship programs in the University of the Philippines and universities in England, Canada and the United States.

Cooperation in Instruction

The Colleges of Agriculture and Forestry have cooperated in both undergraduate and graduate instruction. A number of courses required in the forestry curricula are taken in the UPCA among which are Chemistry, Mathematics, Physics and Languages and Humanities. Five UPCF instructors in English, Spanish, and Humanities were transferred to the UPCA Department of Humanities for uniform standards of instruction. In the graduate program of the two colleges, a number of guidance and thesis committees are composed of graduate faculty members of both colleges.

The UPCF also cooperates with the Forest Products Research and Industries Development Commission. Some of its technical staff members have been hired by the College in the past, on a part-time basis to teach courses in wood science and technology. In addition, the College uses the Commission's laboratory facilities and equipment for instructional purposes.

The scholarship program of the College is supported by government agencies such as the Bureau of Forestry, Reforestation Administration and National Science Development Board. Many companies of the wood-based industry such as the Nasipit Lumber Company, Weyerhaeuser, Misamis Lumber Company, Insular Lumber Company, and Sta. Clara Lumber Company maintain scholarship grants. The Southeast Asian Regional Center for Graduate Study and Research in Agriculture currently has six scholars in forestry.

Cooperation in Research

A number of researches being conducted by the College are done on a cooperative basis. The following are a few examples:

1. Cooperative project with government agency— Examples: UPCF-BF cooperative silvicultural research project in Basilan. Cooperating agency: Bureau of Forestry.

2. Cooperative project with research institution — Example: A study of pathological problems affecting forest trees and seeds. Cooperating agency: Natural Science Research Council.

3. Cooperative project with logging firm — Example: A study on the application of linear programming for sawmill improvement. Cooperating agency: Zamboanga Wood Products, Inc.

4. Multi-agency cooperative project — Example: Regional volume table and equations for Philippine timber species. Cooperating agencies: Bureau of Forestry, Reforestation Administration logging firms, and the U.S. Agency for International Development.

Linkages for Public Service

By virtue of its function as a national coordinating unit in the promotion of forest conservation, the College, through the Department of Forestry Extension, coordinates efforts with several government agencies and other institutions. These agencies and organizations are: Bureau of Forestry, Reforestation Administration, Parks and Wildlife Office, Forest Products Research and Industries Development Commission, Presidential Arm on Community Development, Bureau of Public Schools, Division of Agricultural Information, Department of Agriculture and Natural Re-

sources, Agricultural Productivity Commission, National Power Corporation, Public and Private Schools around Makiling and the Province of Benguet, United Nations Development Program-Republic of the Philippines World Food Program, UNDP-RP Ambuklao Pilot Forest, Mountain Province Development Authority, Bobok Timber Project, Benguet Consolidated, Inc., Boy Scouts of the Philippines, Girl Scouts of the Philippines, School Volunteers Program, Young Men's Christian Association, National 4-H Club Advisory Council, Youth Welfare Camp, Inc., and the mass media.

Occasionally, the College provides technical services to various government agencies and other organizations including the Presidential Economic Staff, the offices under the Department of Agriculture and Natural Resources, and the Society of Filipino Foresters. Many faculty members have been called to serve in several national and international committees in various capacities. Among these committees are the Presidential Committee on Wood Industries Development, the Presidential Committee on Nationwide Flood Control and Reforestation Project, the Constitutional Convention Committee on Agriculture and Natural Resources, the National Forestry Extension Advisory Board, Lake Lanao Development Task Force, the FAO World Consultation on Forestry Education and Training, and the International Union of Forest Research Organization.

Concluding Remarks

The preceding review of programs of the U.P. College of Forestry indicates that linkage with other agencies and institutions is not completely lacking. However, the need for greater efforts towards the continuation and expansion of these linkages is apparent.

In its report entitled "U.P. at Los Baños: Development Goals and Plans for the Seventies", the UPLB Committee on Planning and Development pointed to the need to develop stronger linkage among UPLB units. Mechanisms to effect greater coordination of efforts in instruction, research and extension were recommended. The administration should consider these recommendations seriously as they could promote better understanding and cooperation

among these units and thus provide greater efficiency in the three functions.

Linkage among the five forestry schools in the country should be established. The plan to form an organization of these forestry schools should be pushed through. A conference on forestry education participated in by the heads of forestry agencies and institutions and the members of the Board of Examiners for Forester should be held next academic year as an initial step toward establishing this linkage and to chart the course of forestry education in the Philippines. The U.P. College of Forestry can and should play a major role in this direction.

The Forest Products Research and Industries Development Commission, formerly the Forest Products Research Institute, used to be an autonomous unit of the University of the Philippines. However, its official ties with the University were severed when it was absorbed by the National Science Development Board in 1969. This development does not serve well the interest of forestry research as it leads to costly duplication of research facilities and equipment. The authorities should consider and intensify efforts to make FORPRIDECOM an affiliate unit of the U.P. College of Forestry in order to maximize cooperation, coordination and integration of the research and extension programs of the two institutions.

The proposed short training program for Vietnamese forestry officials is a step towards regional cooperation in forestry. Similar training can be made available to other developing countries in Asia to accelerate the build-up of manpower in the region. Forests are an important natural resources and their development will help enhance economic growth and national progress of the countries in Asia.

PRESENT PROGRAMS AND FUTURE PLANS OF THE
SOUTHEAST ASIAN REGIONAL CENTER
FOR GRADUATE STUDY AND RESEARCH IN
AGRICULTURE

J. D. DRILON, JR.
Director, Southeast Asian Regional Center for Graduate
Study and Research in Agriculture

SEARCA, located in Los Baños, seeks to provide high quality graduate study and research for participating countries and is one of the six centers of excellence established under the Southeast Asian Ministers of Education Organization. SEARCA's graduate study program is fused with those of the colleges of agriculture and forestry of the University of the Philippines. Besides its graduate study program, the SEARCA today pursues several special projects on training, research, and development in a continuing search, through the joint participation of member-countries, for knowledge applicable to their needs and problems. Its future plans seek to harness key professionals around whom will revolve work on the major areas of water resource management, food technology, data banking, extension, agribusiness and development economics.

As the topic indicates, I shall present, first, the present programs and, second, the future plans of the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA). But, before these, let me discuss some of the organizational relationships and the objectives of SEARCA.

Organization and Objectives

SEARCA is a regional organization, a creation of the Southeast Asian Ministers of Education Organization (SEAMEO)¹ which was established in 1965 " to promote cooperation among the South-

¹The member-countries of SEAMEO are Indonesia, Khmer Republic, Laos, Malaysia, Philippines, Singapore, Thailand and Vietnam.

east Asian nations through education, science and culture in order to further respect for justice, for the rule of law and for the human rights and fundamental freedoms which are the birthrights of the peoples of the world".²

In the pursuit of its central objective, SEAMEO member countries collaborate in the work of advancing the mutual knowledge and understanding of the peoples in Southeast Asia as well as the rest of the world;³ promote joint projects and programs of mutual benefit concerning education, science and culture;⁴ maintain, increase and diffuse knowledge;⁵ and assist in articulating education to the economic and social goals in the individual member states.⁶

In effect, what SEAMEO is trying to do for Southeast Asia is to share scarce resources through the use of selected centers of excellence and provide innovative ideas to key personnel in member countries in order to accelerate the process of modernization and improve the quality of the lives of the peoples in the region.

The centers of excellence are six, namely —

1. BIOTROP, located in Bogor, Indonesia, which attempts to resolve some biological problems affecting member countries;
2. INNOTECH, located in Singapore (eventually, in Saigon) which assists member countries to identify and resolve some basic educational problems;
3. RECSAM, located in Penang, Malaysia, which seeks to improve the teaching of Science and Mathematics at first or second school levels in member countries;
4. RELC, located in Singapore, which works toward the improvement of the teaching of English as a second or foreign language in member countries;
5. TROPMED, located in Bangkok, which attempts to improve the health and the levels of living of peoples of Southeast Asia; and
6. SEARCA, located in Los Baños, Laguna, Philippines, which provides high quality graduate study and research for participating countries.

SEARCA's own objective includes, in addition, the promotion and coordination of agricultural research programs related to

^{2, 3, 4, 5, 6} See The SEAMEO Charter, Singapore, February 7, 1968.

the needs and problems of member countries and the dissemination of useful technology for agricultural development.

Present Programs

The present programs of SEARCA can be grouped into three categories: graduate study and related research; special research and related projects; and short-term training courses, consultative services, staff exchange, seminars and national training and extension programs.

Graduate Study

As of the beginning of the academic year 1971-72, SEARCA had 64 scholars.

In the academic year 1970-71 and the first half of academic year 1971-72, seven SEARCA scholars graduated, one with the Ph.D. degree and six with the M.S. degree. Table 1 shows the distribution of SEARCA scholars by country while Table 2 shows the distribution by degree.

TABLE 1. Distribution of SEARCA Scholars by Country

Country	1969-70	1970-71	1971-72
Indonesia	5	—	—
Khmer Republic	—	—	1
Malaysia	—	3	6
Philippines	5	11	20
Thailand	12	17	23
Vietnam	4	11	17

TABLE 2. Distribution of SEARCA Scholars by Degree Pursued

Year	M.S.	Ph.D.
1969-70	15	11
1970-71	31	11
1971-72	51	16

The distribution of scholars by country has been a result of an adjustable quota system under which the participating countries are given initial quotas which are then adjusted on the basis of needs as well as availability of candidates.

The scholars have completed or are in the process of completing 42 thesis-researches, 13 of which are for the Ph.D. degree while 29 are for the M.S. degree. These are spread over 19 areas of interest as shown in Table 3.

TABLE 3. SEARCA Thesis Work

	M.S.	Ph.D.
Plant Breeding	3	1
Agricultural Engineering	1	—
Agricultural Extension	1	3
Entomology	3	—
Agricultural Education	3	5
Wood Science and Technology	1	—
Animal Science	3	—
Crop Production	1	—
Plant Mycology	1	—
Agronomy	5	—
Food Chemistry	1	—
Agricultural Economics	2	—
Experimental Statistics	1	—
Orchid Embryology	—	1
Insect Physiology	1	—
Soil Science	2	—
Vocational Agriculture	—	1
Community Development	—	1
Botany	—	1
T O T A L	29	13

The graduate study program of SEARCA is fused with those of the College of Agriculture and the College of Forestry of the University of the Philippines. The physical facilities are modern and auspicious, and the faculty is highly trained. Composing the groups of regular and affiliated faculty members were 155 M.S. and 165 Ph. D. holders as of April, 1971.

Special Projects

SEARCA has a number of special projects in which member countries are increasingly participating. These are: the Social Laboratory; the study on high level manpower requirements in agriculture; the study on accreditation and degree equivalences (or, on institutional resources and study programs in agriculture and related sciences); the protein gap study; the documentation

center; the gene bank of economic plants of Asia and the Far East; the downy mildew study on corn; studies on efficiencies in the use of high yielding rice varieties and modern production technology; and publications.

Social Laboratory

The social laboratory is a concept that is evolving a strategy for agricultural development. One such laboratory is now operating in Pila, Laguna, Philippines. A second one is in the process of being established in Nakhon Pathom, Thailand, in cooperation with Thailand's Department of Agricultural Extension, Ministry of Agriculture. It is hoped that, soon, others will be organized in the rest of the member countries.

The social laboratory is a rural community where patterns of action for development are applied and tested. It seeks to solve such problems as the organization of farmers and developing leadership, programs and systems for farmer groups toward their individual and collective viability; promoting rapport between the farmers and government agencies that are expected to assist them; encouraging the government and private sectors to provide the infrastructures and supportive inputs; and building the social framework in which economic development must occur. It is gratifying to note that additional support for this project has been provided by the Australian Freedom From Hunger Campaign Committee and the Philippine Business for Social Progress.

High-level Manpower

One of the problems relevant to agricultural development in Southeast Asia on the long term is the determination of high-level manpower requirements in agriculture in order to assist educational institutions in staff development programs and in their manpower production plans. A study of this problem in the Philippines and Thailand has been completed and it is expected that a similar study will be initiated this year (1972) to cover other member countries.

Essentially, the study identifies the manpower requirements and compares these with the current and expected output capability of the educational institutions in the country. It is hoped that the results will serve as a useful guide for member countries

in designing their long range manpower production and placement schemes for achieving development goals.

Accreditation and Degree Equivalences

The study on accreditation and degree equivalences in Southeast Asia is important as the findings would facilitate regional collaboration in graduate study programs and help provide the basis for meaningful, common standards that national institutions can aspire and work for. Preliminary findings of the study which so far has covered the Philippines and Thailand indicate wide variations in the characteristics of institutions in these countries suggesting that accreditation should be on an institution basis rather than on a country basis.

The study looks into institutions and their admission requirements, curriculum content and structure, degree requirements staff resources and staffing patterns, physical facilities and utilization, budgetary resources allocation, and operational activities.

Protein Gap

SEARCA is attempting to help bridge the protein gap by promoting uniform test trials for high protein crops such as selected varieties of soybeans, mungo beans, peanut, cowpeas, sweet potato and high lysine corn and, thereby, encouraging the propagation and utilization of these crops.

Five countries — Indonesia, Malaysia, Thailand, the Philippines and Vietnam — are currently participating in this project. In this project, each participating country sends seeds of its two best varieties of each crop to SEARCA in Los Baños for multiplication and subsequent distribution to the participants for testing under experimental designs and planting plans prepared by SEARCA. Except in the case of corn, subsequent trials will be conducted by a participant with the use of seed material produced in the initial trial.

Documentation Center

There is a need for sorting out, classifying, storing and facilitating dissemination of significant information generated by extensive investigations and studies toward social and economic pro-

gress in Southeast Asian agriculture. To help fill this need, SEARCA and the College of Agriculture of the University of the Philippines are working toward the establishment of a documentation center for agriculture, fisheries, forestry and food.

Gene Bank

On the Los Baños campus of the University of the Philippines, a gene bank of plants of economic importance in Asia and the Far East is emerging with SEARCA support. This bank could play a tremendous role in facilitating the varietal improvement and spread of plants that can raise the economic levels of living in this part of the world.

Corn Downy Mildew

Downy mildew remains to be one of the worst enemies of corn and because corn is an important crop in member countries, SEARCA is supporting a research project aimed at a better understanding of the disease in the Asian environment and, therefore, at better methods of controlling it.

Efficiencies in Rice Technology

Rice is no doubt the most important crop of Asia and great strides in technology have recently affected this crop in many ways, generating opportunities as well as problems for farmers. To help guide extension programs on rice, SEARCA has initiated a modest study on efficiencies in the use of high yielding rice varieties and modern production technology.

Publications

As part of SEARCA's publications program, the preparation of two books was started in 1970-71 and these are (1) Post-harvest Physiology of Tropical Fruits and Vegetables, and (2) A Strategy for Agricultural Development in Southeast Asian Countries. Three publications on horticulture, high-level manpower and institutional staff resources will soon be off the press.

Short-term Training, etc.

In response to requests, short-term training programs have been conducted for participants from Thailand and Malaysia and others are in the process of being developed for Malaysia, South

Vietnam and the Khmer Republic. Those conducted for Malaysia and Thailand so far have consisted of short courses in rural development and rural credit. An agribusiness management course is being organized and will be conducted in Kuala Lumpur early in 1972-73.

The community development and forestry management courses in the process of being designed for South Vietnam will involve the training of Vietnamese trainers on the Los Baños campus of the University of the Philippines. Subsequent training programs will be held in South Vietnam led by these trainers.

Project and process oriented training programs in poultry and swine are scheduled to start on June 26, 1972 and will involve the training of eight trainers for three months in the College of Agriculture of the University of the Philippines. These trainers are expected to set up training programs for government and private technicians in poultry and swine in Phnom Penh, Khmer Republic.

These programs are part of a scheme aimed to stimulate the development of the meat products industries in Phnom Penh and vicinity in order that they could cope with the Phnom Penh population which has grown tremendously in the last three to four years. The peace and order problem of the country at its northeastern borders has apparently driven more people toward the capital, almost trebling the population from 600,000 in 1968 to about 1.5 million in early 1972.

SEARCA encourages seminars that would strengthen linkages between educational and research institutions or enhance the current projects it pursues. Examples are the Asian Seminar which is aimed at promoting organization and collaboration among the Asian colleges and universities of agriculture and to which SEARCA has made a contribution, and the Seminar Workshop SEARCA has organized to hasten the implementation of its protein gap study program.

Future Plans

Most of the current activities of SEARCA are continuing ones and some of them are likely to gain intensity in the immediate future as more member countries increase their participation.

However, it is anticipated that certain programs will be repackaged, partly to allow and develop additional programs and partly to enable SEARCA to widen its financial support base. The repackaging process, as now perceived, will proceed on the concept that programs can revolve around key professionals working on major problem areas.

Therefore, SEARCA is now seeking assistance from various possible donors to make available to SEARCA outstanding professionals in the areas of water resource management, food technology, data banking, extension, agribusiness, and development economics.

It is anticipated that regional programs in each of these problem areas will develop, with SEARCA providing part of the leadership, coordinating services, or the stimulation needed for the maximum improvement and utilization of educational, research and extension capabilities in this region.

Water resource management is a significant problem area since land capability for crops depends to a large extent upon the availability and use of water. Further, water utilization projects usually require large investment allocations and the management of water use provided by these projects significantly determines the returns on the investment in terms of productivity and income.

Food technology is important and knowledge must be advanced in this regard in order to develop new product forms and product uses and thereby expand the local and foreign demand for agricultural commodities.

So much agricultural research work has already been completed. There is a need to explore and exploit the possibility of collating, organizing, and extensively disseminating significant knowledge available to facilitate the work of researchers and the translation of useful knowledge, old and new, into action programs.

New concepts of extension must be evolved so that more effective tools of development will become available and tried. Knowledge turned out by research must be applied to the point where their value could be measured in terms of their influence or effect upon the quality and level of living of the people particularly in poor communities.

Agribusiness as a new field interest has emerged as a useful development tool. Most agricultural research work in the past

has focused on production technology without too much regard for processing, marketing, financing and the business environment. There is a need to generate attention over a wider front so that agricultural commodity industries can be developed on more balanced approaches and agricultural economies will be more susceptible to a faster and more orderly pace of development. For a start, a better understanding of the structure and the success-and-failure factors related to the viability of agricultural commodity industries on a national and regional basis seems to be extremely important.

Development is now known to be a complex process, requiring competent manpower both at the policy-making level and program implementation level. There is a dearth of trained individuals in Southeast Asia in the integrative field of development economics. Something must be done to fill the gap.

These are some of SEARCA's plans for the immediate future. They will involve tremendous activity and will need equally tremendous resources. SEARCA, alone and by itself, cannot hope to perform all the required tasks. It will have to depend on linkages with other institutions in the various Southeast Asian countries as well as on the world's community of organizations supporting educational and research efforts for the well-being of mankind.

I would like to state that SEARCA and its activities, as we have already defined to you rather rapidly and briefly, is a multi-national, multi-institutional organization. It therefore would make or break on its ability to develop the linkages and fire power available. Only when the resources of the many universities and other governmental institutions concerned with agricultural development in this part of the world are pooled and combined with sincerity and hard work are we going to succeed. We shall measure that success in terms of what each of the member countries can and will contribute to the total effort, remembering that their contribution will be important to their respective countries and to the region as well. In this light, we hope that together we can make a real contribution to the well-being of mankind in this part of the world.

INTRODUCING THE UPCA/SEARCA SOCIAL LABORATORY

CHI-WEN CHANG

Visiting Professor of Agricultural Education,
University of the Philippines College of Agriculture

This briefing was given before the seminar participants' field trip to the Social Laboratory in Pila, Laguna. A social laboratory is conducted for training and demonstration. It seeks to mobilize rural people to fully develop the land and water resources and to transform traditional farming into modernized commercial agriculture. The institutional approach is used, that is, a partnership is built up between the government and the rural people through the latter's own organizations. Local leaders are trained as in the three farmers' associations organized in the Social Laboratory area.

A social laboratory can be defined as a pilot project on agricultural and rural development conducted by a training institution, such as UPCA, with emphasis on the development of the people. By this definition a social laboratory can be small or big and its program of work can be simple or comprehensive, depending on the resources of the sponsoring institution. Any training institution can afford to have one. The Social Laboratory in Pila is a comprehensive one because its sponsors, the UPCA and SEARCA, have tremendous resources.

Purposes. The Social Laboratory is conducted for training and demonstration purposes. To teach physics, we need a laboratory. To teach crop improvement, we need an experiment station. When we teach such courses as extension or community development, do we need a social laboratory? Yes, definitely. Without a social laboratory, our teaching will be more or less bookish or academic and will have no great practical value.

Objectives. Our Social Laboratory has both long-range and short-term objectives. The long-range objectives are to mobi-

lize the human resources to fully develop the land and water resources and to transform the present traditional farming into modernized commercial agriculture. Since there is no limit to social and economic development in our rural areas, our Social Laboratory should last as long as the U.P. College of Agriculture does.

However, such long-range objectives can be successfully achieved only by stages. Therefore, we have the first five-year program to set definite targets for achievement. Then we have an annual plan of work and also a calendar of work which is worked out every three months in advance. Progress can be speeded up by design, not by drift or trial and error.

Method of approach. Our approach is an institutional or group approach. In other words, we aim at building up a partnership in all agricultural and rural development work between the government, on one hand, and the local people, on the other through their own organizations. Through such organizations government services can be effectively channeled to benefit all member-farmers.

In the Philippines, there are about 4,000,000 small farmers. And their problems are many and varied. The government cannot deal effectively with them individually. If the small farmers are organized into a number of groups, the government will then deal only with a limited number of groups, instead of a million individuals. Thus the government's task will be made much simpler and easier.

Furthermore, when there is a well-organized local group under trained local leaders, any improvement work initiated will continue to grow even after the sponsoring agency withdraws.

There is still another reason for adopting the institutional approach. Unlike in the U.S.A. where a farm may be as big as 150 or 200 hectares, our farms are too small, averaging only one or two hectares. For this reason the farmers, as individuals, are not credit worthy. Their farm produce is insignificant in amount. They sell cheap and buy dear. They are always at the mercy of money lenders and middlemen and, as a result, are in perpetual indebtedness. To enjoy the advantages of large-scale farming, they must be organized into groups.

Then the question arises, How can we organize the small farmers into groups which are viable and functional? We know from experience that many farmers' organizations have failed and failed miserably. This brings us to the next point to be discussed.

Farmers' training and leadership development. In our Social Laboratory we emphasize that the farmers must be trained, organized, and assisted to the extent that they can do things themselves through their own organizations. We demonstrate how the farmers should be trained, how they should be organized, and how they should be assisted, so that they together as a group can enjoy the advantages of large-scale farming. This process of developing leaders is bound to be slow, because it involves the changing of the farmers' attitudes and their understanding and willingness to work together for the common good. However, the correct approach may speed up the process. In the Social Laboratory, three Farmers' Associations, all of recent origin, have their own contributions to our knowledge on agriculture and rural development..

The Pinagbayanan Farmers' Association. This association is located in a rainfed area. The farmers used to grow only one crop of rice a year during the wet season. Now with two water-pumps installed, the farmers have grown three crops in 15 months or five crops in two years. Not only has production been made more secure; the crops are now grown the year round as well.

The Linga Livestock and Poultry Raisers' Association. This association was organized two years ago (in 1970) to enable the small farmers to raise hogs and chicken as additional sources of income under our cooperative management.

The Ponsal Farmers' Association. In this area, a farmer in the last wet season produced certified rice seed. He sold 300 cavan of the seed to the Bureau of Plant Industry at P48 per cavan compared with the P30 per cavan for rice of ordinary quality. This farmer is said to be the first farmer in the country to produce certified rice seed. Encouraged by his success, the farmers' association has decided to urge its member-farmers to produce seed of high quality.

The first two associations are now well-established under able local leaders and serve as models for the other barrios in

the Social Laboratory to follow. Within two years, all barrios in Pila have organized one association each. In the next one or two years, they will be federated into a municipal farmers' association, which should be big enough to provide multiple services to all the member-farmers in the municipality with the barrio associations serving as its branch stations.

A total rural training program. How are the human resources going to be mobilized? The answer is training. We are now making plans to launch a total rural training program which will include five training projects, namely training project for adult farmers, training project for rural women, training project for older rural youth, training project for school teachers, and mass education project.

Each of these training projects will be under the charge of a professor. One of the five professors involved will serve as a project coordinator so that all the training projects can be integrated and all the teaching staff can work as a team.

For all these training projects the Australian Freedom From Hunger Campaign has agreed to give us A\$17,000 a year for three years. At the end of the third year, I hope we can confidently say that the human resources in the Social Laboratory have been mobilized to do the task the Social Laboratory has set out to do.

As a training ground. This summer, the government of South Vietnam will send a team of rural workers to our Social Laboratory for four-month training. Kasetsart University in Thailand likewise will soon send two of its field technicians to our Social Laboratory for a two-week training. No doubt more requests of this nature will be coming to us in the future. We are only too glad to meet these requests.

Preparation of a teaching manual. A textbook entitled *A Strategy for Agricultural and Rural Development in Asian Countries* is now under preparation. This is intended to be used to teach the Social Laboratory idea. The manuscript will be ready for publication by SEARCA in early 1973.

POPULATION INCREASE AND ECONOMIC GROWTH
AND HOW THE UNIVERSITY ADDRESSES
ITSELF TO THIS PROBLEM

N. K. ANANT RAO
Dean, College of Agriculture, G. B. Pant
University of Agriculture and Technology
India

The author describes the characteristics of population and economic growth and draws the relation between agriculture and economic growth in the context of population increase. He follows with an analysis of the Indian situation and cites some measures to lessen population pressure, underemployment and poverty in the rural areas there. He concludes with the role of the agricultural universities in enhancing the overall development of the rural areas. The institutional activities recommended include adapting research findings to local conditions, diffusion of technological innovations among farmers, improvement of farm techniques such as increasing crop yields under water-deficient conditions. Along this line, there is need for better food processing, improved marketing systems and the training of agricultural graduates for self-employment. In tackling these responsibilities, interdisciplinary effort is imperative.

Introduction

I wish to express my pleasure in having been asked to prepare this paper to provide the base for discussion on this complex problem facing the developing countries.

We have at this seminar leaders from a number of Asian countries who are involved in the building up of educational institutions to serve through agriculture, the growth and prosperity of their countries. In the levels of economic development, most of these countries lie in the lower half of the world distribution and they also represent the regions of the world where population

growth is concentrated. Agriculture is the major occupation of one-half to three-fourths of the total labor force but accounts for less than a proportionate share of the national income. But agriculture has to play a critical developmental role.

First, I wish to focus your attention on the characteristics of population and economic growth, the interrelationship between the two and the role of agriculture in economic growth in the context of population increase. I shall then examine the situation in these aspects as it is moving in India on the basis of some of the recent studies made in that country. I shall then state the part that can and ought to be played by the agricultural universities.

Characteristics of Population Growth

Most people are accustomed to thinking of increase as a linear process. A quantity is growing linearly when it increases by a constant amount in a constant time period. The amount of increase in each unit of time is obviously not affected by the size or the amount of the entity. A quantity exhibits *exponential* growth when it increases by a constant percentage of the whole in a constant time period. Demographers have shown that population increase follows exponential growth. Such a phenomenon has two characteristics: (1) the generation of immense numbers very quickly, and (2) the apparent suddenness with which it approaches a fixed limit. In exponential growth phenomena, there is a simple mathematical relationship between the rate of growth and the time it will take a quantity to double in size. The doubling time is approximately equal to 70 divided by the growth rate. For example, if the rate of growth is one per cent per year, the doubling time is 70 years; if it is four per cent per year, the doubling time is only 18 years. World population since 1650 has been growing exponentially at an increasing rate. It increased from one billion to two billions over a period of more than 100 years. The third billion was added in 30 years and the world's population has had less than 20 years to prepare for its fourth billions which may arrive before the year 2000. Since 1960, the rate of growth has averaged 2.1 per cent per year. In 1970, the population totalled 3.6 billion. The doubling time at this rate is only 33 years. Thus not only has the population been

growing exponentially, but the rate of growth has also been growing. In fact, the population growth has been "super exponential" — the population curve is rising even faster than it would if growth were strictly exponential (See Figure 1).

Population changes are governed broadly by two interlocking feed back loops. The positive feed back loop involving births per year accounts for the observed exponential growth. The negative feed back loop involving deaths per year tends to regulate growth and to hold it in some stable shape. Since every population experiences both births and deaths as well as varying fertility and mortality the dynamic behavior of populations governed by these two interlocking feed back loops can become fairly complicated.

With the widespread application of modern medical technology and new methods of growing and distributing foods, death rates have fallen around the world and life expectancy is continuously rising. On a world average, the gain around the positive feed back loop (fertility) has decreased only slightly while the gain around the negative feed back loop (mortality) is decreasing. The result is an increasing dominance of the positive feed back loop and the sharp exponential rise in population leading to the quick pace at which doubling of population is taking place.

If we continue to succeed in lowering mortality (which is what mankind will strive at) with no better success in lowering fertility than we have accomplished in the past, in 60 years there will be four people in the world for every one living person today. In view of the inevitable delays in the impact of controlling the positive feed back loop of births (the prospective parents of the year 2,000 have already been born) there is no possibility of bringing about a measurable effect in depressing the population growth curve till the end of this century.

Characteristics of Economic Growth

The two terms economic growth and economic development are often used interchangeably. One way to distinguish between the two is to use economic development to refer to the process whereby an economy passes from a less advanced stage to a

more advanced one and to use economic growth to refer to a rising level of national output within a given stage. The general objective of economic development is to raise the average level of living of the human population. Level of living is a per capita concept than one of the aggregate economy. Hence, increasing the level of living requires that total production of goods and services in a society expand more rapidly than the population.

The rate of growth of national income depends on the quantum of net investment undertaken in the economy and the capital output ratio, a ratio which indicates how much additional capital is needed in order to increase the national income by a fixed quantity.

Industrial output may be taken as a measure of economic growth. World industrial production, relative to the base year 1963, also shows a clear exponential increase in small fluctuations. The 1963-68 average growth rate of total production is seven per cent per year. The per capita growth rate is five per cent per year (See Figure 2).

Since industrial output is growing at seven per cent per year and population only at two per cent per year, it might appear that this is a favorable situation. However, a comparison of the economic and population growth rates of the nations of the world reveals that the world growing industrial output is taking place in countries where the rate of population growth is comparatively low. The most populous nations of the world show low rates of economic growth and high rates of population growth. The situation is aptly described as "the rich get richer and the poor get children."

Relation Between Agriculture and Economic Growth in the Context of Population Increase

Growing populations must be fed. Added population must be productively employed.

The growth in demand for food provides the favorable economic environment for agriculture to make a contribution to overall economic development.

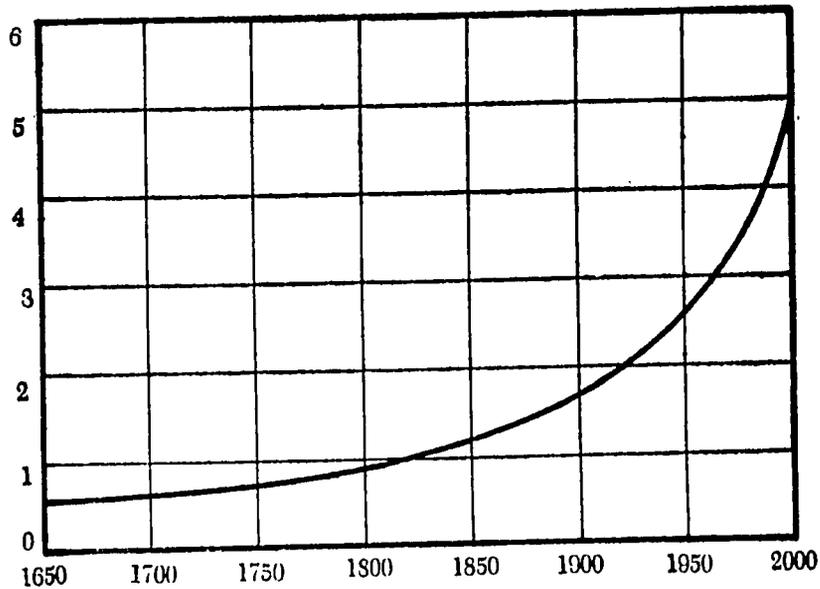


FIGURE 1. World Population Growth Curve

World population since 1650 has been growing exponentially at an increasing rate. Estimated population in 1970 is already slightly higher than the projection illustrated here (which was made in 1958). The present world population growth rate is about 2.1 per cent per year, corresponding to a doubling time of 33 years.

SOURCE: Donald J. Boguc, *Principles of Demography* (New York: John Wiley and Sons, 1969).

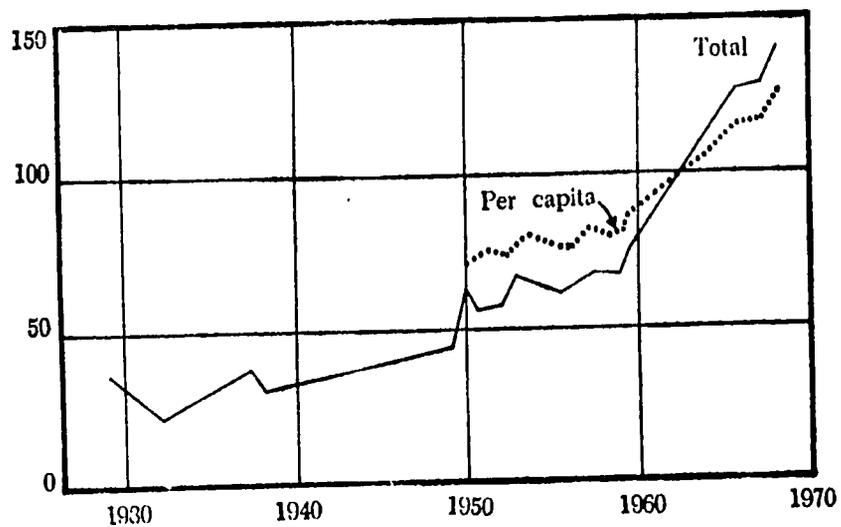


FIGURE 2. World Industrial Production

World industrial production, relative to the base year 1963, also shows a clear exponential increase despite small fluctuations. The 1963-68 average growth rate of total production is 7 per cent per year. The per capita growth rate is 5 per cent per year.

SOURCES: UN Department of Economic and Social Affairs, *Statistical Yearbook 1956* and *Statistical Yearbook 1969* (New York: United Nations, 1957 and 1970).

Increase in the demand for food arises from two principal sources: population growth and increase in per capita incomes. The two appear to reinforce each other in raising the demand for food. However, the relationship is not so simple, because a high rate of population growth in itself tends to ensure a relatively slow rate of growth in per capita incomes. Thus, in the rapid population growth situation (as in low-income developing countries), the growth in demand for food comes primarily from growth in population and only to a small extent from growth in per capita income.

Growth in the demand for food from population growth with constant per capita incomes generally requires the same percentage growth in the demand for each kind of food, i.e. total output of agricultural commodities must grow with a roughly proportionate increase for each type of commodity. In contrast, growth in the demand for food which arises from growth in per capita incomes influences the demand for some commodities to grow much more rapidly than others — the demand for livestock products such as milk and for fruits and vegetables grows much more rapidly than the demand for basic feed grains. Meeting the growth in demand for food which involves structural changes (i.e. different kinds of food) is much more difficult than meeting the symmetrical demand for more food as specialized farming activities will be called for.

Increase in population eventually results in more persons looking for jobs. It is imperative that this demand for jobs be met. It is difficult to maintain growth in per capita income if advances in the labor forces are not put to productive use. Agriculture itself has a limited capacity to absorb enlarged labor forces especially in the developing countries where 70 per cent of the population is already in the rural areas and a high percentage of that is already engaged in farming activity. Thus, population growth inevitably, in these situations, forces a need for growth in non-farm jobs, the creation of which requires vast investments. Thus, we find that rapid population growth places tremendous burdens on the ability of the economy to save and to invest. The burdens placed on the agricultural sector have to be met through major technological changes in agriculture.

Role of Agriculture in Economic Development in the Context of Population Growth in India

Dantwala in his presidential address to the Indian Economic Association has analyzed the role agriculture has played in economic development from 1950-70. A Committee of the Planning Commission, Government of India has reported on the distribution of income and levels of living (1964). Dandekar and Rath have studied the dimensions and trends of poverty in India during the decade 1960-70. Studies have also been made by the Agricultural University. Pantnagar dealt in selected areas on the socio-economic impact of the new agricultural technology. The material presented in the following pages has been drawn from these publications.

Population Growth

The estimates of the total population of India for the period 1951-81 are given in Table 1a. During 1951-1961, the population increased at an annual growth rate of 2.146 per cent. During the next decade (1961-71), the annual growth rate was 2.466 (Table 1b). At this growth rate, the country's total population is estimated to be 676.37 millions by 1981.

India's net national product and per capita income are shown in Table 2. The annual growth rate of national income for the two decades from 1950-51 to 1960-61 and 1960-61 to 1970-71 has been 3.7 and 4.1, respectively, at constant prices.

Food Production

The foodgrain production is shown in Table 3. Technological advances since 1966 have pushed foodgrain yields spectacularly. The projected production of 106 million tons for 1970-71 was exceeded by 1.8 million tons. In the current year (1971-72) total foodgrain production is estimated at 116 million tons. That the food production due to the impact of new agricultural technology has been able to meet the requirements of the current population is clearly evident.

Trends in the Distribution of Gains of Economic Growth by the Population

The national income per capita is a useful summary measure to judge the well-being of a people. A more direct measure of

TABLE 1a. India's Total Population (1951-81)
(in millions)

Year	POPULATION		
	Total	Rural	Urban
1951	365.35	302.32	63.03
1952	372.39	307.87	64.52
1953	379.57	313.53	66.04
1954	386.99	319.40	67.59
1955	394.37	325.17	69.20
1956	402.07	331.34	70.83
1957	409.83	337.34	72.49
1958	417.74	343.54	74.20
1959	425.89	349.92	75.97
1960	434.11	356.38	77.75
1961	442.85	363.08	79.50
1962	452.17	370.06	82.11
1963	461.85	377.15	84.70
1964	471.74	384.34	87.40
1965	481.84	391.66	90.18
1966	492.27	399.22	93.05
1967	502.81	406.83	95.98
1968	513.58	414.54	99.04
1969	524.68	422.50	102.18
1970	535.92	430.48	105.44
1971	547.37	438.58	108.89
1972	559.11	446.86	112.25
1973	571.08	456.26	115.82
1974	583.31	463.83	119.48
1975	595.93	472.64	123.29
1976	608.70	481.49	127.21
1977	621.73	490.51	131.22
1978	635.19	499.79	135.40
1979	648.78	509.08	139.70
1980	662.68	518.54	144.14
1981	676.37	527.98	148.39

NOTE: Population for the period 1952-60, 1962-70 and 1972-81 was estimated on the basis of the following formula:

$$P = P_1 (1 + r)^n$$

P = Projected population.

P₁ = Population in base year.

r = Rate of growth.

n = no. of year

TABLE 1b. Population Growth Rate of India

Period	Decennial Growth Rate (per cent)	Annual Growth Rate (per cent)
1901-11	— 5.73	0.573
1911-21	— 0.30	— .003
1921-31	—11.00	1.100
1931-41	—14.23	1.423
1941-51	—13.31	1.331
1951-61	—21.64	2.164
1961-71	—24.66	2.466

the level of living of people is per capita private consumer expenditure. Dandekar and Rath have calculated for 1960-61 these figures as Rs. 306.7 and Rs. 276.3 per year, respectively. This sums up the average living that prevailed in India in 1960-61. However, the distribution of the private consumer expenditure between the different sectors of population provides the true picture of poverty in the country. The per capita rural consumption in 1960-61 was Rs. 261.2 per annum; and nearly two-third of the rural population lived below this average. On further examination of the classes within the two-third portion, it has been brought out that sizeable sections of the population are very much poorer. The pattern of consumer expenditure (distribution of total consumer expenditure between major items), shows that the poor must devote a large part of their expenditure (75 per cent to 80 per cent) to food, fuel, and clothing, etc., so that little is left for anything else. Examining the data with respect to nutritional adequacy (2,250 calories per capita per day), it was noted that in 1960-61 about 40 per cent of the rural population and 50 per cent of the urban population lived on diets inadequate even with respect to calories. The sections which constitute this rural poor are (1) those with large number of dependents to be supported per earner (2) landless laborers and, (3) marginal and small farmers (up to five acres).

**TABLE 2. India's Net National Product (National Income)
(at 1960-61 prices)**

Year	Total in Rs. (crores)	Per capita in Rs.	Index Number of	
			Total N.N.P.	Per capita N.N.P.
1948-49	8,996	259.6	67.5	84.6
1949-50	9,173	260.6	68.8	84.9
1950-51	9,204	257.4	69.0	83.9
1951-52	9,464	260.3	70.9	84.9
1952-53	9,838	265.9	73.8	86.7
1953-54	10,431	276.8	78.2	90.3
1954-55	10,691	278.5	80.2	90.8
1955-56	10,899	278.5	81.7	90.8
1956-57	11,440	286.6	85.8	93.4
1957-58	11,326	277.9	84.9	90.6
1958-59	12,116	291.3	90.9	94.9
1959-60	12,334	290.4	92.5	94.7
1960-61	13,294	306.3	100.0	100.0
1961-62	13,763	310.0	103.5	101.2
1962-63	14,045	309.4	105.6	101.0
1963-64	14,845	319.9	111.7	104.4
1964-65	15,917	335.8	119.7	109.6
1965-66	15,021	310.4	113.0	101.3
1966-67	15,243	307.9	114.7	100.5
1967-68	16,660	329.2	125.3	107.5
1968-69	17,057	329.9	128.3	107.7
1969-70	17,955	339.4	135.1	110.8
1970-71	18,942	349.07	142.5	113.96
1971-72	19,930	360.23	149.92	117.61
1972-73	20,917	370.15	157.34	120.84
1973-74	21,905	379.51	164.77	123.90
1974-75	23,263	394.54	174.98	128.81
1975-76	24,621	408.77	185.21	133.45
1976-77	25,979	422.27	195.42	137.86
1977-78	27,337	434.98	205.63	142.01
1978-79	28,695	446.97	215.84	145.93
1979-80	30,053	458.31	226.06	149.63
1980-81	31,411	468.45	236.28	152.94

SOURCE: (1) Economic Survey 1970-71 for the years 1960-61 to 1969-70
(2) Figures estimated at 1960-61 prices from 1948-49 to 1959-60.
(3) Projections for the period 1970-71 to 1973-74, and for 1974-75 to 1980-81 were made at the annual growth rates of 5.5 and 6.2 percent respectively. *Fourth Five Year Plan* (1969-70 to 1973-74) is the basis for taking these growth rates.

**TABLE 3. Foodgrain Production in India
(in million tons)**

Year	Foodgrain Production
1950-51	52.2
1951-52	51.2
1952-53	58.3
1953-54	68.7
1954-55	65.8
1955-56	65.8
1956-57	68.8
1957-58	62.5
1958-59	75.5
1959-60	71.7
1960-61	82.1
1961-62	82.9
1962-63	80.3
1963-64	80.7
1964-65	89.3
1965-66	72.4
1966-67	74.2
1967-68	95.1
1968-69	94.0
1969-70	99.5
1970-71	107.8
1971-72	—

SOURCE: (1) Second, Third and Fourth Five Year Plans.
 (2) Economic Survey, 1970-71.
 (3) Eastern Economist, Annual Number, 1972.

A comparison of the above situation of 1960-61 with what existed in 1968-69 indicates the progress made in the decade which includes the years of the spectacular success of agricultural technology. Following are the conclusions of Dandekar and Rath.

(1) The national income more than doubled but the real increase is only 26.5 per cent, the balance of increase being a reflection of the increase in prices. This gives an annual rate of growth of no more than three per cent. The per capita growth rate works to about half a per cent per annum. This is barely sufficient to keep pace with the growth in population, leaving little margin to make a net improvement in the economic conditions of the people.

(2) The per capita national consumer expenditures rose from Rs. 276.3 to Rs. 287.0, i.e., by 3.9 per cent in eight years or by

about half a per cent per annum. In the rural sector this was by 3.8 per cent and in the urban by 2.4 per cent.

(3) The estimates of the per capita consumption expenditure of different sections of rural population showed the following trends.

The consumption of the 20 per cent poorest increased by less than 2.0 per cent and of the poorest five per cent actually declined by one per cent, of the lower middle line between 20-40 per cent increased between 2.2 and 2.6 per cent, that of middle sections between 40-60 per cent increased by between 3.7 and 4.1 per cent, and of the upper middle and richer sections constituting the upper 40 per cent of the population by 4.4 per cent. Thus, the process of economic development during the period 1960-61 to 1968-69 has benefitted the upper middle and richer sections much more than the middle, the lower middle, and the poor sections.

During the period 1960-61 to 1968-69, capita formation constituted between 10 to 12 per cent of the domestic expenditure and has not shown signs of progressive increase. The capital-output ratio for the period works out to 3.6.

The analysis of the Indian situation brings out the fact that not only a higher rate of economic growth but also a deliberate policy to ensure an equitable distribution of gains of development between the different sectors of population is needed. Recent studies by the Agricultural University at Pantnagar, on the changing patterns of agriculture under the influence of new technology in certain selected areas, have brought to light that small farmers can benefit from new technology provided institutional arrangements for ensuring them the inputs for production and marketing of products are made available. Dantwala states, "Even in a stagnant agriculture one finds a tiny privileged sector which can extract affluence from general poverty. This is economically and ethically indefensible and must be eliminated through agrarian reforms. At the other extreme, there is a highly vulnerable class of socially and economically disadvantaged persons which need protection, relief and rehabilitation. In a stagnant agriculture, agrarian reform alone cannot solve either the problem of poverty or overpopulation (unemployment). However, once some innovation such as a "miracle seed" shatters the technological

barriers to rewarding human endeavor, economic and institutional policies acquire a grave responsibility of ensuring that the gains of technology are not monopolised by the privileged and the powerful.”

How the University Addresses Itself to this Problem

The doctrine of the agricultural university emphasizes the integration of teaching, research and extension to meet the needs of the farming community. These needs cannot be met only by the application of the physical and biological sciences to increase farm production. They encompass the overall development of the rural areas. The universities have to play an effective role in this as there can be no true economic and social development in the developing Asian countries unless the problems of rural areas are solved. It is the agricultural universities that have to find solutions to these problems. If they do not measure up to these challenges on the socio-economic front, the war on rural backwardness and poverty will be lost even though a few battles may be won in agricultural production *per se*.

Measures to Lessen the Population Pressure, Underemployment and Poverty in Rural Areas in India

As is clear from statistics, smooth, steady and fast growth of the economy, in terms of per capita consumption, depends on that of the national product and of population. In an economy where unemployment and under employment are so overwhelming, a decrease in the population rate of growth, even a sizeable one, would not adversely affect the rate of growth of net national income (unless such a time comes when labor becomes fully employed and scarce — it will take several decades for the economy to reach this stage).

Rather, this not only contributes to partially solve the poverty problems in rural areas in the long run but also raise the standard of living of the total population if proper distributional measures of income are effectively executed.

Thus, the first and major target in solving the poverty problem in the course of development is “population control”. It looks as though the governments’ efforts in this direction are already making themselves felt (See Table 1a). However, conti-

nuous efforts have to be exerted to ensure a much lower population growth rate in India.

The second measure is to structurally solve unemployment and underemployment of landless laborers, sub-marginal and non-viable small farmers. Public works programs should be developed to pursue the objective more efficiently and on a permanent basis. These unemployed would be drawn out of agriculture to non-agriculture industries.

The third measure may be rather controversial. Land ceiling regulations should be more strictly implemented and at the same time faster and unchecked process of large-scale mechanization should wait for some time. This does not imply that highly mechanized farms should be banned altogether in India. Large specialized farms for seed multiplication and cross-breeding of animals under the government or the institutions will be needed. The agricultural universities should experiment with the various aspects of large-scale mechanization processes and assess their full effects on their own experiment farms. Thus, the data and experiences accumulated may be used profitably by farmers later when such time comes. Farm mechanization is the only way to relieve agriculture from its labor shortage.

The fourth measure is to increase the productivity, especially labor productivity of the agricultural sector without creating further unemployment. The major efforts will be in the development of high-yielding varieties in food crops, cash crops and horticultural crops with intensive crop rotations aiming at maximum per acre per day yield. Also improvement of animal production and the accompanying technologies are to be pursued. Diversification of agriculture with labor-intensive technology should be developed and diffused at as high a speed as possible. To this would be included the technology for small-sized farmers. All this is aimed at improving farm income, and this has to be accompanied by appropriate price policies.

The fifth measure is to improve and modernize the present rather outdated marketing system to improve farm income and decrease the governmental financial burdens of paying unnecessarily high support prices.

The sixth measure is to initiate integrated area development projects on agro-climatic basis involving not only agricultural pro-

duction most suited to the area but also investment in transportation, electrification, education, health services, etc. all of which again may improve the lot and well-being of the lower income people and may lead to attitudes conducive to reduction of birth rates.

The seventh measure is to investigate and develop if feasible farm income stabilization measures such as crop or income insurance schemes to check the adverse turn of the rural employment situations, and drastic fluctuations in national income.

Now we will deal with the role of the agricultural university in facilitating the implementation of the measures presented above.

Role of Agricultural Universities

The role of the agricultural university is becoming more challenging everyday at this crucial stage of development of the Indian economy than ever before. Technological change in agriculture will have to be the product of indigenous research on local conditions. We have come to realize that the introduction of a well-developed, modern technology from developed countries alone would not bring about high and steady economic development.

Further, developing the requisite technology does not by itself solve any rural poverty problem unless a proper communication channel is open to millions of farmers to speed up the diffusion of the advanced development. Here is clearly seen the utmost importance of coordinated interdisciplinary research involving the physical, biological and social sciences. Also of utmost importance is the development of effective ways of diffusing processes of technological change. As technological change advances, much of it will be comprised of small innovations giving modest rates of returns. It is important that farmers understand precisely how they are to be implemented if they are to receive sufficient returns to justify the effort. Practices such as fertilizers placement and water management are examples. This will need a sophisticated kind of technical education to the farmer emphasizing the cooperation among university specialists and local extension workers.

At the technological front, the role of the agricultural university is rather obvious. We will continue our efforts to develop more economical, stable high-yielding stocks of food and cash

crops, horticultural crops and animals and the package of practices adopted to local conditions. Attention will be focused sharply on development of techniques for increasing crop yields under conditions of deficient water supply as large farming areas will continue to depend upon uncertain rainfall conditions. Also important in this context is the determination of types and optimum size of operations of various machinery such as cultivators, harvesters, threshers, etc. Another important activity at this stage is to investigate and develop the most suitable farm machinery that would suit small-sized farms (up to 10 acres). This is specially important in developing stronger linkage between agriculture and light industries in the long run. Once small machinery proves to be economical, then the widespread purchase would boost light industries near farming areas. This would indirectly help further development of heavy industries. Spread of light industries near farming areas helps in creating skilled workers who could be absorbed into other heavy industries as the economy develops. These activities would help attain the third and fourth measures.

We should initiate and move faster on the technology processing of raw food produced on the farms to develop nutritionally-rich products to meet the requirements of a balanced diet. This would involve attention to breeding crop varieties with high nutritional quality to meet the food processing requirements. Efforts will include not only conventional food products but newer products to meet the diverse needs of the population. A specific example is the utilization of soya bean. Utilization of agricultural wastes for compounding animal feeds will be a complementary activity. Institution of Food Technology Departments in the Agricultural Universities to lead in this direction is called for.

The university must provide intelligent rural youths with opportunities to attain higher education necessary for servicing agriculture through research and the various servicing institutions. People from urban areas who have better access to higher education are unlikely to do these jobs well. The needs of educating the farmers will be so great that no governmental agency can hope to support it entirely by itself. The university has to take up the responsibility of training agricultural graduates for self-employ-

ment as farmers-cum-extension workers cum-dealers in agricultural inputs. The government and the state agro-industries should join hands to assist the graduates in settling down in the villages for such works. An agricultural graduate with five to 10 acres of land should be able to earn an income much higher than what the government employment provides. He can further increase his income by distributing certified seeds, agro-chemicals and small implements and thereby serve the minimum requirements of farmers covering about 500 acres. He can earn some money through consultancy service to the farmers and charge a fee from the banks for evaluation to loan applications. Another source of income can be custom service by utilizing mechanized equipment which is uneconomic for small individual farmers. The Agricultural University, Pantnagar has launched a pilot project for this.

In its economic policy and marketing front, the role of the agricultural university is steadily increasing. We are on the verge of investigating the marketing system of farm products. The objective is to identify ways and directions in which such systems may be improved. Transforming traditional marketing systems to more efficient ones, would have two benefits: (1) prices of farm products were standardized, and will increase, (2) governmental financial burden of supporting high procurement prices may be reduced, as pointed out under the fifth measure. This is an inevitable aspect of development of an economy as well as of responsible agricultural universities. In economic policy areas, the universities are partially responsible for investigating and determining (1) upper and lower ceilings for the land holdings for each region, and (2) sub-marginal or non-viable land owners to help accomplish the measures second to fourth indicated above*. This emphasizes the need for the organization and development of strong departments of social science in the agricultural university to work closely with the physical and biological sciences. Without strong support from the social science discipline, the university will not have the ability to pinpoint the key obstacles to rural

*The last measure will be eventually put into effect as the integral research effort begins to catch up with this aspect of rural income instability.

development, to suggest alternative action programs and to assess and evaluate the on-going action programs.

The consequences of the inter-disciplinary integral efforts by the university such as those mentioned above will eventually prove to be effective in attaining most of the measures mentioned before, except the first measure. The first measure is to be a national effort and most effectively carried out with the close co-operation of various governmental and non-governmental agencies including the agricultural extension agents in the rural areas.

The role of the agricultural university is important, instrumental, and unique. The uniqueness is a reflection of the developing country's distinct economic structure and road to development. Here we cannot imitate other countries' experiences. This is a challenging situation and the universities should be ready to take this challenge squarely on their various fronts.

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THE ROLE OF THE AGRICULTURAL UNIVERSITY IN COPING WITH THE POPULATION EXPLOSION

F. W. PARKER

Consultant, Agricultural and Fisheries Division, Technical
Assistance Bureau, United States Agency for Interna-
tional Development

In extemporaneous remarks on the population issue in relation to economic growth and the role of the university, Dr. Parker cited specific things the agricultural universities can do. One is to involve themselves in the study of the influence of population on the village level. Such studies could yield results for the village in the same manner that notional studies have influenced notional leadership and programs. Such studies could also provide some of the information needed for instructional purposes on population and its influence on agricultural and rural development.

It is my understanding that the committee or the group that put the program together wants something that is quite new, one which we haven't yet talked about. At the same time, they want me to dwell on the problem of population in relation to economic growth and the role that the agricultural university can play in the study of the problem in view of its relation with other agencies. The topic they have selected is highly appropriate and very important. As far as we know there is not a single agricultural university active in this field although we may be wrong as our knowledge is incomplete. If a university becomes active in this field, what should it do and with whom should it work?

First, should an agricultural university engage in some kind of population studies and work? This is a question that all the university representatives ought to be thinking about and I hope our discussion this afternoon will give you some ideas as to whether or not it is desirable.

If your answer is yes, then what line of effort should the university undertake?

If you read the literature on population and economic development, you'll find that it speaks only on the international level. The studies are usually designed to provide information that will be useful to ministries, parliaments, legislative bodies, planning commissions, etc. National studies treat nations as units and by large are undertaken and used to influence national policy. I think you will look long and hard to find good information on the effect of population on villages. It would seem to me that one of the first things that an agricultural university might undertake would be to make sure that it involves itself in the study of the influence of population on the village and farm development. Such study might look backward if you have the data of the village 10 or 15 years ago, on size of population, size of farms, cost of educational, health services, etc. Then if the population in that village grew in the past 15 years at the rate of 2.5 to 3% what might have been the situation if you had a growth rate of only 1%? Such research would have to look ahead to some projection as to what the village might be 10 years hence if the growth rate of population is 1%, 2% or 3%. I believe this kind of research would develop information that will be highly useful to those who are concerned with agricultural development as well as the family planning organization in the nation. It seems that one of the useful things the university can do is to have a study of what current programs have done on the village level. Such a study could influence the leaders and members of the village in much the same manner that national studies have influenced national leadership. National plans seem to assume that the problem is the same all over the nation. If you have some local village study in some representative areas of the country, you might consider giving the family planning program different emphases in different parts of the country. Very few national plans on family planning recognize the important differences within the country. They only have data on the national basis.

Well, let us assume that this is done. I have already indicated that the information would be highly useful to the family planning agency as it would provide this agency for the first

time realistic economic data it could use in talking with the villagers. I don't believe that the villagers are greatly impressed by the national data. They are like the rest of us. They would like to know how they are affected by farm size, changes of education in the village, and health service institutions. We should be able to get some information on the cost of employment or the children who leave the village. There is a wide range of materials that we might be able to develop. It's not going to be easy, because it is new but you should listen to the things that interest the villagers. I think such data would also be useful to all agricultural agencies, government or non-government, in their development programs. I think the colleges and universities themselves would find such data very useful and instructional. I think all of you should take a look at what you have for agriculture, economic development and population in your curriculum. Do you have anything there? Well, if you don't have, you can include the national data because these are generally available.

I believe that in Asia and in most developing countries around the world, an agricultural university involved in instruction regarding population and its influence upon agricultural development on the village, the provincial and the national levels, should provide some of that information. Now, assuming that you undertake this work, how do you go about it? The project involves a lot of linkages with other institutions, including the family planning organizations. We are concerned with the relation of population growth to agricultural and economic development considering the economic, social and cultural aspects of village life.

EXCERPTS FROM THE DISCUSSION

The Population Problem and Agriculture in Taiwan. Taiwan which is a part of China was ceded to Japan after the Japanese war. After the Second World War, it was returned to China. As you perhaps know, the economy of Taiwan is agricultural. Right after the war, the net domestic production was more than 70 per cent. Everything was seriously damaged by the war so a commission called The Joint Commission on Rural Rehabilitation (JCRR) was formed. The commission focused its efforts on the rehabilitation of the country. It rendered financial and technical services to rehabilitate agriculture.

In 1946 we started the Land Reform Programs. Land grant reduction was the first step. After its completion, we started the so-called Land-to-Tillers program. Now we have almost completed that and we have already taken the first step to the so-called Land Reconsolidation Program. These land reform programs give many incentives to the farmers and so almost or close to 95 per cent have become landowners. They own the land they till. The production especially of grain crops has increased very rapidly. Capital has accumulated and serve as the foundation for the development of industry.

The per capita income in 1955 was only US\$65 but in 1971 it was US\$329. With rapid industrial growth, the net domestic product of agriculture was gradually reduced. The net domestic product (ndp) was 26.63% in 1963 but only 17.65% in 1971. The domestic net product of industry which was 27.95% in 1963 rose to 34.19% in 1971. Due to the growth of industry, job opportunities increased.

Now you can find many advertisements in the newspapers for technical workers, technicians, etc. We encourage the people in the rural areas to find jobs. This resulted in population migration from the rural areas to the cities or industrial zones,

and this in turn caused farm labor shortage especially during the peak season. Sometimes, we just can't find enough workers during the transplanting and harvesting seasons. Even if some are available, they are not strong enough to do the hard job, and they often ask for high wages. Labor wages have continually increased which affected the cost of production.

Last year, when I was in Taichung, somebody told me that rice crop production was no longer profitable. Some farmers even lost about 2,000 dollars per crop (US\$50). Since we grow two rice crops a year on the same piece of land, one would lose something like US\$100. Before, our land was always covered with crops the year round. But now in some regions you can see the land idle especially during the winter season.

I have told you about the migration of population from the rural areas. Population in the rural areas has become critical and our university and some agencies such as the JCRR are helping the administration to weigh the facts. In my university, we have six colleges. The college of agriculture is one of them. In addition, we have the college of medicine, college of law, college of social science. Recently, we organized a third collegiate committee to tackle some of the population problems. In fact, the department of agricultural extension in the college of agriculture was encouraged by the UNESCO to create a division known as the Population Program Division.

Although we are short of laborers in the rural areas, we think that population is still one that we should control.

Our family planning program has been in action for a number of years. The rate of population increase in the past was about 3.8%. It has gradually decreased to only 2%. We hope that it will be reduced to less than 2%.

This reduction has been the result of the joint efforts of many institutions especially the JCRR which has its rural health division. We have medical colleges that recommend methods of birth control. And we have the Social Science Department which also makes studies on the population programs. Our agricultural extension department has made population programs that are fitted to the villages. The health administration department established a few years ago also pays much attention to popu-

lation problems. We acquaint the people in the rural areas with the family planning programs through brochures and popular magazines. Right now, almost every farm family has a transistor radio.

Although the family planning programs have proven to be successfully carried out in the rural areas, there are still many problems being met. This is the reason why we have organized strong links among the many related agencies interested in the population problem.

**Part 2: Systems Of Services
Supporting Agricultural
Development**

CRITERIA AND APPROACHES TO THE ESTABLISHMENT
OF PRIORITIES IN THE ALLOCATION OF RESOURCES
IN SUPPORT OF AGRICULTURAL DEVELOPMENT

H. BROOKS JAMES
Vice-President, The University of North Carolina

This paper is essentially a precis of the oral and visual presentation by Dr. James. The allocation of resources among alternatives will vary with the country, its stage of development, its resources and its need for various products. In allocating resources, the decisions will depend on what to produce and where to produce it taking into account the comparative costs and returns within a region and between regions, aggregating data for a region or nation, arranging for supplies and markets and arranging for technology including an educational program to deliver and demonstrate such technology. In deciding which institutions are required to support a given program, a two-step approach is taken, first, to describe the kind of environment essential to efficient production, and second, to describe the institutions necessary to create the environment essential to the success of the program.

This paper deals with criteria and approaches as they apply to agricultural development but not as they relate to the allocation of resources between agricultural development and the non-agriculturally related segments of the economy. However, it appears to be valid to assume that agriculture is of major importance in an underdeveloped economy and that many economic activities are related to agriculture in one way or another in such an economy. In the discussion, criteria and approaches are used as they apply to major alternatives, determining what to produce and where to produce it, the institutions required and establishing priorities.

MAJOR ALTERNATIVES TO BE CONSIDERED

The allocation of resources among alternatives will vary with the country, its stage of development, its resources and its need for various products. With these things in mind and with some knowledge of the effects of different levels of technology applied to the present agricultural situation, one should consider the following:

1. Build a transportation system taking into account the need for additional primary and secondary roads and railroads.
2. Increase usable land area or intensify cultivation by such practices as land clearing, drainage, irrigation and increased use of technology.
3. Build fertilizer and pesticide plants, farm machinery, factories, marketing facilities, and processing plants.
4. Strengthen the ministry of agriculture and university services and flow of technology.

The process of allocating resources is complicated and involves many joint decisions. The decisions will depend on what one wants to produce and, of course, what one produces depends on how one allocates the resources available.

DECIDING WHAT TO PRODUCE AND WHERE TO PRODUCE IT

Deciding what to produce is not an easy task, and yet it is of major importance because of its relationship to success. One must keep in mind the market to be served, whether the product is for home consumption, for the domestic market, or for export. This means considering the competitive situation which a producer must face. However, one simply may not have time to make a definitive analysis of supply and demand and its effects on local production. Even if time and money were available for such an analysis, there might not be adequate data to make such an analysis meaningful. Therefore, one must take a more pragmatic approach. One should find ways to lead farmers into new patterns of production rather than to order change. One may reduce risk and increase confidence among producers by guiding new production so that it evolves from existing and traditional ways of doing things. But whatever one does, one must

be sure that the new program will be more productive, more profitable, and less risky in the long run. To aid one in making the best possible decisions, one should approach the problem by making use of appropriate principles.

Comparative Costs and Returns Within a Region and Between Regions

By making some realistic assumptions about prices for inputs and outputs, one can begin to use comparative costs to develop budgets which will assist one in making rational choices between enterprises. One can develop budgets for individual enterprises which will provide cost comparisons between regions. Such budgets are useful but they may not be the criterion by which resources are allocated within a particular area. One may grow Commodity A in his region, not because he can grow it cheaper than it can be grown in some other region, but because Commodity A provides a greater income than one could obtain by using the resources to produce some other commodity within that region. Let me illustrate a practical way of doing this by using the North Carolina example. North Carolina is a 100-county state with a broad coastal plain, a rolling piedmont, and a pleasant mountain area. As far as soils and climate are concerned, the State can produce a wide variety of crops and livestock. The question is, what should be produced to increase farm income?

To answer this question, the first step was to get the specialist at North Carolina State University (teaching, research and extension faculty) to develop a set of recommendations for each county. These included recommended enterprises with inputs and outputs for each. These were put in the hands of the extension agents in each county and they in turn worked with local leaders. Each county used special commodity committees appropriate to their county. These special committees used the specialist's recommendations and their own practical experiences to develop recommendations which they felt would be best for their county. The overall county committee took the commodity committee's recommendations and developed a county program. All county programs were returned to North Carolina State University and were used to develop a statewide program.

Aggregating Data for a Region or Nation

This approach provides for commodity programs and total farm programs. For example, North Carolina has commodity programs for swine, eggs, broilers, turkeys, beef cattle, dairy production, tobacco, peanuts, corn, soybeans and many other commodities. In fact, the State now has 16 commodities that rank North Carolina first, second, third, or fourth in production of these commodities among the 50 states in the nation. We did our first program of this kind in 1961 and called it 1.6 in 66. It was a total farm program designed to increase farm income. (Other objectives included marketing, youth, and family living.) Later, five-year programs were called "Target II" and "Impact 76". These programs have been exceedingly successful in increasing farm income and in improving the agricultural situation in the State. There are several basic reasons for their success: (1) information about available technology was supplied in understandable form; (2) goals were established for individual communities and then aggregated to State level; (3) decisions on individual community goals were arrived at after joint discussions among producers, the suppliers of production inputs, the buyers of the produce, the banks and other credit agencies, etc.; and (4) everyone had confidence in the decisions about community goals.

Arranging for Supplies and Markets

Our production specialists in North Carolina claim we can produce almost anything if we could only get a market for it. Our marketing specialists claim they can sell anything if the price is low enough and the quality is high enough. Obviously, these two approaches need to be considered since both have a certain amount of relevance. The final cost of the product will depend to a substantial extent on the level of technology used in the production process. Once the level of technology is agreed upon, what are the inputs that must be assembled to produce the product efficiently? These should be spelled out in detail and arrangements should be made to assemble them at the right place at the right time. I am thinking about such items as tools and equipment, seed, fertilizer, insecticides, baskets, crates, etc. Efficiency of production depends not only on the farmers' activities but upon the efficiency with which suppliers of inputs and pro-

ducers of marketing services perform. Coordination is of major importance and unless it can be provided, the entire system is likely to fall far short of expectations. A delay in the delivery of the insecticide may result in the loss of the crop. If the market cannot handle the product when it is ready for delivery, it may be lost. Timing is of utmost importance for the efficient production and marketing of some products.

In making arrangements for production and marketing of a product, one should not overlook the importance of arranging for credit, reasonable pricing, buyers, transportation, points of assembly, insurance, storage, processing, exporting, etc. All of these and many more may be essential to the success of the project. The time to arrange these matters is in the early stages of planning after goals are jointly determined.

If these production and marketing inputs and services are to be supplied by private business, they must be profitable; if supplied by government, they may be subsidized. In either case, efficiency and continuity are essential to the long-run profitability of the enterprise and to its survival among producers in a region.

Arranging for Technology Including an Educational Program Necessary for its Delivery and Demonstrated Use

Modern technology is so complicated that it needs to be explained carefully in a step-by-step procedure if one is to expect producers to follow it. To do this, one not only has to know the production practices to be used but also has to have materials that are simple and easy to understand if producers are to follow instructions. This means the careful development of materials to be used in educational programs, arranging for demonstrations, holding meetings and demonstrations, and making sure that all concerned are properly informed. The educational program should include those who are to supply materials and other factors of production. It is an ultimate service to the farmer if the supplier of pesticides is fully informed about their proper use and the time they will be needed. In case no one is willing to supply an item on a commercial basis, the appropriate public agency should assume that responsibility by helping the producers organize and do business. In so doing, it may appear that an extension agency or a Department of Agriculture

is providing more service than education, but this can be adjusted over time as the commercial group gains experience.

INSTITUTIONS REQUIRED TO SUPPORT PROGRAM

How does one go about deciding which institutions are required to support a given program? One way is to approach the question in two steps: first, to describe the kind of environment essential to efficient production, and second, to describe the institutions necessary to create the environment essential to the success of the program.

Environment Essential To Efficient Production

What one is trying to do is create an environment which is conducive to efficient production. The environment we are talking about refers to the factors of production, credit, marketing, processing, technology, and educational programs. One must have confidence that the factors of production will be available in the right place at the time needed and at reasonable prices. He must have confidence that he can get adequate credit at reasonable rates. He must be sure that markets are adequate and that the pricing of the product is fair and reasonable. If processing is involved, it must be efficient. Technology and educational programs must be adequate. These are examples of things that are essential to create an environment that promotes confidence and reduces risk, two elements essential to the development of an area.

Institutions Essential to the Creation of a Productive Environment

There are three kinds of institutions that are essential to the creation of an environment that inspires confidence, reduces risk and promotes efficient production. These are regulatory, informational, and service institutions.

1. Regulation includes the development of grades and standards so that products may be accurately identified and thus fairly priced. It includes adequate protection against fraud in the purchase of factors of production such as proper analysis of fertilizer, insecticides, etc. It includes inspection of scales to assure adequate protection in weights and measures. It includes assurances that producers will be paid for their products. These

are examples of important items in the regulatory field. These functions are usually performed for the public by a state or federal agency.

2. Dependable sources of information are essential to efficient production. It should include the latest technology, economic information on supply and demand, prices for factors, products, and marketing services. Institutions which provide such information in the United States are the Agricultural Extension Service, the agricultural university, the United States Department of Agriculture, various kinds of educational institutions, and agribusiness firms.

3. Service is closely associated with information and regulation but deserves separate consideration. Inspection of products is a service, but enforcement of laws regarding the quality of products or factors of production may be regulation. Telling a farmer what kind of seed to buy is education (information), but helping him get the right kind of seed is a service. There are many services that are essential to the environment we have been discussing. Examples are soil testing, seed testing, group buying, group marketing, vaccination, inspection and grading. In North Carolina, the State Department of Agriculture is a regulatory and service agency while the North Carolina State University is a research and educational institution.

PROCEDURE FOR ESTABLISHING PRIORITIES- SUMMARY

1. Develop a realistic inventory of:
 - (a) Physical resources (land and water, etc)
 - (b) Desires and commitment of producers
 - (c) Desires and needs of public — consumers, markets, suppliers, etc.
2. Match inventory to national needs
 - (a) Food and shelter
 - (b) Balance of trade
3. Invest in bottleneck areas
 - (a) Physical infrastructure
 - (b) Supplier of inputs
 - (c) Services and technology
4. Develop a climate of confidence

EXCERPTS FROM THE DISCUSSION

On the Introduction of Innovations. In Dr. James' paper, he said that one should find and means to lead farmers into new patterns of production rather than to order change. I like this statement very much because very often, in developing countries, most innovations aimed at agricultural development and production come from the top directed to the farmer level. Take the case of cooperatives. It is not a wonder that the cooperative movement has not met with success in Southeast Asia and in other countries in Asia.

Dr. James has also cited North Carolina as an example in the allocation of priorities for increasing agricultural production. That is how it should be done, based on careful analysis backed by scientific measures and economic considerations. That is the proper way but it is not always possible in developing countries because very often politics overrules everything else. Sometimes it overrules common sense.

The North Carolina example is another example of what good manpower resources and expertise can do. But manpower and expertise are commodities in very short supply in developing countries. In the final analysis, the first priority in agricultural development in developing countries is the production of manpower and this matter is of great importance in institution building.

Dr. James emphasized somewhat the use of technology in agricultural development. I may say that development of technology requires intensive effort but technology itself is a noble device. Anything which we say on labor is quite contrary to the needs of developing countries because, I believe you all know, labor is an excess commodity in this part of the world. So, in the consideration of the environment essential for production, we must not lose sight of labor. We in this part of the world face this dilemma: on one hand, we want to increase production by

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making use of technology; on the other hand, we have to think of our abundance of labor.

On the Problems of Marketing. Of course, you don't expect to get a sophisticated market unless you put your resources together and do something about it. If you don't do something about marketing, your other efforts might be wasted. There are several kinds of marketing activities and although there is no guarantee that they will perfectly serve the purpose, they appear good enough to inspire confidence on the part of the people. You must start where you are. You cannot begin somewhere else. You must simply begin where you are and with whatever you need to improve the situation, then you try to develop that. You start with what you have and start in the right direction.

ORGANIZATION, FUNCTIONS AND ACTIVITIES OF THE NATIONAL FOOD AND AGRICULTURE COUNCIL OF THE PHILIPPINES

F. B. TETANGCO
Manager, Program Management Staff, NFAC

The National Food and Agriculture Council is the coordinating agency of the food sufficiency program in the Philippines. The Council's membership brings to its programs the linkage of 22 government agencies and institutions offering various services—research, production assistance such as seed production and procurement, extension and training, education, infrastructure such as irrigation, marketing, credit and other agricultural economics services, community development, etc. The Secretary of Agriculture and Natural Resources serves as chairman-coordinator of the NFAC which traces its history from the earlier Rice and Corn Production Coordinating Council. Supporting agencies, advisory and consultative groups also assist the national NFAC program. At the time of writing, the NFAC has six major operational activities. These are on rice, corn and feedgrains, poultry and livestock, fish, fruits and vegetables and nutrition. For these programs, the whole country has been divided into priority areas of implementation.

The Historical Background

The Fourth Congress of the Republic of the Philippines enacted on June 14, 1958, Republic Act No. 2084 which provided for the Promotion of Rice and Corn Production. It was then declared the national policy "to attain self-sufficiency in rice and corn at the earliest possible time to provide adequate measures to insure permanent stability in the production of these cereals by marshalling all government agencies to increase rice production at a minimum cost." This Act also provided for a Rice and Corn Production Coordinating Council headed by the Secretary of the Department of Agriculture and Natural Resources

with 11 government agencies as members. The provisions for a coordinating council were not fully implemented and all efforts in rice and corn production rested mostly on the Secretary of Agriculture's directives and assignments.

In 1964, an Executive Order emanating from the Office of the President of the Philippines provided for a Rice and Corn Authority to concentrate on the implementation of the provisions of Republic Act No. 2084 of 1958. The membership in the body was not altered. At this time (1964), experiments and trials on high-yielding rice varieties were being pursued by agencies other than those recognized as members of the Rice and Corn Authority. Rice and corn production continued with not much impact in the fields.

On October 7, 1966, Executive Order No. 50 revoked the Rice and Corn Authority of 1964 and in its place strengthened the Rice and Corn Production Coordinating Council which was actually the original provision of Republic Act No. 2084. The Rice and Corn Production Coordinating Council (RCPCC) was vested the sole power and responsibility of implementing the rice and corn production program of the country. Membership in the RCPCC was expanded from the original 11 provided in Republic Act No. 2084 to all agencies which had something to do with rice and corn production. This meant including the University of the Philippines College of Agriculture and affiliate agencies. This expansion was welcome since the "miracle" rice varieties then had been discovered and were inviting propagation.

The strengthened membership in the RCPCC and the maximum use of pooled manpower, material and financial resources from the member agencies contributed to a better rice and corn program in the country. Added to this was the fact that the RCPCC functioned under an able Chairman-Coordinator, and a Presidential Action Officer.

Two years after the revitalized coordinating agency, the RCPCC, handled the program, the Philippines reached, in 1968, self-sufficiency in rice and break-even production of corn. This meant meeting the effective demand for the two cereals which are the major staples in the Philippines.

Encouraged by the success of the rice and corn programs under an able coordinating body (RCPCC), the Philippine government directed the expansion of the food program to include not only rice and corn, but also poultry and livestock, fish, fruit and vegetables. A nutrition program was the latest added to improve the quality and quantity of the Filipino's food intake and to underlie the food programs.

The RCPCC had difficulty implementing an overall food sufficiency program because of its limited scope, jurisdiction and authority. The National Food and Agriculture Council (NFAC), therefore, was created in 1969, for the main reason of serving as a coordinating agency. It would oversee, unify and integrate the administration and implementation of the government's food self-sufficiency program. The original RCPCC membership was retained. The creation of NFAC in effect replaced the RCPCC which is now considered defunct.

Membership in the Council

As provided by Republic Act No. 2084, the Secretary of Agriculture and Natural Resources serves as the Chairman-Coordinator of the National Food and Agriculture Council (otherwise referred to as Food Council). Executive Order No. 183 creating the NFAC provides for the following membership in the Council: The Secretary, Department of Agriculture and Natural Resources — Chairman; Presidential Action Officer; The Director, Bureau of Plant Industry; The Commissioner, Agricultural Productivity Commission; The Director, Bureau of Soils; The Director, Bureau of Animal Industry; The Commissioner, Philippine Fisheries Commission; The Commissioner, Budget Commission; The Chairman, National Land Reform Council; The Administrator, Agricultural Credit Administration; The Secretary, Presidential Arm on Community Development; The Governor, Central Bank of the Philippines; The President, Philippine National Bank; The Administrator, National Irrigation Administration; The Administrator, Irrigation Service Unit; The Director, Bureau of Agricultural Economics; The Director, National Economic Council's Office of Statistical Coordination; The Executive Director, Rice and Corn Board; The Manager, Rice and Corn Administration; The Manager, Development Bank of the Philippines' Agricultural Department;

The Director-General, Presidential Economic Staff; The Dean, U.P. College of Agriculture.

The supporting agencies include the Department of Education — Bureau of Vocational Education, Bureau of Public Schools, and Bureau of Private Schools.

Also supporting the Food Council are advisory and consultative groups as the resident representatives of the UNICEF, USAID, Ford Foundation.

Functions and Powers

A. *The Food Council Proper.* All heads or duly designated representatives of the aforementioned agencies are council members who plan, vote, veto or approve any and all programs on food production in regular council meetings. More general functions and powers of the Council as enumerated by Executive Order 183 are :

1. Supervise, coordinate, and evaluate the implementation of the Food Self-Sufficiency Program of the government.
2. Supervise, coordinate and integrate all policies and programs of all agencies and instrumentalities of the government charged with the prosecution of existing laws, policies, procedures, rules and regulations concerning production, stabilization, procurement and distribution, processing and marketing of rice and corn, vegetables and fruits, fish products, livestock, poultry and meat products and other prime food commodities.
3. Formulate the long and short-range programs calculated to achieve major self-sufficiency in food commodities.
4. Coordinate with the National Land Reform Council in the formulation and implementation of plans and programs for the attainment of food self-sufficiency in the land-reform districts, as part of the overall plans and programs for national self-sufficiency.
5. Coordinate and evaluate the activities and accomplishments of all agencies of the government charged with the prosecution of the different aspects of the Food Self-Sufficiency Program. Accordingly, it shall coordinate the release of public funds in accordance with approved programs and projects in food self-sufficiency; and shall release to the public such information

and statistics pertinent to the progress and accomplishments of the different aspects of the national program.

6. Have the power and authority to call on any department, bureau, office, agency and other instrumentalities of the government for assistance in the form of personal facilities, and other resources as the need arises during the discharge of its functions.

7. Perform other functions as may be necessary to attain the objectives of the National Food Self-Sufficiency Program and shall discharge such other duties as the President may direct.

B. *The Council Secretariat.* The Council Secretariat was also prescribed in the Executive Order creating NFAC to serve as the office responsible for the preparation and presentation of all programs pooled from the different agencies. The Secretariat is manned by representatives assigned by the different agencies plus a non-technical working force admitted to meet the needs of the Council. The Secretariat is the Central Office of the NFAC.

The Council Secretariat is headed by the Executive Director of NFAC. At present, there are four major divisions in the Secretariat: Administrative Staff, Program Management Staff, Special Operation Staff, and Manpower Training and Development.

Sectoral or Operational Activities

There are six major programs, namely the Rice, Corn and Feedgrains, Poultry and Livestock, Fish, Fruits and Vegetables, and Nutrition Program.

There are basically six sectoral or operational activities participated in by the member agencies of the NFAC in the implementation of the six major NFAC programs. These are Research (UPCA, BPI, BAI, PFC); Education, Extension including Training (DE, APC, UPCA, BAI, PFC, BPI); Infrastructure (NIA, ISU, BPH, AFP); Marketing (RCA, RICOB); Finance (PNB, DBP, CB-RB, ACA); and Seed Production and Procurement (BPI, UPCA, BAI, PFC).

Most agencies participate in the food program with direct involvement in the sectoral activities. Others provide only supporting functions to these activities.

Organization for National and Field Implementation

For the six major programs, the whole country has been divided into regions made up of several provinces, in order to set the area priorities of implementation. Priorities depend on the feasibility and viability of a program in the area. Some provinces may have three or all programs being implemented; others none at all. The program depends also on the presence of provincial branches of the NFAC member agencies. Where no branch operates, the sectoral activity is most often lacking.

There are agency Action Officers for each of the six major NFAC programs. There are National Coordinators for three of these programs namely, rice, white corn and feedgrains, and nutrition. National Coordinators have been designated for the three programs because of their greater scope of implementation and wider area of coverage. The Action Officers are designated to oversee national implementation and are responsible to the Food Council for the successful execution of the programs, except for rice, white corn and feedgrains, and nutrition, wherein Action Officers are responsible to the National Coordinator who shall be responsible to the Council.

The priority ordered regions which are composed of several provinces are under the supervision of Regional Coordinators who are designated to establish linkages between the field level and the implementing agency or Food Council Secretariat. For individual provinces, a Provincial Coordinating Committee has been established headed by a Provincial Chairman and a Provincial Program Officer for each food program in the province.

Provincial Supervisors and Field Technicians are under the direct control and supervision of their respective Program Officers. Broadly defined, the following are the duties and responsibilities of the Implementing Organization of NFAC:

National Coordinator:

1. Shall be responsible to the Executive Director in the successful prosecution of the program. The Executive Director, in turn, shall be responsible to the Presidential Action Officer, the Chairman and the Council in general as to the success or failure of said program;

2. Shall supervise, coordinate and execute into action all programs, policies, rules and regulations governing the implementation of the program;
3. Shall facilitate up-to-date monitoring of activities of the field to the Council;
4. Shall direct, control and supervise the activities of various agency action officers of the program;
5. Shall maintain close dialogue and harmonious relationship between various heads of agencies involved in the program; and
6. Shall perform such other functions as may be assigned.

Action Officer:

1. Shall be responsible to the Executive Director/National Coordinator in the successful prosecution of the program;
2. Shall supervise the field coordination of the various government personnel and entities involved in the implementation of the program;
3. Shall undertake field follow-up to ensure up-to-date information on the program;
4. Shall appraise or evaluate the progress of the program in relation to meeting its scheduled targets and suggest remedial measures or recommendations to attain set program objectives;
5. Shall submit monthly reports to the Executive Director/National Coordinator on his appraisal of the progress of the implementation of the program; pointing problems and difficulties encountered and recommending solutions; and,
6. Shall perform such other functions as may be assigned.

Regional Coordinator:

1. Shall be responsible to the National Coordinator/Action Officer in coordinating the program at the regional level;
2. Shall undertake field follow-ups to insure the proper implementation of the different phases of the program;
3. Shall submit monthly Progress Report to the National Coordinator/Action Officer together with the recommendations;

4. Shall coordinate with other government agencies who are directly or indirectly involved in the program at the regional level; and
5. Shall perform such other duties and responsibilities as may be assigned.

Chairman, Provincial Coordinating Committee:

1. Shall coordinate the implementation of all NFAC programs in the province;
2. Shall administer funds of NFAC programs in the province;
3. Shall convene monthly meetings of the Provincial Coordinating Committee;
4. Shall coordinate national and local government agencies and private supporting institutions involved in the implementation of the program;
5. Shall facilitate up-to-date monitoring of activities to higher authorities;
6. Shall study and recommend necessary revision and/or amendment of existing programs in the province to further enhance the success of the program; and
7. Shall perform such other duties and responsibilities that may be assigned.

Provincial Program Officer:

1. Shall be responsible to the National Coordinator and/or Action Officer through the Regional Coordinator on the overall implementation of the Provincial Program;
2. Shall execute all policies, procedures, rules and regulations promulgated by the Council;
3. Shall direct, control and supervise technicians and other personnel involved in program implementation;
4. Shall coordinate national and local government agencies and private supporting institutions involved in the implementation of the program;
5. Shall facilitate up-to-date monitoring of activities to higher authorities;
6. Shall study and recommend necessary revision and/or amendment of existing programs in the province to further enhance the success of the program; and

7. Shall perform such other duties and responsibilities that may be assigned.

Provincial Specialist or Supervisor:

1. Shall serve as immediate assistant of the Provincial Program Officer in the implementation of the Provincial Program;
2. Shall exercise direct supervision over the activities of the Production Technicians and oversee their accomplishment in their respective assigned goals in the program;
3. Shall lead the Production Technicians in the conduct of farmers' meeting and study sessions as well as field demonstrations and in organizing farmers' associations;
4. Shall provide technical assistance to the Production Technicians; and
5. Shall assist the Provincial Program Officer in the preparation of reports on the program.

Production Technician:

1. Shall encourage farmers thru an intensive information drive availing as much as possible of the active role of the barrio councils and other local groups;
2. Shall organize farmer cooperatives for collective action in their production and marketing activities;
3. Shall provide technical guidance to the farmer-cooperators as well as in securing farm loans;
4. Shall undertake field demonstrations and farmers' study sessions; and
5. Shall submit required progress reports to the Provincial Program Officer.

Implementing Activities of the NFAC

A Four-Year Development Program has been implemented covering the six major food programs: (1) Rice, (2) White Corn and Feedgrains, (3) Poultry and Livestock, (4) Fish, (5) Fruits and Vegetables, and (6) Nutrition. The Development Program has been initiated in 1970 and is now in the second year of implementation.

Rice Production

The first emphasis of the program is to maintain gains achieved in palay production while developing second-generation projects involving processing, marketing and financing structure of rice industry.

To increase rice production growth, the NFAC strategies are: (1) Expansion of irrigation thru NIA and ISU — ISU will install 4,424 pumps in 15 priority provinces which will irrigate 28,000 to 30,000 hectares of new ricelands capable of producing 16,000,000 cavans of palay; (2) Seed production and distribution — BPI is the implementing agency; (3) Provision of available credit — implementing agencies are ACA, PNB, DBP, and CB-Rural Banks which will generate ₱117,000,000 to serve 146,500 hectares; (4) Extension of technical guidance — 1,114 production technicians have been fielded to extend technical guidance to farmers in adopting improved cultural practices, availing themselves of credit, and supervising utilization of loans. BPI has fielded 350 technicians while APC has fielded 774; (5) Price Support Program — while price support is a necessary incentive to farmers, no definite policy as yet has been laid down for its implementation.

Corn and Feedgrains Program

Situation: (a) Increasing incidence of “Downy Mildew” and other diseases; (b) Insufficient supply of quality seeds; (c) Inadequate credit assistance; and (d) Lack of postharvesting facilities.

Strategies: (a) Intensification of quality seed production and distribution; (b) Integration of production, financing and marketing in compact areas; (c) Intensification of research activities and information devices; and (d) Intensification of manpower training and extension services.

Livestock and Poultry Production

Situation: (a) Heavy importation of canned meat products (480,000 cases or about 50,000 metric tons of canned meat in 1969); (b) High mortality and poor rate of production; (c) Poor quality breeding stock; (d) Inadequate production and marketing facilities; and (e) Inadequate financial support.

Strategies: (a) Livestock and poultry dispersal; (b) Veterinary and extension services; (c) Upgrading quality of stock; and (d) Artificial insemination.

Fish Production

Situation: (a) Low productivity and declining yield of many segments of the fishery resources; (b) Lack of manpower resources; (c) Scarcity of venture capital and credit facilities; (d) Antiquated method of fishing; (e) Lack of infrastructure; (f) Poor marketing conditions; and (g) Lack of research.

Strategies: (a) More yield through more use of production inputs; (b) More catch through technology, inputs and fishing aids; (c) Research and extension; (d) Area expansion; and (e) More modern vessels.

Vegetable Production

Situation: (a) Insufficient supply of quality seeds; (b) Inadequate credit assistance for the establishment of commercial farms; (c) Inadequate protection against pests and diseases; (d) Lack of research; (e) Poor cultural practices; and (f) Poor marketing condition.

Strategies: (a) Development of commercial farms; (b) Establishment of demonstration farms; (c) Seed production and distribution; (d) Manpower development; and (e) Green revolution.

The organization, functions, and implementing activities of the NFAC have been presented as well as the linkage of agencies under the NFAC.

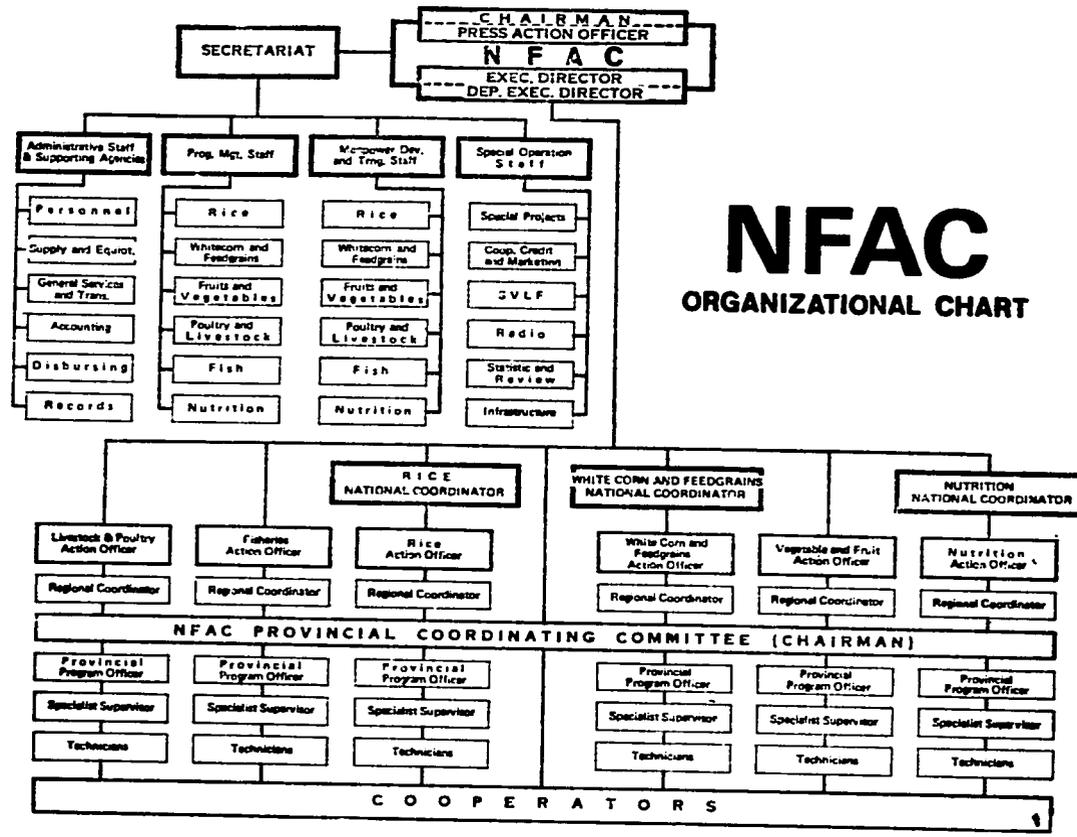
NATIONAL FOOD AND AGRICULTURE COUNCIL

Member-Agencies

- A. Department of Agriculture and Natural Resources
 1. Bureau of Plant Industry
 2. Bureau of Animal Industry
 3. Philippine Fisheries Commission
 4. Bureau of Soils
 5. Bureau of Agricultural Economics
- B. Department of Public Works and Communications
 1. Irrigation Service Unit

- C. Department of Commerce and Industry
 - 1. Rice and Corn Board
- D. Department of Agrarian Reform
(Formerly National Land Resettlement Commission)
 - 1. Agricultural Credit Administration
- E. Office of the President
 - 1. Rice and Corn Administration
 - 2. Agricultural Productivity Commission
 - 3. National Irrigation Administration
 - 4. National Economic Council
 - 5. Presidential Economic Staff*
 - 6. Presidential Arm for Community Development
- F. Department of Education*
 - 1. Bureau of Vocational Schools
 - 2. Bureau of Public Schools
 - 3. Bureau of Private Schools
- G. University of the Philippines
 - 1. U.P. College of Agriculture
 - 2. U.P. College of Business Administration*
 - 3. U.P. College of Forestry*
 - 4. U.P. College of Veterinary Medicine*
- H. National Coordination Council on Foods and Nutrition
- I. Central Bank
 - 1. Department of Rural Banks
- J. Development Bank of the Philippines
- K. Philippine National Bank

* Supporting agency.



NFAC

ORGANIZATIONAL CHART

COUNTRY REPORTS

The First Asian Agricultural College and University Seminar held in Thailand and India from September 20 to October 5, 1970 aimed at providing an opportunity for leaders of agricultural colleges and universities to exchange experiences on institutional development and to learn from each other more strategies and approaches that have been successful in the Asian region. In this seminar, it was realized that appropriate linkages with other agencies that support agricultural development needed to be formed or strengthened. The participants therefore recommended that a second seminar be held in which the issues regarding linkages would be on focus. For this reason, plans for the Second Seminar that would be held in the Philippines from April 24 to May 3, 1972 underscored the linkage of institutions and services supporting agricultural development which was also to become the seminar theme.

At the same time, it was realized that the efforts to build agricultural universities and research institutions in many Asian countries had been very successful. However, the problem was apparently the need for more harmonious relationships between the university programs and the programs of the ministries of agriculture and other sources of agricultural research, extension and education services. A "political tug of war" for the role and responsibility in these functions tended to reduce the impact of the agricultural universities on national agricultural development.

With the paper on institution-building model presented in the First Seminar as frame of reference, the issues on linkage were made the pivot of discussion and participant involvement in the Second Asian Seminar in the Philippines. Each participant was assigned a "homework" which required him to look intensively at these issues before he arrived for the seminar. The

homework was called Country Reports and was designed to start the participants thinking about their own institutions and the relationships existing among them.

As a part of the country report, each country was asked to report on the system of services supporting agricultural development. A suggested outline for the report was sent to the representatives before the Seminar. Specifically, the representatives were requested to fill up two tables for describing the institutional delivery of services.

Table 1 was designed for the listing of the agricultural services that were available to agriculture in the country and the agencies that supplied these services. The cells for this table were to be filled with numbers to indicate the importance of the agencies in supplying the particular service following this scale: 1 = primary supplier, 2 = secondary supplier, and 3 = of marginal importance.

Table 2 was designed to show the legal and operational relationships among the agencies serving agriculture. This information would refer to the same list of agencies in Table 1.

The respondents were to indicate the degree to which their interaction was specified by regulations and the degree to which they interacted in actual practice. A seven-point scale was used for this table to indicate the relationships among the agencies supplying agricultural services. These relationships ranged from -3 = Cooperation legally required but openly antagonistic, to 3 = Cooperation legal and highly effective.

The agricultural services and the supplier agencies listed in the sample tables distributed were aimed to provide illustrative cases only.

The individual country reports were presented at two sessions in the Seminar with 15 minutes for each report followed by five to 10 minutes of discussion. Seven of the nine countries represented in the Seminar, in addition to their oral presentation, distributed copies of their written reports which are included in this section. Two countries limited themselves to oral presentation and the two tables.

Eight of the nine countries completed the two tables describing their institutional relationships. The information culled from Table 1 is herein summarized. The information from Table 2 was not particularly useful in providing data for further analysis although

the exercise did prove productive in stimulating thought and interest in the issues dealt with.

The data from Table 1 indicated that technical information services were available in all the eight countries that completed the tables. They were supplied by the Ministry research and extension agencies and the university as primary suppliers of these services. In majority of the countries, there was a proliferation of research institutions either established along the line of commodity groups or along agency or organizational roles.

General information services were likewise present in all the respondent countries. They were supplied by the Ministry's research and extension agencies and the university. However, in only about half the number of the countries were the sources identified as primary suppliers; in the other half, they were secondary suppliers. For general information, the semi-public and private suppliers were also identified although generally as secondary suppliers.

There is a lack of farm management and planning services with a mode (highest number) of only two countries identifying a primary supplier in any of the categories of ministry, university, semi-public, and private suppliers. About the same lack was indicated for production inputs services.

Credit was supplied by banks, credit institutions, cooperatives, farmers' associations and merchants. The university apparently conceded this role to the other agencies, only one university being cited as a primary supplier. The semi-public and private sectors took on great importance in filling the function of providing credit. Nevertheless, the country by country penetration of this service was low. There were only four or less countries that identified primary suppliers of credit under the different categories of suppliers.

Marketing was another weak area in most countries. As source of primary supplier of this service, the government was low compared with the semi-public and private suppliers. Cooperatives and merchants were the most cited primary suppliers. In marketing, the role of the private sector as a vital cog of agricultural development is seen.

Overall, the data were not as precise as desired. This was due to the variety of organizational structures in the agricultural deve-

lopment services in the different countries. There were certainly differences in the meanings given by the respondents to the terminologies used in the outline. Moreover, there was the matter of carefulness exercised by the respondents who in but a few instances attempted to extend the list of services or agencies cited in the outline. The report was successful, however, in initiating thought on the issues of linkage and inter-institutional relationships.

Particularly, with respect to Table 2, not a few of the countries expressed sensitivity in attempting to answer the questions publicly. Also, there was the feeling among the respondents that, being university men, they would not presume to have really comprehensive knowledge of the workings of the ministry and other institutions covered by the report. This was therefore another limitation of the report — that it was quite limited in its perspective or orientation.

For all its failings, the ensuing analysis of the linkage and relationships of the various parts of the agricultural development system was able to suggest basic principles or areas for further thought toward the improvement of institutional programs.

The issues that have been raised form an appropriate format or some kind of a model for linkages. What are the principles for determining the appropriate role for an institution? All have roles to play in extension and instruction, although two or three questions had been raised about the appropriate relationship with vocational education.

What is really the optimum appropriate role for the university in the total national research program? What percentage of the total national research program should the university really have? On what principles should it decide?

How about extension? The problem that presents itself in this regard is: What is the minimum involvement that an agricultural university should have in its extension activities? What is the maximum and what is the optimum?

Another issue jotted down was this: Can coordination be achieved only by creating a coordinating agency?

Another question and issue: Is commodity-oriented coordination the best model? Some countries have indicated that specialized commodity institutes that have responsibility for the services, including extension and public information, would work well but

when a more generalized model is considered, then the critical aspects emerge. Finally, this question is also worth pursuing: How much time and effort can the agricultural college or institution afford to do coordination work versus the time and energy spent just getting on the job individually and separately?

Without doubt, these issues have been carried home by the participants. Perhaps then, institutional building would truly begin.

The "Country Report Outline" distributed for the participants to fill up and the individual written country reports follow.

COUNTRY REPORT OUTLINE

The first Seminar requested each representative to provide a description of his institution in terms of the institution-building model. The seminar in the Philippines will concentrate on the theme "Linkage of Institutions and Services Supporting Agricultural Development." The program planners are requesting each representative to supply to the seminar a report on this aspect of his institution's relationship.

Representatives are requested to prepare two tables that describe institutional delivery of services using the following outlines.

Table 1 will list the agricultural services that are available to agriculture in each area and the agencies that supply these services. Each country representative is requested to develop his own list of services and agencies appropriate to his conditions. The lists in the following table are only suggestive. The cells in the table are to be filled with a number that describes the importance of the agency in supplying the particular service, using the following scale: 1 = primary supplier, 2 = secondary supplier, 3 = of marginal importance in local area.

Table 2 shows the legal and operational relationships among the agencies serving agriculture. Use the same list of agencies as in Table 1 and indicate the degree to which their interaction is specified by regulations and the degree to which they interact in actual practice. Use the scale at the bottom of the table.

Please note that the numbers inserted in both tables below are illustrative only.

TABLE 2. Relationships Among Agencies Supplying Agricultural Services.

		Agricultural Agencies						
Agricultural Agencies		Ministry Research	Ministry Extension	Ministry Credit	Ministry Information	University	Bank	Etc.
MINISTRY								
	Research		-2	0	3	-3	1	
	Extension			2	3	2	-2	
	Credit				2	1	-1	
	Information							
	University							
	Banks							
	Etc.							

Relationships are described in Table 2 by the following scale:

- 3 = Cooperation legally required but openly antagonistic
- 2 = Legal basis for cooperation but competitive feeling
- 1 = Compete for public support
- 0 = Independent
- 1 = Informal cooperation
- 2 = Cooperation legally required, operationally moderate
- 3 = Cooperation legal and highly effective

COUNTRY REPORTS

REPUBLIC OF CHINA

Taiwan, which occupies about 36,000 square kilometers of land, is a province of the Republic of China. It has at present two colleges of agriculture, one under the National Taiwan University and the other under the National ChungHsing University (formerly provincial university), and two junior colleges of agriculture. Unlike the land-grant colleges of agriculture in the U.S.A. and agricultural colleges and universities in other countries patterned after the American land-grant colleges of agriculture which have not only the functions of education and/or research but of extension as well, the Colleges of Agriculture of the National Taiwan University and the National ChungHsing University in a strict sense are not responsible for direct extension work. The organizations and programs of the two Colleges of Agriculture had been reported in some detail in the First Asian Agricultural College and University Seminar held from September 30 to October 3, 1970 in Thailand and India. The two Colleges, each of which is an integral part of the two respective full-fledged universities under the Ministry of Education of the Republic of China, were established with the primary aim of offering undergraduate and postgraduate courses. In recent decades, the research work of the Colleges has been greatly intensified in view of the importance of research to the advancement of agricultural science and technology.

At present, research is greatly encouraged in the two Colleges by the Ministry of Education and some other governmental agencies, especially by the National Science Council and the Joint Commission on Rural Reconstruction (JCRR). Only a very limited amount of the University budget is allocated to research. All the necessary budgets for research are largely, if not entirely, subsidized by outside agencies mostly on project basis. Research

financed by the funds of the Universities and by the National Science Council is usually basic in nature, whereas the research supported by the JCRR and other agencies is mostly applied. As has been mentioned, practically little extension work is being done by either College. Although an agricultural extension department in the National Taiwan University and an agricultural extension committee in the National ChungHsing University are in existence, extension has been assumed to be the duty of the Provincial Department of Agriculture and Forestry. However, with the increasing complexity of modern science and technology in agriculture, the two Colleges have quite often been requested by outside agencies to offer some type of extension service in the form of training and consultations. During the past two decades, more than 460 agricultural technicians or extension workers from the Provincial Department of Agriculture and Forestry, the Farmers' Associations, the Taiwan Sugar Corporation, etc., received training under the various programs offered by the two Colleges to enable them to catch up with new knowledge and techniques.

The need to integrate the three basic services, i.e., education, research and extension in the agricultural colleges of this country, has long been felt but the realization of such a system has met with difficulty inspite of the strenuous efforts made. No one would deny that agricultural extension must be educational, especially in a country where industrialization is rapid. In recent decades, the result of industrial growth has created many new problems in the agricultural sector of this country. Similar problems must have occurred in other developing but much industrialized nations. Among the problems, the most critical are the incessant increase in labor wages and the need for increasing input investment.

Agriculture has begun to be considered as an enterprise rather than as a life-sustaining business in Taiwan. Tremendous amounts of wisdom, courage and effort are required to make the changes from the traditional ways of farming to the more commercialized new ones during this transitional period. It has been found that the adjustment to new attitudes is not easy even in the mind of an agricultural worker not to mention that of an ordinary farmer. Agricultural situations almost always vary with

localities or regions as well as with time; therefore, there is little possibility for a developing country to follow the exact pattern in agricultural development which developed nations have followed. It is true that many of the difficulties have stemmed from the infancy of technology with respect to the commercialization of agriculture. Taiwan is beginning to realize that in modern farming operations, mere increased production does not necessarily mean complete success. Besides the production technologies, various types of supporting services are required for success. The more elaborate the program of farming enterprise is, the more complex will the involvement of supporting services be. Coordination in programming and implementation among the multitude of agencies which directly or indirectly give supporting services is essential to continuous and successful development of agriculture in a country. The old system of traditional ideas is no longer capable of keeping pace with the new development. Consequently, the Colleges are now challenged with greater responsibilities in making headway in developing a new and sound system of farming with enterprising features in order to cope with the changing situations.

INDONESIA

The Agrocomplex of the "Gadjah Mada" University

What is now called the Agrocomplex was founded in 1946 by the Department of Agriculture. In 1949 it became part of the "Gadjah Mada" University under the Department of Education. The Agrocomplex consists of six faculties from the 18 faculties in the "Gadjah Mada" University, namely the faculties of agriculture, agricultural technology, animal husbandry, veterinary medicine, forestry, and Biology.

The Agrocomplex in the Consortium of Agricultural Sciences

The Consortium of Agricultural Sciences was founded in January 1970 by the Minister of Education. Structurally the Consortium is directly under the Minister of Education and Culture,

while its activity is under the Directorate General of Education c. q. the Directorate of Higher Education.

The Consortium is to assist the Minister of Education to upgrade and develop the agricultural faculties or colleges on a nationwide basis by capitalizing on the available resources including that of foreign aid and its various forms such as grants, experts, fellowships, etc. Assistance to the Minister of Education can be that as an advisory council to the Minister. The Consortium also implements the Ministerial decrees that are delegated to it.

Members of the Consortium Board are the deans of the faculties at the Agrocomplex of the "Gadjah Mada" University and the deans of the faculties at the Bogor Institute of Agriculture. The I.P.B. (Bogor Institute of Agriculture) and the Agrocomplex U.G.M. ("Gadjah Mada" University) act as "feeder" universities for the other 22 agricultural universities/faculties throughout Indonesia. In developing the nationwide agricultural higher education the Consortium gets foreign aid from USAID through the Midwest Universities Consortium for International Activities (MUCIA).

As feeder institutions, the Agrocomplex U.G.M. and the I.P.B. have direct linkages with the other 22 universities/faculties in performing their three functions as universities/faculties, i.e., education, research and public service for agricultural development.

Linkages with the Department of Agriculture started from the founding of the agricultural faculties, called the Agrocomplex by the Department of Agriculture in 1946. When the "Gadjah Mada" University was inaugurated on December 19, 1949, the agricultural faculties became part of the University under the Department of Education. The first graduates obtained their degrees in 1954 (equivalent M. Sc. Agr.). Two of the five graduates became officials of the Department of Agriculture while the other three have remained in the University. Also some of the first graduates of the I.P.B. became officials of the Department of Agriculture. The present Minister of Agriculture is also a graduate of the I.P.B. So, linkages with the Department of Agriculture have started since the founding of the agricultural faculties. Here, linkages also exist in education, research and extension. The linkages, however, are on informal

basis and most of the linkages are personal linkages. Some Ministers of Agriculture tried to develop organizations that would make the linkages more formal and more institutionalized, but these attempts usually failed in the implementation.

The agricultural faculties have been given responsibilities for instruction, research and public service. The Department of Agriculture carries the prime responsibility for agricultural research and extension. Since the vocational agricultural high schools are under the Department of Agriculture we can say that the agricultural universities/faculties and the Department of Agriculture have the same responsibilities for instruction, research and public service for agricultural development. The ideal situation in a developing country would be that the agricultural universities/faculties and the Department of Agriculture should form a "system" for agricultural development. Individual faculties of agriculture in the Agrocomplex U.G.M. and at I.P.B. already have linkages with the directorates in the Department of Agriculture and with the branches of the Department of Agriculture in the provinces and districts.

Linkages exist in projects in education, research and public services for agricultural development. These projects are usually asked by the Department of Agriculture or through its agricultural extension branches to be executed by the agricultural faculties or the staff members. Yet these linkages are not yet "institutionalized" so that we cannot say that the Department of Agriculture and the universities/faculties already form a "system" for agricultural development.

In 1969, the Government of Indonesia with the assistance of USAID established a joint agricultural research survey team with members from the Department of Agriculture and the Department of Education (the agricultural universities). Also in that team were five members from the U.S.A., one member from India and one from the Netherlands. The main task of this team was to make recommendations to the Government of Indonesia to guide the establishment of a better system and organization of agricultural research in Indonesia.

One of the problems that Indonesia faced in the past was the fragmentation of agricultural research institutes which precluded

coordination among the institutes and between institutes and the colleges of agriculture (Sutardi Mangundidjojo).

To solve the problems on agricultural research the joint team recommended the establishment of a national organization and systems of research as follows:

- a. The setting up of an Indonesian agricultural research organization at the national level with semi-autonomous status.
- b. The grouping together of the various central research institutes on agriculture, animal husbandry, forestry and fisheries into a strong national research center.
- c. The launching of a number of national coordinated projects.
- d. The building up of a national cadre of well-trained, well-paid, and fully supported scientists.
- e. The decentralization of agricultural research in the country by establishing and energizing a chain of experiment stations to cover adequately the regional and provincial needs of agricultural research.
- f. The forging of strong links between research, education and extension.
- g. The achievement of balance and coordination of foreign assisted programs and projects.

Implementation of the above-mentioned recommendations is not an easy task, however, since existing research institutions are not only under different ministers but also have different legal status. Linkages, however, should be strengthened. The setting up of one Indonesian research organization at the national level is a formidable task that is not easy to obtain. One step towards that direction, however, has already been taken in the setting up of a National Rice Research Program (N.R.R.P.). The N.R.R.P. unifies and coordinates the programs pursued by different institutes, agencies and agricultural universities. The plans are that, besides the N.R.R.P. program, there will be other food crops oriented programs. Though not much has yet been achieved from the programs, the way is already paved for better linkages between the Department of Agriculture and the agricultural universities/faculties in research and services for agricultural development.

The list below shows the activities done by the BIPEMAS from 1962.

Services (Projects)	Year	Funds from
1. Survey for land settlement South Sumatra	1962	Department for Transmigration
2. Survey for land settlement Ceram	1962	Department for Transmigration
3. Survey for land settlement East Kalimantan	1963	Department for Transmigration
4. Aid in areas around Gunung Agung mountain after the eruption (Bali)	1963	
5. Survey for possibilities for building irrigation dam in Sragen Central Java	1968	Local Government Sragen
6. Survey Cassave Wonogiri Central Java	1968	Local Government Wonogiri
7. Survey water resources for cattle Rembang and Ungaran Central Java	1970-72	Extension service of the Directorate General of Animal Husbandry
8. Survey Village Seed Storage	1970	B.R.I. (Bank Rakjat Indonesia) Indonesian Community Bank
9. "Test Farm" tidal land settlement South and Central Kalimantan	1970-present	P.U.T.L. (Department of Public Works)
10. Extension through radio and television on rural development	1969-present	
11. Upgrading courses on poultry for village community in Jogjakarta area Central Java	1970-71	Regional Extension Service Directorate of Animal Husbandry
12. Demonstration plot Mount Merapi region	1969-present	PELITA project
13. Demonstration plot Mangunan Jogjakarta	1969-present	PELITA project
14. Upgrading course for extension workers on Animal Husbandry Sleman Jogjakarta	1972	Extension Service of the Directorate-General of Animal Husbandry

The Agrocomplex as Part of the "Gadjah Mada" University

Research and extension are the prime responsibilities of the Department of Agriculture while education is the prime responsibility of the agricultural universities/faculties. The Department of Agriculture has the funds for research and extension. In the university funds for services are very limited. Therefore, activities in such services are also limited. The "Gadjah Mada" University has a special body for public service, the BIPEMAS (Biro Pengabdian Masyarakat) or the Bureau of Public Services. Its activity is not limited to agriculture. The BIPEMAS has as members representatives of the existing 18 faculties.

Besides the interdisciplinary projects in research and extension through the BIPEMAS, the agricultural faculties in the Agrocomplex have their own individual projects in research and extension. These projects deal with special topics related to the respective faculties. The faculties can submit through the university research projects to the directorate of higher education in the Department of Education. Some of these research and services are sponsored by other departments and institutions. Services through the universities usually have indirect character in the form of research projects. Extension by the faculties are on technical and general information and are sponsored by the agricultural extension service of the Department of Agriculture. Worth mentioning are the strong linkages of the faculty of agriculture with the Department of Agriculture in the BIMAS program and the strong linkages that exist between the faculty of forestry and the directorate-general of forestry in the Department of Agriculture.

But in general, up to now, we can say that the main thrust in the responsibility for agricultural development are: research and extension in the Department of Agriculture, and higher education in the agricultural universities/faculties. The latest development in research at the universities was the granting of a 250 million rupiah fund to the universities to be used for evaluation research of the PELITA I by the BAPENAS (National Development Board) on top of the existing research funds in the Department of Education.

IRAN

In the complex socio-economic situation of modern Iran, the linkage of existing agricultural services into one integrated system should be considered very necessary for the future agricultural development of the country.

Cultural background

The basic cultural background should be considered as the cornerstone upon which study, planning, and execution are to be based.

1. The meaning of cooperation and coordination in Iranian culture seems to be somewhat different from that in Western countries. An organization bold enough to sincerely propose "cooperation" and "linkage" might be thought strong enough if it can assure one of "getting" rather than "giving".

Linkage of services into one integrated system in Iran would, therefore, need a thorough study of the historical and sociological mist that envelops the preconceptions on working together towards a common end.

Examples of extremely successful cooperation and coordination in Iran are innumerable. More in number, however, are examples of total failure in attempts to cooperate, coordinate and link efforts.

What is woefully lacking is research which may enlighten one on the culture of the country.

2. Time flies in the west. It hovers over the traditional Iranian scene but jets through in the modern Iranian scene producing untold discrepancy and incompatibility between the new and ancient segments, developed and underdeveloped, religious and liberally oriented.

To understand the possibilities and feasible conditions of linkage between different services in Iran to ensure agricultural development, a full understanding of how time is handled in this country is a must.

3. An Iranian oral promise traditionally requires "manly" adherence. The implementation of a written promise, however, is usually resisted. Many ways and means are often utilized to ensure freedom from legal entanglements.

Research for an understanding of the conditions of implementing projects and the seriousness with which they are accepted is necessary.

4. Iran was never fully colonized. Some signs indicate, however, that lethargy in extension work, poor internal communication, lack of leadership, apathetic public servants, etc. predominate.

Underdevelopment has many overt signs which might easily be attacked through proper channels and services. What is difficult are the covert aspects the understanding of which needs serious consideration. It is fortunate that through effective measures instituted by all concerned, the White Revolution of Iran has done much to alleviate conditions not conducive to the proper functioning of the modern revolutionary process.

5. Much of the local budget and foreign aid in Iran originally intended for agricultural development has been channeled into non-productive areas. Because "democracy" as understood and practiced in Iran has covered up the improper expenditure, it is thought that deep realization of causes is a prerequisite to the attempts to reorganize financial and budgetary measures.

Agricultural development services of Iran

1. In the area of basic but indirect services may be considered six agricultural colleges in the Iranian cities of Hamadan, Karadj Molla Sani Rezaieh, Shiraz, Tabriz¹ operating under the Ministry of Science and Higher Education, the agricultural vocational schools operating under the Ministry of Education, the Agricultural Extension Corps jointly sponsored by relevant organizations, and the research institutes under the Ministry of Agriculture and Natural Resources as well as the other research and teaching efforts by universities and the private sector.

¹ Namely, the following universities and institutions: Hamadan College of Agriculture, University of Tehran, Jondi Shahpoor University, Rezaieh Agricultural College, Tabriz Agricultural College, and Pahlavi University.

Although plans for an educational revolution in Iran have been carefully drawn and responsibilities have been carried out, there is much more idealistic "reporting of progress" along the lines of cooperation than on "progress" achieved.

Sternly independent directors of teaching and research institutions are more of a law than an exception. Anyone who actually preaches or practices coordination and cooperation might be doomed, careerwise, because of charges of "indecision", "dependence", "lack of decisive management ability" or some such terms that might be attributed to him.

2. Direct services including public services and adult education and extension programs need the support of all organizations directly or indirectly concerned. All matters concerning the section above under "cultural background" also apply to direct services.

3. Infrastructure services include the operation of the land reform law and capital distribution in the form of loans, subsidies, credit and technological agricultural services such as marketing, processing, distribution facilities, etc. The strength of these services depends upon legislation-backed measures carried out by sincere, understanding officials.

4. All other general services, including public health, general education, community development, local government, and other related services, contribute to the general welfare and well-being of all agricultural development operations. They need strengthening to full utilization and coordination with existing organizations.

A very important area is the work of the Health, Knowledge and Religion Corps which has moved a long way toward selfless cooperation and leadership. The leadership possibilities of religious leaders and educators in bringing to the public a deeply felt message on the need for coordination of programs and efforts are considered to be of prime importance.

Iran has been favored with a drastic change in the next Five-Year Plan organization programs. Priority has been shifted, budget-wise, away from technology and in favor of agricultural development.

Legislation and development of a social relation network insuring coordination of efforts of different services supporting agricultural development into one system are to be planned for.

PHILIPPINES

The linkages of institutions and services supporting agricultural development in the Philippines have been described in detail in the papers concerning specific institutions. These include the National Food and Agriculture Council, the Association of Colleges of Agriculture in the Philippines, Inc., the SEARCA, the U.P. College of Forestry and the U.P. College of Agriculture. For this reason, this country report is primarily intended to bring the analysis of the linkages in line with the basic format suggested for the country reports.

There are three basic functions that are performed by the institutions and agencies serving agricultural development: education or manpower development, research, and extension.

Education is supplied by the colleges and universities and the vocational agriculture high schools. The higher institutions of learning supply the higher level of manpower needed while the high schools are supposed to turn out graduates who will go to actual farming. It is significant to note that in the Philippines, both state-supported and private institutions of higher learning are available and contribute to the training of manpower. In the organization in 1962 of the Association of Colleges of Agriculture in the Philippines, Inc. (ACAP), the linkages of these institutions have been innovatively approached. The education, research and extension activities in the different member institutions have been linked.

For research, public and private institutions are also available. The impact of private endeavor has come dramatically from the work conducted in the International Rice Research Institute established in 1962. However, research is still being done largely by the public sector, particularly the U.P. College of Agriculture. The UPCA has produced some 85 per cent of

the agricultural research output in the Philippines. The agencies of the Department of Agriculture and Natural Resources, notably the Bureau of Plant Industry, are the other major sources of research output.

The Agricultural Productivity Commission does agricultural extension work all over the Philippines. It is this agency that reaches the farmers and homemakers in the villages. Another government agency whose representatives reach the rural areas nationwide is the Presidential Arm on Community Development. There are, furthermore, private groups conducting extension and community development work notably the Philippine Rural Reconstruction Movement.

Linkage of the different institutions doing research, extension, credit, marketing, infrastructure and other services became the main thrust of the relatively new government agency, the National Food and Agriculture Council. Formerly named the Rice and Corn Production Coordinating Council, this coordinating agency formerly was devoted exclusively to the rice and corn production program. However, following the validation of the agency's coordinative function, especially when rice self-sufficiency was achieved from 1968 to 1970, the pattern set by the RCPCC has been extended to other major crops such as upland crops, vegetable crops, and to livestock production. The mechanics of linking the different institutions and services for agricultural development have been firmly established. An agency can no longer exist in isolation. The NFAC sees to that should there be still any agency that is not linked. The private sector is also being brought effectively into the integrated agricultural service institutions and agencies centered in the NFAC.

On the other hand, moves are being taken to strengthen the weak links of government services. Adequate funds for services need to be supplied. The structure of government bodies is being modified for greater effectiveness and efficiency through the projected reorganization of government offices. Legislation to this effect is now being deliberated upon in the Congress of the Philippines.

THAILAND

As a result of the First Asian Seminar held in Thailand and India, September 21 to October 3, 1970, the consensus was reached that the linkage between various agricultural institutions is of paramount importance to the success of national agricultural development. A recommendation was made that each Asian institution represented should take follow-up action by organizing seminars and self-evaluation exercises and in which the institution building variables and linkage concepts are the central themes.

Following that seminar, Thailand initiated a move for the necessary follow-up action. It received favorable and very helpful suggestions from various institutions, such as the Department of Agricultural Extension, Ministry of Agriculture, the departments of vocational education and teacher training of the Ministry of Education that supervise the vocational agriculture school system and the agricultural colleges, and the faculties of agriculture of Khon Kaen University, Chiang-mai University, and Kasetsart University. We arranged some small group meetings and discussions to sound out people on this matter from time to time. Finally, it was agreed that a national seminar, attended by representatives of all agricultural institutions concerned, to discuss the problems of coordination and to recommend practical approaches to attain this goal, will be most useful. The seminar on coordination among agricultural institutions was held March 13 to 15, 1971 at the Kasetsart University with some financial assistance from the Agricultural Development Council (ADC).

In this Seminar we set the problems for discussion as follows:

Various facets of agricultural development work in Thailand — research, extension, and education at different levels — are entrusted to agencies operating rather independently. The lack of a desired degree of cooperation results in certain difficulties and problems.

1. Management of agricultural education in different institutions lacks coordination for there is no set policy at the national level to guide the agricultural education system.

2. Agricultural education institutions do not possess clear figures on demand of agricultural graduates at different levels of training.

3. Certain degrees of work duplication in agricultural research and education do exist among various agencies with resulting inefficiency and unnecessary loss of resources.

4. Agricultural institutions generally lack the exact information regarding suitability and efficiency of their own graduates. Research institutions likewise do not have definite feedback of the application by other related agencies of their research results.

The 45 participants attending represented agricultural institutions and related organizations. The seminar program included lecture-forum, panel discussion, group discussion and plenary session. The topics were "Coordination in Man-power Planning" on the first day, "Coordinated Effort in Agricultural Research" on the second day and, "Coordination in Agricultural Education and Extension" on the third day.

We came to main resolutions as follows:

1. As yet no educational institution or governmental agency in agriculture has taken the responsibility for coordinating the programs of, and the relationships among, the various bodies concerned as suppliers or employers with agricultural manpower needs. This lack of coordination in agricultural education at the various levels is the most serious problem faced at this time in providing the agricultural manpower that Thailand needs. Many agricultural societies or groups are already in existence. Cooperation in the different phases of agricultural education at the various levels is urgently needed and should be established at once.

2. Each institution training students and each organization employing them need to define more clearly to the other what it needs and what it can do. A coordinating committee for programs of agricultural education could help greatly to see that these statements are exchanged and understood.

3. Regular reviews of curricula, and consequently of teaching staff needs, may be required on the basis of the project plans

and work plans of various agricultural employers. At least, the institutions offering training need to know what skills employers require, what tasks employees must be able to perform, and what kinds of teaching personnel they should have to meet these needs.

4. Work analysis should be established to screen research projects and study cooperative roles among institutions.

5. Basic research should be kept as a direct university endeavor, but applied research needs to be cooperatively guided by the university and the appropriate Ministry divisions.

6. The universities should be a place for the identification of potential problems and the accumulation of basic data. Such work is essential to the applied research of the various ministerial divisions and departments. The results of such work should be reported to them regularly, promptly, and fully.

7. A control unit is needed to decide beforehand which team would be responsible for research on what crop and under what direction. Such a unit should be authorized to resolve differences so that efforts can be concentrated in following the national development plan.

8. There was general agreement that a distinct body or organization be established to coordinate activities concerning agricultural research, education, and extension among the agricultural institutions.

9. It was agreed that an interim committee for the organization be appointed to follow-up the work done by the steering committee.

10. It was suggested that the interim committee should consider and seek the services at the existing body or organization particularly the National Research Council of Thailand.

11. It was recommended that a document center be established at Kasetsart University to collect and file available data and information on manpower, research, and extension projects. This center will serve as coordinating and exchange center for the institution members.

12. It was generally agreed that a national seminar of this nature should be conducted yearly or every other year.

TURKEY

The agricultural sector, with its social and economic aspects, has a dominant place in the life of Turkey. However, the inefficient use of resources and the low level of present technology have impeded the rapid and sustained growth of this sector. The limiting factor in the technological development of agriculture has been the fact that a high percentage of the population is engaged in this sector, not only as employment but also as a way of life. The consequences have been the dominance of the traditional values and the difficulty in extending services to the great number of people dispersed over a large area.

Along with the low level of technology, the principal problems are: an agricultural structure unsuitable for year-round management; inadequate marketing system; the fact that the majority of holdings are too small even for family needs; population pressures; and the fact that 78 percent of the agricultural land is subject to erosion. Price fluctuations inherent to agricultural production and the development of the industries processing agricultural raw materials are additional factors affecting the development of agriculture.

On the other hand, aside from land to be reclaimed, new arable land to be opened for agriculture using present day technology is virtually non-existent. However, with the possibility of irrigating seven million hectares of land and with the possible changes in land use the availability of land may be improved. In addition, the improvement of technology constitutes the most important opportunity for developing the sector.

As an agricultural country, Turkey has almost all kinds of climate. For this reason she is also called Little Asia. She is surrounded by the sea; on the south, the Mediterranean Sea, on the north, the Black Sea and on the west, the Ege Sea. The Mediterranean sea coast has Mediterranean climate. The Ege and Black Sea coast also have a mild climate. The central part has steeper climate. The coldest part is North East Turkey. Because of the various kinds of climates, various kinds of soil crops are raised: grain, oil seeds, cotton, tea, tobacco, nuts, oranges,

citroven, olives, figs, grapes, etc. The country's animals include 38 million sheep, 20 million goats, 14 million cattle, two million donkeys, one million horses, 300 thousand mules, 30 thousand camels and 20 thousand hogs.

REPUBLIC OF VIETNAM

In South Vietnam the agricultural sector is the foundation of the national economy. Traditionally, agricultural products have constituted 90-95 per cent of the value of exports. Unfortunately, because of the war in recent years, Vietnam has become an importer of essentially all agricultural products except rubber.

In order to regain a favorable balance of trade, South Vietnam must develop its agriculture because this is the most promising, rapid, and economic way to accomplish such a goal. Last year, the Ministry of Land Reform, Agriculture, Fisheries and Animal Husbandry Development established a five-year plan for agricultural development. Manpower is one of the basic and important factors for such development. Well trained and educated agricultural personnel are needed at all levels from technicians to scientists in both the public and private sector.

At present there are two public colleges of agriculture: the National Agricultural Center (NAC) and the Faculty of Agriculture of the University of Can-Tho. Two other private colleges of agriculture were recently established in Saigon and in Tay-Ninh. I will limit myself to the National Agricultural Center.

The National Agricultural Center grew out of the successful operation of the Agricultural High School at Bao-Loc. In 1959, the government raised the school's standing from that of senior high school to a three-year college level. Sixty students were admitted after an entrance examination for the first class. In 1962, for security reasons, the College was moved to Saigon and was transferred from the Ministry of Agriculture to the Ministry of Education. Also at this time one year was added to the curriculum providing a four-year program leading to a degree equivalent to a Bachelor of Science.

In 1968, the College was raised to the Center standing with three colleges: College of Agriculture, College of Forestry, and the College of Veterinary and Zootechnical Sciences. Besides the three colleges, six divisions support the activities of all three colleges, namely the Divisions of Basic Science, Agricultural Engineering, Agricultural Economics, Agricultural Education, Fisheries, and Food Technology.

To be admitted to the first year of any Colleges of the Center, a student must have a Baccalaureat II degree in Sciences or Mathematics and pass an entrance examination. Each year the Center takes in 200 students from 3,000 to 5,000 applicants. The students must follow a four-year program. During the summer, freshmen and sophomore students receive practical training at the governmental experimental farms or at private farms. During their third and fourth year, students must work on a research project and must submit a report before graduation. The objective of the research is to give the student some experience in working on a project under the guidance of an experienced professor. It gives the student some idea of how to conduct an experiment and develop within him a respect for scientific or research information.

The permanent staff of the NAC consists of 72 professors, assistant professors and laboratory instructors. The Center also has over 100 Vietnamese and foreign part-time professors.

The National Agricultural Center plays a vital role in the development of Vietnam. This involves contributions in a number of important areas. The most obvious contributions are in providing college trained personnel to give leadership over a broad spectrum of activities which are basic to the development of Vietnamese agriculture. By 1971, 581 students had graduated from the NAC. At present the NAC concentrates on the training of undergraduate students. There is a growing need for agricultural personnel with graduate degrees. Until now such graduate training has been available only outside the country. The NAC will immediately begin to develop plans to offer a degree program at the M.S. level in a limited number of areas.

There are also an urgent need of adaptive research that will lead to improved technology, adaptation of new and improved varieties and improved processing and marketing. Re-

search results from other countries of the world may not be transferable per se to Vietnam because of differences in environment such as soils, climate, and acceptance by the producer and consumer. It will be necessary for Vietnam to develop its own findings to ascertain what can or cannot be used and what must be modified. With the nucleus of highly trained personnel, NAC plays an important role in agricultural research.

The NAC organizes many conferences which serve as a link, bringing together the governmental, agricultural agencies, and the private sector. Vietnamese and foreign agriculturists or scientists are invited to NAC to present papers on their research. The purpose of these conferences are to disseminate new information and to provide professional discussions for those who are involved in agricultural activities.

The present NAC facilities in Saigon cannot meet the needs for agricultural specialists and research that agricultural development is requiring. In November 1970, in a joint meeting of the Ministry of Land Reform, Agriculture, Fisheries and Animal Husbandry Development and the Ministry of Education, it was recommended that NAC formulate a ten-year plan. The Minister of Education requested the staff of NAC to formulate a plan for the expansion of the NAC program aimed at more adequately meeting the nation's needs for college level education in agriculture. It was asked that such a plan include proposals not only for reorganizing and expanding the academic program but also proposals for buildings and other facilities needed to develop a new campus at Thu-Duc. The faculty of NAC with assistance from a team of specialists from the University of Florida has formulated such a development plan for 1970 to 1980.

An experimental farm unit has just been completed at Thu-Duc. A 7,000 square meter three-story administrative instructional building is being constructed and will be finished by the end of 1973. Faculty and student housing, cafeteria, agricultural engineering shop and forest product laboratory will be constructed this year and will be finished at the same time as the main building.

With the facilities at Thu-Duc, NAC will organize an Institute for Specialized Training and Continuing Education under

the leadership of a dean. This institute would give leadership to and provide coordination for programs aimed at meeting the continuing education needs of professional agricultural workers, teachers, extension workers, etc. The institute would also carry out short courses or technical, non-degree programs to train technicians for various types of agriculturally related employment.

With the move to the Thu-Duc site, there will be an opportunity for NAC to respond to the critical need for expanding the agricultural research effort in Vietnam. It is proposed, therefore, that NAC develop a major research effort which will not only complement and enhance its teaching program but also contribute to the solution of problems limiting the development of the nation's agriculture. This research will be carried out in close cooperation with other research organizations in the country such as the Directorate of Research (Ministry of Land Reform, Agriculture, Fisheries and Animal Husbandry Development), the Vietnam Rubber Research Institute, the Vietnam Atomic Energy Office, the Pasteur Institute and the National Institute of Bacteriology and Animal Husbandry.

The Directorate of Research has very active programs in soil survey, soil analysis, and fertilizer experiments. A program for the use of radioisotopes in the study of soil problems is being initiated in cooperation with the Vietnam Atomic Energy Office. It is also conducting research in sugar cane, sorghum and peanuts on NAC land at the Thu-Duc campus. The Directorate of Research also conducts forest research at five forest stations: Dalat for *Pinus khasys*; Lang-Hanh for *Pinus merkusii*; Trang-Bom for lowland forests; Ban-Me-Thuot for *Hopea odorata*; *Tectona grandis* and some other species; and Duc-Hoa for *Melaleuca leucadendron*. Research in wood technology now being developed at NAC is to be a cooperative project between the College of Forestry of NAC and the Directorate of Research.

Because of the war, many experimental stations belonging to the Directorate of Research have been closed such as the Dairy Experimental Station at Ben-Cat (600 hectares), the Beef Cattle Station at Hung-Loc (500 ha.), and the Beef Cattle Station at Khanh-Duong (1,000 ha.).

There is a close cooperative effort between the NAC and the National Livestock Training Center (NLTC). The NAC

has leased 20 ha. to the NLTC for teaching and research in the areas of swine and poultry. The purpose of the NLTC is to serve as a training center for adult farmers below college level.

The Vietnam Atomic Energy Office conducts research on genetics of small animals and poultry and on a few selected crop plants. A training course on the use of radio-isotopes in agriculture is also offered by this office.

The Vietnam Rubber Institute, a member of the International Rubber Research and Development Board, specializes in research on rubber production and technology research on rubber production includes fertilizer trials, soil and foliar analysis, plant injections, hormone stimulations, tapping techniques, and variety trials.

The Pasteur Institute and the National Institute of Bacteriology and Animal Pathology produce vaccines and sera, isolate disease micro-organisms and conduct research on microbiology, parasitology and pathology.

At present there is close cooperation between these above-mentioned agricultural institutions and the NAC. Many staff members of these institutions are invited to give lectures at the NAC as part-time professors and the NAC students are allowed to use the facilities at these institutions for laboratory practice or for their research.

It has been proposed that a coordinating committee be established with representation from NAC, the Ministry of Education and the Ministry of Land Reform and Agriculture, Fisheries and Animal Husbandry Development to help plan, coordinate and expedite the most effective possible program in agricultural research for the country.

In conclusion, South Vietnam has a great potential for agricultural development. The National Agricultural Center will play an important role in this development. The primary mission of NAC is the training of college level technicians.

The NAC will be a Center of information for all areas of production, harvesting, processing, marketing and consumption. The NAC promises to develop into one of the most authoritative Centers for the development and dissemination of agricultural knowledge in South Vietnam.

**Part 3: The Role And Opportunities
Of An Association Of
Agricultural Colleges
And Universities**

THE OPPORTUNITIES, ROLE AND VIABILITY OF
ASSOCIATION OF AGRICULTURAL COLLEGES
AND UNIVERSITIES

ING. LEONEL ROBLES G.

Director, Division of Agricultural and Marine Sciences,
Technological Institute of Monterrey, Mexico

In this basic paper, the experience in founding the Latin American Association of Higher Agricultural Education (ALEAS), its achievements and growth are recounted. This paper hewed at the third objective of the seminar which was to consider the formation of an Asian Association of Agricultural Colleges and Universities. For such an association, several recommendations are forwarded. Among these recommendations is one on Statutes which "must be simple, closely related to Asian reality and sharply focused on the problems of higher agricultural education; the development of the primary activities of the institutions, namely, instruction, research and community services; the type of professionals and graduates which are needed by Asian countries; and the facilitation of the interchange of innovative experiences among its members." Appended to Ing. Robles' paper is "The Statutes of the Latin American Association of Higher Agricultural Education."

Activities of the Latin American Association of Higher Agricultural Education (1966-70)

The First Executive Board of the Latin American Association of Higher Agricultural Education (ALEAS) was chosen at the end of the Third Latin American Conference on Higher Agricultural Education, which was held in Piracicaba, Brazil, in July 1966; however, the plans for the organization had been worked out in two previous conferences held in Santiago, Chile, in 1958; in Medellin, Colombia, in 1962; and also in the regional meetings held in Mexico, Central America, and Peru. The first President was Ing. Leonel Robles G.

General Accomplishments

During the four-year period 1966-70, the ALEAS tried to fulfill the purposes for which it was created. (See Appendix A for the ALEAS statutes). The following are the principal accomplishments of the Executive Board:

1. A study entitled "Higher Agricultural Education in Mexico, 1968" was prepared and published.
2. A study on the present situation of higher agricultural education in Latin America was done.
3. A study of the status of postgraduate teaching in agricultural sciences in Latin America was sponsored jointly with the Higher Educational Advisory Committee of the American Republics and the Inter-American Institute of Agricultural Sciences of OEA (IICA).
4. The Fourth Latin American Conference of Higher Agricultural Education was planned, convened, and sponsored.
5. The North Zone published periodically five informative circulars prepared by the ALEAS. The circulars were widely distributed in three zones. The other two zones utilized the teaching material which was edited by the Inter-American Institute of Agricultural Sciences of OEA (IICA).
6. A Nominating Committee was appointed in accordance with the prerogatives conferred on the ALEAS' President in Article 14 of the Association's Statutes. The Committee presented in the last plenary meeting of the Fourth Conference a list of three candidates for each of the positions of the Executive Board which at present conducts all the affairs of the Association.

Meeting of the ALEAS' Executive Board

For the purpose of coordinating the activities of the Association, two meetings of the ALEAS' Executive Board were held in San Jose, Costa Rica.

During the First Meeting, which was held on July 15-19, 1968, the following agreements were made and executed:

7. The ALEAS was registered and legalized as a scientific association in the Public Registry of the Costa Rican Government.
8. The vacancies left by the members of the original ALEAS' Executive Board who no longer occupied the positions of Deans or Directors of higher agricultural schools were filled in accordance with the Association's Statutes.

9. A very close and reciprocal relationship was established with the IICA; the ALEAS' Secretariat was organized and made regional in accordance with the zones of the IICA; the stimulation of the regional meetings of deans of agronomy, animal husbandry, and colleges of similar sciences was agreed upon, and the mechanism for the structural coordination of the ALEAS and the IICA was established.

10. The Fourth Latin American Conference on Higher Agricultural Education was planned. It was agreed upon that the conference would be held in Mexico or Peru in May 1970.

11. Counting on IICA's cooperation, the ALEAS agreed to undertake the study on the present situation of schools of higher agricultural education also to promote institutional self-study which among other things would indicate the basic orientation of each educational institution, the available resources, the desirable and undesirable aspects, and the future projection in terms of agricultural development.

12. The following requirements were set to enroll institutions of higher agricultural education in the ALEAS' membership registry: (a) Presentation of an admissions application, (b) Presentation to the ALEAS Presidency-Secretariat of a written statement specifying that the institution's request for admission is official, and (c) The payment of the ALEAS' admission fee equivalent to \$10.00 DIs. and the annual payment for support of the Association equivalent to U.S. \$50.00.

13. The objectives of the Fourth Conference were set and a tentative agenda was prepared.

14. The following IICA representatives were named as ALEAS' Regional Secretaries: Dr. Ernesto Casseres for the North Zone, Ing. Carlos Cosio for the Andean Zone, and Dr. Alfonso Castronovo for the Southern Zone. Some deans representing the ALEAS were also designated for various countries and regions. At the same time, due to budget limitations, the ALEAS' Secretariat-Treasury which was located in San Jose, Costa Rica, and which was under the leadership of Ing. Mario Gutierrez was abolished.

At the Second Meeting of the ALEAS' Executive Board, which was held on August 21-23, 1969, the agreements relative to the location and date of the Fourth Conference were put into opera-

tion, and the final agenda for the conference was approved. The questionnaire for the Study of the Status of Latin American Higher Agricultural Education was also presented.

15. Because circumstances made it impossible to hold the Fourth Conference in Mexico or Peru as it had been agreed upon at Piracicaba, Brazil, it was decided with the written consent of the Board Members — Dr. Euripedes Malavolta, Dr. J. P. da Costa Neto, Ing. Gustavo Jarquin, and this speaker — to hold it in the Republic of Costa Rica. It was agreed that the most suitable time would be April 5-11, 1970.

16. The agenda for the Fourth Conference prepared at this meeting met with the approval of the absent members of the Executive Board. A tentative budget and a plan of action to defray the costs of the meeting were also prepared.

17. To resolve the problems indicated in the two preceding paragraphs, a commission was formed by two ALEAS Board members who sent official communications to the Ministry of Agriculture of the Costa Rican Government and to the Chancellor of the University of Costa Rica, requesting that each of the respective institutions provide partial sponsorship and patronage for the Fourth Conference. These requests were received courteously by both parties who expressed satisfaction that the Fourth Conference would be held in San Jose. They also gave the necessary economic support and cooperation in every aspects.

As a result of this suggestion, the Secretary of Agriculture, representing the Government of the Republic, and the Advisory Committee of the Costa Rican University, each agreed to give a grant of \$10,000.00. At the suggestion of the ALEAS President, this grant was to be administered by the University through a local commission in charge of organizing the Fourth Conference under the leadership of Ings. Alvaro Cordero and Jorge Mario Delgado, Dean and Secretary, respectively, of the Agronomy College. This commission would work in close contact with the ALEAS' committee in charge of external organization and coordination of the meeting.

18. With the cooperation of certain ALEAS and IICA Executives, the questionnaire, presented by the ALEAS' Regional Secretary to the Andean Zone, to carry out the Study on the Present Situation and Needs of the Latin American Institutions for

Higher Agricultural Education was revised. When the questionnaire is approved, it will be utilized by the Regional Secretaries to make the corresponding survey in each of the areas under their jurisdiction. When the survey is analyzed, it will be presented as one of the basic information documents at this meeting.

Meeting of the Organizational Committees of the Fourth Conference

Dr. Ernesto Casseres, Ings. Alvaro Cordero, Jorge Mario Delgado, and the speaker met in San Jose, February 9-10, for the purpose of coordinating the activities of the commissions of the University of Costa Rica and of the ALEAS in charge of organizing the Fourth Conference.

19. At this time, a definite program was prepared for the Fourth Conference, and with the concurrence of the Secretary of Agriculture and of the Chancellor of the University, a procedure was worked out for using the donations given by the entities under their leadership. The facilities and services needed for holding the conference were also arranged.

ALEAS Members

Sixty-seven colleges have presented requests for admissions to this Association and contact is maintained with 187 schools of agronomy, animal husbandry and related sciences, 18 of which offer postgraduate studies.

Recommendations to be Considered for the Formation of Asian Association of Agricultural Colleges and Universities (AAACU)

It appears appropriate to add to this discussion certain recommendations which are based on Latin American experience and which are intended to assist the future AAACU in avoiding certain problems which the Latin American Association of Higher Agricultural Education has had to face.

1. *The Association.* Association is the action of uniting with representatives of institutions in order to reach a definite goal combining efforts. Therefore, the association must define with a great deal of clarity its objectives and purposes.

2. *Statutes.* The AAACU statutes must be simple, closely related to Asian reality and sharply focused on the problems of

higher agricultural education, the development of the primary activities of the institutions (instruction, research, and community services), the type of professionals and graduates which are needed by Asian countries, and the facilitation of the interchange of innovative experiences among its members. These statutes must lay down with great clarity the minimum standards which must be satisfied by institutions which are interested in affiliating with the Association.

3. *Legal recognition.* For the Association to be legally recognized, it must have a Constitution which is registered in one of the Asian countries which will accredit the Association as an academic and scientific organization.

4. *Structure of the AAACU*¹. For the Association to have a federated structure, it is suggested that the following points be taken into account:

(a) The necessity of establishing permanent communication between the authorities of the Association and the affiliated institutions.

(b) The desirability of assuring an adequate geographic representation of the affiliated institutions on the Board of Directors.

(c) The existence of national associations, committees of deans or similar organizations in practically all of the countries which have several institutions of higher agricultural education.

(d) The possibility of establishing a close collaboration with international organizations interested in the development of institutions of higher agricultural education.

After considering and discussing the above points and analyzing the various possible courses of action, the following suggestions are made:

(a) Project the federated structure of the AAACU on the basis of geographical regions which coincide with the jurisdiction of a chosen international organization which is agreeable to working closely with the Association.

(b) Establish in each region a regional commission of higher education in agriculture composed of a representative of the institutions in each of the countries within the region.

¹ Meeting of the ALEAS Board of Directors, held at the Faculty of Agriculture, National University of La Plata, Argentina, December 1971.

(c) Arrange for the said representatives to be elected in each case by the National Association, committee of deans, or analogous organizations that are recognized by the AAACU, or by a delegation of the university-level institutions of higher education in agriculture that are officially recognized by the educational authorities in the respective country.

To be elected, the representatives should belong to an institution that is affiliated with the AAACU. They should receive a majority of the votes of the affiliated institutions in the respective country and they should have or have had an association with an institution of higher education in agriculture as dean, vice dean, advisor, professor, professor emeritus, consulting professor, or similar categories.

(d) Have a Board of Directors composed of a representative elected by each of the regional commissions plus a president who should be from the country that will host the next meetings of the AAACU and who is elected at a regular meeting of the affiliated institutions of the AAACU along with a backup person who would act in his absence or replace him if he is incapacitated.

(e) Provide that the person who serves as president will at the conclusion of his term as chief officer remain as an advisor to the new Board of Directors.

(f) Provide that those persons who serve in elected positions of the AAACU, whether in regional commissions or in the Board of Directors, remain in these positions for the statutory period even when they no longer hold in their respective institutions the administrative responsibilities which they held at the time of their election.

(g) Restrict the term of office of the officers of the AAACU to two or three years, the terms being equal to the interval between the periodic meetings of the Association.

(h) Authorize the regional commissions and the Board of Directors of the AAACU to function at their respective levels with the advisory bodies of the selected international organization on the various activities which have been agreed upon.

5. *Problems of representation and affiliation.* For the Association to have the critical representative desirable, it must fight from the start for the establishment of societies of colleges

of agriculture in each country, later providing for the grouping of regional associations of countries that are linked geographically by academic interests or by common programs of work which will automatically tend toward the integration of the Asian Federation of Colleges of Agriculture.

To maintain a close contact with its affiliated institutions, the Association should publish a journal or at least a monthly newsletter which will give information on academic innovations, requirements for affiliation, financing of the Association, outstanding accomplishments, technical information, etc.

6. *Evaluation.* To evaluate the progress of the Association, to facilitate the interchange of communications, to elaborate plans of work, decide on the agenda for periodic meetings, plan budgets, etc., the members of the Board of Directors should meet every six months in places that are somewhat equidistant from their respective countries of origin.

7. *Executive Secretary.* The AAACU should designate an Executive Secretary and should outline his activities and responsibilities. It is through this official that the continuity of programs of work of the Association is assured, even when there are changes in the members of the Board of Directors for statutory or other reasons.

8. *Working Agenda for the Meetings.* The working agenda for each of the meetings should be sufficiently attractive to encourage participation by the institutions that are affiliated with the Association. With respect to this point, it is suggested that the Association strive to have a study of the existing situation of colleges of agriculture in each country or region and also to promote institutional self-study which, among other things, will point up the basic orientation of each institution, the courses which it has, its strong and weak points, and its future plans in terms of agricultural development.

Through these studies it should be possible to identify the most important problems in the institutions which can be discussed in the periodic meetings of the Association along with subjects which refer to academic innovations, results of research in higher agricultural education — for example, micro-courses, a research thesis at the B.S. level as a method of teaching social

changes in education, the open university, teaching ability, a three-year curriculum at the B.S. level, etc.

9. *Budgets.* In Latin America the principal costs of operation are, in order of importance, for periodic meetings of the members of the Association (transportation, per diem, administration, secretarial work, reports, etc.); salary of the executive secretary of the Association; periodic meetings of the Board of Directors (transportation and per diem); expenses of the secretary of the Association; the journal of the Association; monthly newsletter of the Association, and others.

10. *Financing.*

(a) To cover the expenses of plane travel for members of the Association and the Board of Directors to the periodic meetings, it is necessary to solicit assistance from foundations, the government which hosts the meeting, other governments, international organizations and agricultural businesses. The cost of per diem should be borne by the educational institutions represented.

(b) The salary of the executive secretary should be covered by the selected international organization.

(c) The costs of the secretariat and the expenses of the newsletters should be covered by membership fees paid by affiliated institutions.

(d) The cost of publishing the journal can be covered initially by governments, international organizations, foundations, agricultural businesses and advertising, etc., but later the large part of this cost must come from the Association's own funds.

EXCERPTS FROM THE DISCUSSION

On the Funding of the Association. About funding, I have a pet idea that we are trying out for the Association of Colleges of Agriculture in the Philippines. It is to the effect that if an association deserves to exist and live, it must be able to earn the money that it needs to operate. We are working on the concept and we have suggested this to the member colleges: As a member, set aside one or two hectares of your field reservation devoted to crops. The proceeds of this area will accrue to the association.

In other words, we are trying to see whether we can stop the practice of getting money for the association from funds that are allocated by the national government to the colleges for their support. We must try to produce what we need. I have offered two hectares for this purpose. Another member university of the ACAP has offered 16 hectares. All of the proceeds from these lands will go to the association.

On the Impact of Institutions of Higher Education in Agriculture. Any school, any institution is recognized by its impact which are of two kinds. The first impact is through the alumni. How good are they? Are the alumni solving or are they contributing to the solution of the agricultural problems of the country? If they are, this can be the first impact of the school. The alumni will give prestige to the school.

The second impact of an institution is through research achievement, to reach the man who was not able to study in the university.

Higher agricultural education in Latin America has greatly improved in the past two decades. To attain such improvement, it was necessary to break away from the binds of our heritage of teaching. If you are merely teaching, teaching, teaching, you are likely to be playing the same record. Teaching should be

linked with research because education is for action. Education for action means learning by doing, doing research to produce.

On the Preparation of Students of Agriculture. We want to prepare our students with significant and solid technology and to imbue them with culture, ethics, projection to the community, and economic orientation. Economic development is the big task for our country and this is related to learning by doing and doing research to produce.

Any farm enterprise, any cooperative, should be a business. It should be a business like mining, steel, or any other enterprise, is a business. I mentioned that research must be done besides teaching because research improves teaching and as a by-product of research we produce rice varieties, corn varieties, wheat varieties to benefit mankind.

On the Different Levels of Agricultural Education. There are several levels of agricultural education. We should not confuse the median level or secondary level or practical level with the superior level. For instance, there is a school in South America where they graduate agronomists with very good practical training. These graduates are as good farmers as the best farmers. On the other hand, the professional training programs are different. For example, the one which you call the B.S. in Agricultural Engineering. The graduates of this course should be good scientists and the best.

APPENDIX A

STATUTES OF THE LATIN AMERICAN ASSOCIATION OF HIGHER AGRICULTURAL EDUCATION

Chapter I

Name and Motto

Article 1. The Latin American Association of Higher Agricultural Education, hereinafter called ALEAS, is a private and nonprofit organization, whose sole goal is the improvement of Latin American agriculture. It has no religious nor political inclinations and its motto shall be:

Chapter II

Objectives

Article 2. The ALEAS will have as its objectives:

(a) To establish permanent, friendly, firm, and collaborating relationships among the institutions of higher agricultural education and public, private, national, and international organizations interested in the development of agricultural education.

(b) To stimulate the advancement of competent professionals who have a sound scientific knowledge, high cultural and ethical standards, an understanding of community service, and an economic perspective.

(c) To faithfully implement the various professional norms.

(d) To contribute to the integration of agricultural education at all levels.

(e) To propose a uniform system of evaluating teaching methods and facilities in Faculties of Agriculture with the objective of arriving at equivalence of courses to facilitate greater exchange of information among institutions and constantly improve instruction.

Chapter III

Activities

Article 3. To meet the proposed objectives, the Association will pursue the following activities:

(a) Collaborate with agencies, committees, and organizations interested in agricultural education and promote studies which will establish balance between the demand for agricultural professionals and the number of professionals which each institution must produce.

(b) Encourage the authorities to periodically establish and expand the agreements and resolutions on the validity of the studies, titles, and professional performances in the different countries.

(c) Maintain vigilance over the prestige of the educational profession by sponsoring improvements in working conditions, the stability of employment of the professors and their professional improvement.

(d) Contribute to the coordination and increase in the research activities which will be carried out by the institutions of higher agricultural education, and promote the preparation and distribution of reports on the results of said research.

(e) Sponsor the diffusion of scientific findings in higher agricultural education through the publication of a journal and by other means.

(f) Prepare a compilation of regional terms that are used in different Latin American countries in various scientific fields as a means of facilitating the understanding of the agricultural literature of each country.

(g) Promote the expansion of the agricultural libraries, the training of librarians, and the exchange of communications; also provide incentive to authors of textbooks, guidebooks, manuals, monographs, and audio-visual materials, and contribute to the diffusion of these teaching media in the institutions.

(h) Promote the organization of the Latin American Meetings of Higher Agricultural Education in close coordination with the organizing board in the country where the meetings are to be held.

- (i) Give special consideration to the creation of new sources of work for professionals in the agricultural science fields.

Chapter IV

Headquarters

Article 4. The Association will have its headquarters at the Inter-American Institute of Agricultural Sciences of OEA. This institution will provide the services of a Secretariat in order to give greater continuity to the operations of the ALEAS.

Chapter V

Members

Article 5. Any Latin American institution of higher agricultural education which is officially represented by its respective dean, director, or delegate is eligible to become a member of the Association.

(a) *Founder Members.* Founder members of the Association are those colleges and schools of higher agricultural education which were officially represented at the Second Latin American Meeting of Agricultural Education held in Medellin in 1962, and which expressed in writing their desire to become members during the six-month period following the conclusion of the Third Meeting at Piracicaba (1966).

(b) *Active Members.* Active members are those institutions of higher agricultural education which after meeting the necessary requirements for their admission are accepted by the Executive Board.

(c) *Honorary Members.* Honorary members are those institutions which are considered outstanding in their contributions and meritorious services to the field of agricultural education.

Article 6. The founder and active members will have the privilege to speak and vote at the meetings.

Article 7. The requirements for admission will be established by the Executive Board.

Article 8. It is the duty of the Executive Board to study the proposal of any new honorary member and to place it before

the Assembly for consideration. Approval requires the favorable vote of two-thirds of the members present at the meeting.

Chapter VI

Fees and Financing

Article 9. The annual membership fee will be established by the Executive Board.

Article 10. The Association will be able to accept donations from people, institutions, and other organizations interested in higher agricultural education as long as such donations do not compromise the autonomy of the ALEAS.

Chapter VII

Duties and Rights of Members

Article 11. The following are the duties of the founder and active members:

- (a) To collaborate in achieving the Association's objectives.
- (b) To attend the meetings and participate in the deliberations and elections.
- (c) To pay the fees punctually.
- (d) To carry out work assigned as part of a committee, commission, or work group.
- (e) To be vigilant in the application of ALEAS' agreements.

Article 12. The following are the rights of the founder and active members:

- (a) To participate in social activities.
- (b) To represent the Association as requested.
- (c) To be appointed to committees, commissions, or work groups.
- (d) To make use of the privileges and benefits to which they are entitled as members of the Association.

Chapter VIII

Executive Board

Article 13. The Executive Board will conduct the affairs of the Association. The Board will be elected by the Assembly

and will have a President, a First Vice-President, a Second Vice-President, a Secretary-Treasurer, and a First, Second, Third and Fourth Members-at-large. The Secretary will be appointed by the President.

Article 14. Six months before the expiration of the term of the Executive Board, the President will name a nominating committee which will have four members from different countries. This committee will present a list of three candidates for each post in a regular meeting. The election of candidates will be held in accordance with the rules established by the Executive Board for election and voting purposes.

Article 15. The following are the functions and duties of the Executive Board:

- (a) Direct the business and finances of the Association.
- (b) Receive and react to suggestions made by the members.
- (c) Inform the members on the progress of the Association's affairs.
- (d) Organize and conduct the regular and general meetings of the Executive Board: establish the agenda, location, date, and purposes of said meetings and prepare those proposals for election and voting processes which will be discussed at the next Assembly.
- (e) Appoint committees, establish and modify the membership fees, prepare the budget and an annual report of activities.
- (f) Publish a magazine on higher agricultural education.
- (g) Establish the terms and conditions for admission to the Association.

Article 16. The President will represent the Association in all its functions; will preside at the meetings, promote the good performance of the ALEAS, and render an annual report to the associated institutions. The term of the President is four years without reelection.

Article 17. The Vice President will have a four-year term and will represent the President in his absence or as designated.

Article 18. The Secretary-Treasurer will record the attendance of the members at the meetings; prepare and sign the minutes of the ordinary meetings of the Association as well as those of the Executive Board; answer correspondence; keep records of names and addresses of the members; maintain correspondence with

the secretaries of similar associations and notify them of resolutions taken by the ALEAS, handle the Association's accounts and funds, keep a record of payment of fees, order payment of miscellaneous expenditures with the authorization of the Executive Board prepare budgets, statements of accounts, and reports on the financial status of the Association; take to collect the fees; prepare the treasury annual report. He will have a four-year term.

Article 19. The First, Second, Third, and Fourth Members-at-Large will collaborate in all activities of the Executive Board and will fill vacancies or act in the absence of the President and Vice Presidents. The First and Second Members-at-large will have a five-year term and the Third and Fourth Members-at-Large a four-year term.

Article 20. Whenever one of the members of the Executive Board ceases to perform his functions as Dean or Director of an institution, the person appointed to occupy his position will become member of the Executive Board and will automatically be Fourth Member-at-Large.

Chapter IX

Meetings of the Association

Article 21. The ALEAS will hold its regular meetings during the Latin American Meetings for Higher Agricultura' Education.

Article 22. The Association will be able to hold extraordinary meetings in a place and on a date that the Executive Board deems desirable.

Article 23. At least three months' notice will be given to the members of any meeting, its purpose, date, location, and duration.

Chapter X

Amendment of the Statutes

Article 24. The Association's statutes can be amended with the minimum vote of two-thirds of the members present at the meeting in whose agenda the amendment has been included.

Article 25. Cases which have not been anticipated in the statutes will be studied by the Executive Board and will be submitted to the Assembly for its consideration.

Article 26. The Executive Board will conduct the studies for the establishment of these statutes and they shall be submitted to the Assembly for consideration.

Article 27. The ALEAS considers the terms Dean and Directors as synonymous whenever the responsibilities of the positions are equivalent.

Article 28. The Association considers all agricultural and similar disciplines under the term of higher agricultural education.

Transitory Article. All Deans and Directors of colleges or schools of higher agricultural education present at the Third Conference in Piracicaba will have the right to vote in the election of the Executive Board.

PROGRAMS AND ACTIVITIES OF THE ASSOCIATION OF
COLLEGES OF AGRICULTURE IN THE PHILIPPINES

By

B. M. SANTOS

President, Mountain State Agricultural College and
President, Association of Colleges of Agriculture
in the Philippines

In January 1964, school executives representing 13 institutions met in the U.P. College of Agriculture and formally organized the ACAP. Dr. D. L. Umali, then dean of the UPCA, was elected the first president of the association.

The organizers conceived the ACAP as a means to attain maximum coordination and establish lines of cooperation among the member institutions principally in the areas of instruction, research, and extension. It was also to promote and establish cooperative relationships between the ACAP and other institutions, agencies, and individuals involved in agriculture.

Some of the accomplishments of the association since its founding and which continue and are being strengthened have been: the inauguration of curricular adjustments to get common courses taught in the ACAP institutions to conform to accepted standards; the pooling of resources to evolve course syllabi for the ACAP schools; an integrated faculty development program; coordinated and joint or cooperative research; the promotion of each institution to conduct its own extension activities for the farmers in the particular community it serves.

It is generally accepted the world over that a college of agriculture must perform a trilogy of functions, namely, instruction, research, and extension. It is assumed, therefore, that when a college of agriculture is thus organized it will be well-funded and equipped to undertake these three functions effectively and efficiently.

But it often happens, even in the richest of countries, that some Colleges will be better funded and equipped than others. Even the natural resources and personnel qualifications, expertise and experience do vary widely from place to place.

Hence, there is a need for a consortium or association of some kind among these colleges if the national program and goals for improving the agricultural economy and advancing the social life of the people, particularly the rural population, are to be carried out with maximum effectiveness.

The Birth of ACAP

In the fifties (1950), the Philippine government felt the need for establishing more colleges of agriculture in several parts of the country to accelerate the development of the agricultural economy. This was conveniently accomplished by the conversion of existing national agricultural schools into chartered colleges of agriculture and technological schools. By Congressional action, the Central Luzon Agricultural College became the Central Luzon State University in 1950. It was followed, in quick order, by the chartering of Mindanao Agricultural College, now Central Mindanao University; Mindanao Institute of Technology; Samar Institute of Technology (now the University of Eastern Philippines) and several others.

In addition to the conversion of agricultural schools into state chartered agricultural colleges, a number of private universities were also authorized to establish and open colleges of agriculture. At the same time, the Bureau of Vocational Education also was authorized to offer degree programs in agricultural education, agricultural homemaking, home technology, and technical agriculture.

So fast had this transformation taken place that within 15 years (1964) there were 25 state institutions and 4 private universities and colleges offering degree programs in agricultural education, technical agriculture, and home technology with agricultural content.

It was about this time that ACAP was conceived and discussed by then UPCA Dean D. L. Umali with the writer, while the former was visiting the Mountain Agricultural College, now Mountain State Agricultural College, in the summer of 1963, and subsequently with heads of other colleges of agriculture and uni-

versities with colleges of agriculture. The idea caught on and won the support of all the institution heads contacted.

Thus, in January, 1964, with the support of Ford Foundation, the representatives of 13 institutions assembled for the first time on the U.P. College of Agriculture campus to formally organize the Association of Colleges of Agriculture in the Philippines (ACAP). At this organizational meeting the Constitution and By-Laws were formulated and adopted by the delegates. Dean D. L. Umali was elected the first president of the Association.

Purposes of the ACAP

As conceived by the organizers, the objectives of ACAP are to attain maximum coordination and establish lines of cooperation between and among the member institutions, with stress on the primary areas of (1) instruction, (2) research, and (3) extension. It was also envisioned to promote and establish cooperative relationships between ACAP and other institutions of learning, government agencies, private industry and companies and individuals interested in agriculture.

Programs, Projects and Activities¹

Much has been accomplished since the founding of ACAP, but for the purpose of this conference I shall omit the statistics. Suffice it to mention that since its organization, the Association's efforts were primarily directed to the upgrading of the instructional, research and extension activities of the member institutions. Some of the tasks undertaken and strategies introduced follow: (1) curricular adjustments were made such that common courses conformed with accepted standards; (2) resources were pooled to evolve course syllabi for subjects offered by all ACAP members; (3) a program of faculty development was formulated and implemented, supported with funds made available by the UP College of Agriculture, Ford Foundation, Rockefeller Foundation, and some private institutions or companies; and, (4) the ACAP worked out a program of commodity assistance with the Rockefeller and Ford Foundations, and with USAID for selected ACAP member-institutions.

¹ See Appendix A for a detailed list of the activities.

All these programs and activities, and more, have been strengthened and continued to this day.

In the area of research, ACAP members have also evolved a working arrangement whereby institutional researches are coordinated to avoid unnecessary duplication. Joint and cooperative research studies are likewise being conducted in most of the member colleges with two or three institutions working together on the same project.

In a number of cases, agencies outside of the Association, such as NFAC, BPI, APC, BAI, BAE, and NSDB, are directly or indirectly involved in these cooperative research projects.

In the area of extension, individual members of the Association conduct their own extension activities by dispensing professional and technical assistance to farmers and agribusiness people in the community served, or distributing improved animal stocks and planting materials to farmers, either independently or in cooperation with the APC, BPI, BAI and other national agencies.

Impact of ACAP on the Agro-Economy

Although exact figures are not available at the moment, it can be claimed that since ACAP was formed, the impact of the agricultural education programs and other related activities of ACAP members on the agricultural economy has been increasing and improving every year. The increasing demand for graduates of colleges of agriculture by both government and private agencies, and private industry indicates a healthy response to the ACAP revitalized programs of agricultural education, research and extension. It also shows the increasing faith and dependence of the agro-economy upon the colleges of agriculture for well-trained manpower.

The research products of ACAP institutions are now most eagerly awaited by farmers and agribusiness practitioners.

Linkages Established

ACAP member-institutions have successfully linked with one another in many important ways. Through its Executive Committee and various standing committees, programs, projects, and

activities which are common or similar are planned cooperatively and implemented in a nationally or regionally coordinated manner. Cooperative planning is exemplified by the work of the Curriculum Committee, Research Committee, Extension Committee, Library Committee, and Home Technology Committee. The national coordinating body of the ACAP is its Secretariat based at Makati, Rizal.

The ACAP as a body has likewise forged direct links with other government agencies, particularly those involved in the development of the country's agricultural economy. Among these agencies are the BPI, BAI, APC, BSC, CB, DBP, NFAC, NSDB and many others. Special mention must be made here of the links established between ACAP members and the IRRI, DTRI, SEARCA, and with the Ford and Rockefeller Foundations, and USAID.

Connecting links are also being established or have already been established between ACAP members and private institutions and industry, notably with companies manufacturing or selling agricultural chemicals such as fertilizers, pesticides, fungicides, animal medicine and antibiotics, and feeds.

Weak and Missing Links

However, there are yet many links which are either weak or missing.

Since the practice of agriculture requires an ever increasing acreage as the population expands, it is imperative that strong bonds be established between ACAP institutions and the (1) Bureau of Lands, (2) Department of Land Reform, (3) Bureau of Forestry, (4) Reforestation Administration, (5) Bureau of Soils, (6) National Irrigation Administration, (7) Fisheries Commission, etc. so as to coordinate the national effort to achieve proper land use and conserve resources.

Equally important is the establishment of closer ties and working relationships with public and private employers of graduates of ACAP institutions so as to more faithfully gear the programs to the needs of and meet the demand for ACAP-trained manpower by industry.

Most important of all, I believe, is the organization of a more aggressive extension program the personnel of which should

directly and actively participate in agricultural production by conducting on-the-farm training programs to introduce the new technologies of agricultural production to adult farmers, young farmers, and beginning or would-be farmers. Better still, more and more agricultural college graduates should be encouraged to seek self-employment in farming.

Socio-Economic Workshop of the World

Asia is the socio-economic workshop of the world today and will be for several years to come. Asian countries, with but a few exceptions, are burdened by problems the magnitude of which requires massive programs, funds and highly trained personnel. Common to most Asian countries are the problems of (1) population explosion, (2) underproduction of both agricultural and industrial goods, (3) uneconomic use of resources, (4) poverty of the masses, and (5) social unrest. All these problems have serious economic implications.

Much hope is placed in education for the solution of these problems. Agricultural education, particularly, is called upon to play a major role because it is directly concerned with the most basic need of humanity — food.

In some Asian countries, like the Philippines, self-sufficiency in foods is far from achieved. The pressure is increasing at the rate of more than a million new mouths to feed every year. One may well ask: will the advance gained or attained in the science and technologies of agricultural production enable the country to cope with its problems?

My answer is yes, provided that practices are innovated and new strategies are adopted.

The Link that Will Count Most

From the national point of view the ACAP links which will produce the most significant impact on agricultural production are those which will directly involve graduates in actual production activities. It must be pointed out that college education, even secondary education, in agriculture has become a way out of the farm. And unless this concept is corrected, the aspiration of the farmer-parents for their children will always be biased in

favor of professions and occupations other than actual farming. The inevitable result will be status quo in the agricultural productivity of Philippine farms. At best production will increase but at a rate far from sufficient to meet the demand for food of the rapidly increasing population.

Proposals for the Philippines

It is this writer's opinion that Philippine colleges of agriculture, through the leadership of the ACAP, should radically revise their working philosophies so as to permit the following innovations:

1. Commercialization of agricultural projects so as to make them more positive and effective instructional devices. These projects must demonstrate that farming as an occupation is profitable, pleasurable, and socially rewarding.
2. Specialized courses in agricultural production, processing and marketing, and degree programs with agribusiness orientation should be offered. The object of this proposal is to produce graduates who will go into actual farming after graduation.
3. A program of on-farm-placement and follow-up should be started to assist graduates in getting established on farms and to help them progress in the occupation of farming.
4. ACAP members should establish working relationships with colleges of agriculture of other Asian countries, as well as those of Europe and the Americas. The organization of an Association of Colleges of Agriculture in Asia is necessary for the problems confronting the region demand a concerted action among all the countries of the region.

Appendix A

SCHOLARSHIPS

<i>Current</i>	<i>Number</i>
1. Masters in Agriculture	6
2. Masters in Agribusiness	13
3. Accelerated Faculty Development Program	11
4. Coordinated Faculty Development Program	4
5. UPCA Scholarships	8
a) P150/month Partial Scholarship of UPCA	
b) Teaching Fellows	

SEMINARS

1. First Textile and Clothing Symposium-Workshop, U.P. Los Baños, October 21-23, 1971

Participants — ACAP member institutions; Bureau of Public Schools, Division of Laguna; Agricultural Productivity Commission; Assumption Convent; Philippine Christian Convent; Baybay College of Agriculture and Technology; Textile Mills Association of the Philippines; Philippine Normal College; Bureau of Vocational Education; and San Pablo City Schools.

2. ADC/ACAP Workshop Teaching and Research in Agricultural Economics, Cagayan de Oro City, December 27-30, 1971

Participants — 18 member institutions from ACAP; Agricultural Development Council; Bureau of Agricultural Economics; Center for Research Communication; Ford Foundation; International Rice Research Institute; UNESCO/UNDP; and U.P. School of Economics.

3. Fourth ACAP Home Economics Workshop, CSNAS, Pili, Camarines Sur, June 9-14, 1969

Participants — ACAP; Bureau of Public Schools; Bureau of Vocational Education; Home Economics Services Division of City

Schools; Agricultural Productivity Commission; and Philippine Home Economics Association.

4. ACAP Teaching Workshop on Animal Husbandry, UPCA, College, Laguna, February 7, 1970

Participants — ACAP and U.P. College of Agriculture.

5. Seminar-Workshop in Grain Processing, UPCA, College, Laguna, December 7-10, 1970

Participants — ACAP; U. P. College of Agriculture; International Rice Research Institute; Philippine Seeds, Inc.; Agricultural Credit Administration; ESSO, Philippines; Bicol Rice and Corn Experiment Station; National Irrigation Administration.

6. Workshop on Animal Science Research, UPCA, College, Laguna, February 5-6, 1970

Participants — ACAP; Philippine Society of Animal Science; and Department of Agriculture and Natural Resources/National Science Development Board.

PROJECT

1. NFAC/USAID Projects
2. Manpower Training on Animal Production Commission
3. Agricultural Economics Teaching and Research Development in the Philippines
4. National Food and Agriculture Council (NFAC) Committee on Manpower Development in Animal Industry
5. Feasibility Study for an Agricultural Productivity Disasters Insurance Scheme for the Country (together with NFAC and NEC-USAID)
6. Research Review Phase II (NFAC/ACAP Joint Project)
7. Presidential Commission to Survey Philippine Education

PUBLICATIONS AND BOOK DONATIONS (FREE)

155 school books for high school donated through ACAP by Mr. and Mrs. Harold Tottens to MSAC; Workbooks in Advanced Clothing Designs, by Delfina M. Torreta; Reports on the Asian Agricultural College and University Seminar, by J. A. Rigney and R. W. Cummings; Democratic "bayanicracy" through

sixty-four basic constitutional reforms, by Salvador Araneta; Basic Nutrition; Seed of Change; ACAP Newsletter; MIT Research Journals, Vol. I, No. 1, Vol. II, Nos. 1 & 2, and Vol. III, Nos. 1 & 2.

PUBLICATIONS FOR SALE AND DISTRIBUTED FREE

Workbook in Advanced Clothing Design, by D. M. Torreta; Basic Clothing Design: A Laboratory Manual, by V. B. Fernandez and S. Ancheta; Food Selection and Preparation, by Martina Clemente, et al.; Not by Sound Alone, by Ed. P. Agravante; Proceedings of the first to the ninth Annual Convention of the Association of Colleges of Agriculture in the Philippines, Inc.; Summaries of Studies in Agricultural Education in the Philippines from 1930-1959; Summaries of Studies in Agricultural Education in the Philippines from 1960-1968; ACAP Research Workshop Proceedings; Seminar-Workshop Proceeding of Concepts and Generalization for Effective Instructional Materials in Home Economics; Training in Agriculture at the College, High School, and Elementary Levels in the Philippines; ACAP Home Economics Research Workshop Proceedings; and, Agricultural Engineering Seminar-Workshop Proceedings.

**Part 4: The Organization
Of The Asian
Association Of
Agricultural Colleges
And Universities**

THE AAACU IS BORN

From the University of the Philippines at Los Baños, through the vast, summer-parched fields of Central Luzon, the participants in the Second Asian Agricultural College and University Seminar motored to Baguio and in the city's cool officially formed the Asian Association of Agricultural Colleges and Universities. On May 1, Labor Day, the AAACU was born at 10:52 a.m. when in the plenary session at the Pines Hotel Conference Hall, the Constitution of the Association was formally ratified. Adoption of the By-Laws followed. Both documents were signed in the same meeting.

The 18 signatories represented 17 Asian institutions of higher learning in agriculture and one national association, the Association of Colleges of Agriculture in the Philippines (ACAP). The countries represented were the Republic of China (Taiwan), Indonesia, Iran, Korea, Malaysia, the Philippines, Thailand, Turkey, and the Republic of South Vietnam.

The Constitution and By-Laws as finally adopted appear on pages 208-215.

Efforts to found the association started in the First Asian Agricultural College and University Seminar held on September 20-October 5, 1970 in Thailand and India. In that seminar, the participants reached the consensus to form an association of agricultural colleges and universities in the region to promote interchange of information and cooperation in teaching, research and public service among the member institutions.

At the end of the seminar, one of the delegates was asked to draft the Constitution and By-Laws. Vice Chancellor K. C. Naik of the Mysore University of Agriculture Sciences in Bangalore, India prepared the draft. Copies of the draft were sent to all those who participated in the seminar for their comments and suggestions. The observers from international organizations also gave lengthy comments on the draft.

The Interim Organizing Committee for the second seminar deliberated anew on the draft when it met in Thailand in August 1971. A few consultants assisted in the work of the group. Thus before presentation in the second seminar held in the Philippines, the documents had already been thoroughly studied and revised, not only by the delegates in the first seminar but also by many others interested in the success of the project to form the Asian association.

When the second seminar convened at Los Baños the latter part of the afternoon session on the first day, April 24, 1972, was scheduled for the presentation of the revised draft proposal for an Asian Association of Agricultural Colleges and Universities including the proposed Constitution and By-Laws.

Dr. M. C. Chakrabandhu, chairman of the Interim Organizing Committee for the seminar in the Philippines, was requested to do the presentation, Vice Chancellor Naik having been unable to arrive for the seminar. Dr. Chakrabandhu defined the task for the day as "merely to go through the drafts in order to get the essence of each section, as homework preparatory to the meeting in Baguio." There the documents would be formally submitted for approval by the delegates.

In this first presentation, the exchange of views and comments gave major attention to the name of the association; the number of votes of a member nationwide association of agricultural colleges and universities in the Asian association; and the divisions that would be created in the organization, namely, a division of instruction, a division of research, a division of extension, and a division of administration.

On May 1 at the Pines Hotel Conference Hall in Baguio City, the bright glow of the early morning sun played on the front dais as Prof. Jose D. Drilon Jr., director of the Southeast Asian Regional Center for Graduate Study and Research in Agriculture, began his task to moderate the formal consideration and ratification of the proposed Constitution and By-Laws.

About three hours later, at 10:52 a.m., the Constitution was approved. The ratification of the By-Laws followed, the work reaching happy completion by two minutes before twelve o'clock.

The highlights of the discussions of the delegates give a view of the major areas of concern considered before approval of

each provision. Most provisions sailed smoothly. However, extended comments and exchange of views attended the approval of some provisions. In a few cases, the delegates' will was taken through voting. For easier reading and comprehension, the records from the meetings on April 24 and May 1 are summarized jointly under the particular topic to which the comments raised referred.

On the Name of the Association

Article I of the Constitution states the name of the association. To agree on the name of the association, the delegates took a long route that ended back to the name originally proposed by the Interim Organizing Committee. The name Asian Association of Agricultural Colleges and Universities (AAACU) was the name used in the proposed draft of the Constitution. It was however "a long name" and its initials AAACU were "not easy to pronounce." Moreover, it was not "embracing enough" to include the concept of a federation of national association which form the association might take. Another misgiving was that there were also "some agricultural schools in the same level as the faculty of a university which were in the faculty of agricultural universities." Thus, other alternatives were suggested to facilitate communication and to "include what we want to include in the association." Nine names besides the original AAACU were, as a result, suggested.

At the later part of the discussions on the topic, the name AAACU was resurrected for inclusion in the growing list of names. On the contrary, the name did not pose any difficulty for communicating. Furthermore, the name "had already been with us for almost one year now and is known to all of us." The name of the association should be one that is easy to remember. AAACU "satisfied this requirement."

The formation of a federation, it was also contended, was not the intention of the proposed Constitution. A federation is a group of individual national associations. The Asian Association was envisioned more for the membership of individual colleges and universities. More about this issue later in the topic on membership.

Neither was it appropriate to include non-Asian institutions in the proposed organization. The intention was clear that the asso-

ciation was to be an association of Asian agricultural colleges and universities. There was, however, a provision for affiliate members or non-voting members for those institutions, agencies, and foundations interested in contributing to the success of the association. The presence in the seminar of Ing. Robles who hails from Latin America was "to share with us their experience in the formation of the Latin American association." There was no need to feel embarrassed in excluding the Latin American countries "since they were not a part of Asia and did not expect to be included."

The 10 names listed were then put to vote by the raising of hands. The name Assian Association of Agricultural Colleges and Universities (AAACU) garnered 10 votes; Asian Association of Scientific Institutions in Agriculture (ASIA), three votes; Federation of Universities and Colleges of Agricultural Sciences in Asia (FUCASIA), two votes; Seminar of Agricultural Colleges and Universities in Asia (SACUA), one vote.

The following suggested alternatives received zero vote: Federation of Universities and Colleges of Agricultural Science in Asia and the Far East (FUCASAFE); Association of Faculties and Colleges of Agricultural Sciences in Asia (AFCASIA); Association of Colleges of Agriculture and Universities in Asia (ACAU); Federation of Asian Colleges and Universities in Agriculture (FACUA); Association of Universities and Colleges of Agricultural Sciences in Asia (AUCASIA); and Asian Universities and Colleges of Agriculture Association (AUCAA).

On Membership

Article III of the Constitution concerning membership was another much-discussed provision. The contending views centered on the kinds of membership to be included in the Asian association; the number of votes that would be assigned to a member (either institutional or associational); and the limit on the number of members of either type that would be accepted from a country.

In the proposed Constitution, two kinds of members were defined: members and affiliate members. (In the discussions, the first mentioned type of member was often referred to as "regular members.")

The category of regular members included two kinds (a) agricultural colleges and universities that are members in their own right, and (b) national associations of agricultural colleges and universities.

What did the term *national associations* mean? Did it mean private or non-governmental associations? In some countries it meant government associations.

The word *national*, in its sense in the text of the proposed Constitution, meant *nationwide*. The members of so-called national associations could include government and private colleges. As an example, the Association of Colleges of Agriculture in the Philippines (ACAP) is an association of 18 agricultural colleges, some being government-supported and some privately supported. But it is an association having individual institutions as its members. An association may also be referred to as one of national standing, that is, once an association is registered it is recognized on a national level.

It was proposed that the Asian association should have three types of members, namely, the charter members, the associate members, and the affiliate members. The charter members would be the institutions that were represented in the first and second seminars. The associate members would be those that would apply and whose applications would be approved as associate members. The affiliate members would be mostly the institutions that are neither colleges of agriculture nor universities offering degrees in agriculture.

The proposal to have two types of members only — the regular members and the affiliate members — had its own supportive arguments. Subdividing the membership as proposed above was of “no real value except for historical reasons to identify who were the original members and who were the later members.” That was “of value only in stock corporations because of its legal implications to stockholdings and shares in the profit.”

The provision of two kinds of members, that is, individual agricultural institutions and associations was intended for “flexibility.” Only few countries yet in Asia have nationwide associations of agriculture. At the same time, in some countries of Asia, there are many agricultural colleges. It would be very difficult to

expect all these institutions to become members and profit thereby. The resources of many were too limited for them to become active participants in the Asian association. For example, many of them would not be able to send representatives to the Asian seminars because of financial reasons.

The strong agricultural colleges and universities could well participate directly in the Asian association. On the other hand, the smaller institutions which cannot directly benefit from the Asian association could participate through the nationwide association. The national association which is also a member of the Asian association could help disseminate information, distribute materials, etc., to the smaller colleges which may not be able to participate directly.

However, it was underscored that the national association had a direct responsibility in updating the weaker agricultural schools in order to make them qualify later on to become members of the regional association. As a result of the unfortunate proliferation of agricultural institutions in some countries in the region, notably in the Philippines, there were many more colleges within the country applying for membership in the national association. But "perhaps we should also recognize the possibility of encouraging some of these so-called colleges that are not up to standard to even retreat a little bit and for them to intensify their work on the lower college level or technician training level instead of offering a baccalaureate degree. While we should encourage as many of them as possible to improve their standards, those which really cannot do so must face the fact and they should be encouraged to stay at a certain level. This would be better for the overall program of agricultural development of the country."

May not some countries having more agricultural colleges and thereby also more votes, dominate the countries with less?

The committee that attended to the drafting of the Constitution and By-Laws thought of the possibility of one country dominating another through the voting process. For this reason, a provision was made in the Constitution that no single country should have more than 25 per cent of the total membership of the Asian association. Countries which have many colleges of agriculture cannot exceed this 25 per cent ceiling.

Decision on the debated issues was then called. The delegates voted by the raising of hands.

The first issue which was put to vote was whether there would be two kinds of members under the category of regular members, namely, the institutional and the associational members. Five voted in favor of having institutional members only. Five voted for the provision as drafted, that is, two kinds of regular members. Because of the tie, the moderator asked for another raising of hands. This time voting was 5-6 in favor of two kinds of regular members.

The next issue which was put to vote was on how many votes would be assigned to institutions on one hand, and to associations, on the other. All agreed on one vote for the institutional member. For the associational members, eight delegates were counted in favor of one vote, four in favor of two votes.

Should there be a limit to the number of national associations that a country may have in the Asian association?

The view was asserted that it was indeed possible, although quite unlikely, that there would be two associations of agricultural schools in a country. In this case, "as a safeguard, we might agree that whichever association is organized first should be the one recognized." Any association that is formed later should not be accepted. This point should be "reflected in the Constitution so there won't be any misunderstanding later on."

A specific case of the existence of two associations in a country was cited. Members of the Association of Colleges of Agriculture in the Philippines also belonged to the Philippine Association of State Universities and Colleges. Can the latter association also become a member of the contemplated Asian association? It was asserted that in such an event, it is the association of agricultural colleges and universities that could qualify in the Asian association.

The question was raised on who would officially represent the member institution. Special reference was made to the "mixture of agricultural colleges and universities." Central Luzon State University in the Philippines was given as an example. Who would represent the institution, the president of the university as a whole or the dean of the college of agriculture?

It was held that there should be only one representative of an institutional member. This may be the president of the university

or the dean of the college of agriculture, but in any case there should be only one representative.

The Asian association was an association of agricultural colleges and universities. In the case of a university which is not an agricultural university, "there is no reason why the university president should be the one participating in the governing council of the Asian association because he is not likely to be in a good position to discuss agricultural programs." But an institution which is an agricultural university should be represented by the president of the institution. In the case of a general type university, the dean of the college of agriculture should be the representative.

Divisions of the Association

The next problem area was indicated by the suggestion that four divisions be created in the organization, namely, those of research, instruction, extension, and administration. These divisions would be very helpful in the planning and implementation of the programs of the association.

Nowhere in the proposed Constitution was this suggestion indicated. However, such could be inferred since a constitution is general and the implementing arm of the association could do whatever it deemed appropriate to effectively achieve its objective.

Therefore the issue that must be decided was whether the organizational structure of the implementing arm of the association was to be reflected in the Constitution or left to the Governing Council to decide.

Could not this aspect be done, however, in the By-Laws rather than in the Constitution?

The delegates were then referred to Article VI — Committees, of the By-Laws. When the Interim Organizing Committee drafted and revised the draft, it was thought that it could simply be stated in the By-Laws that "The Governing Council shall create such committees as it may find desirable for carrying out the work of the Association." This wording gives the Governing Council a lot of flexibility. However, the point in making the four committees mandatory was also appreciated. Nevertheless, if it was to be included in the document, it should appear in the By-Laws rather than in the Constitution.

It was then suggested that the By-Laws, Article VI, be simply written thus, "The Governing Council shall create such divisions and committees..." And that would do it; divisions and committees covered the point. This would be a simple solution to what might be a complex problem. It gave the Governing Council the flexibility it needed. The provision was carried.

Minor or Major Things

After consensus on the wording of the By-Laws on the creation of divisions and committees, the discussion of the "minor things" was suggested. Or were they instead major things, for indeed "people have different ways of looking at things."

Since the two documents had only seven pages, it was suggested that the delegates go over the provisions very rapidly page by page.

"Let's start with the Preamble. It looks like a pretty well-phrased preamble. I don't think we can on the spur of the moment improve it. Can we? APPROVED. No objections, no questions."

Actually, this was the second time the Preamble was approved unanimously and without any dissenting comment. In the preliminary presentation of the draft proposals on April 24 at Los Baños, the session chairman had also presented the provisions one after the other.

In Article II, No. 1, there should be an "s" in program.

In Article III, No. 1, "(b) national associations of agricultural colleges and universities in the various Asian countries," the word "national" should be cancelled because it was misleading. It connoted that the association was a government association.

In Article III, No. 2, the phrase "universities and colleges of agriculture in the Asian countries," should be "agricultural universities or colleges of agriculture in the Asian countries."

In Article III, No. 5, the word "shall" should be used instead of "may." The phrase referred to in the proposed Constitution, read as follows: "and provided further that the total number of memberships for any single country *may* not exceed twenty-five per cent of the total authorized membership."

In Article III, Section 2, the phrase "baccalaureate or its equivalent" should be inserted because "in our case they consider a degree in engineering a B.S. degree." The terminologies should be clear. It would be "baccalaureate or higher degrees or their equivalent degrees..." which gave added flexibility and made the wording more faithful to the intention of the body.

In Article III, Section 6, it was suggested that student enrollment be added to the criteria.

In Article III, Section 7, "annual subscription" meant an annual membership fee. This latter word was specific.

In Article V - Section 3 on Finances, three changes in the text of the proposed Constitution were suggested.

The original wording read:

3. Expenditures for all work and activities of the Association shall be financed only to the extent provided in the budget of the Association which shall be considered and approved first by the Executive Board and later by the Governing Council.

The original wording was limiting. It was "tying your hands and preventing yourselves from doing something which on the spur of the moment or by virtue of new circumstances you see a need to do, and which may be different from what was envisioned at the time of the formation of the budget. The association might need a device, say, a special budget so that it could undertake an activity which had not been originally envisioned.

It was suggested that the word *ordinarily* be inserted into the provision. Then it would have to read: "Expenditures for all work and activities of the association shall ordinarily be financed..." Just that word would give the association "much leeway." If the body's intention was to achieve sufficient flexibility, then the minutes of the discussion should reflect that intention.

Another suggestion: It would sound better this way, "Expenditures for all work and activities shall be approved by the council." Approval could be either by formal session or by referendum.

However, it was observed that mail in the region took a long time to reach its destination. Mailing time within the Asian region sometimes took as long as 24 days.

The organization would be hampered if approval was done by referendum. There had already been extreme difficulty communicating with the delegates to the first seminar. It would be hard to arrive at a decision through referendum due to the fact that the Governing Council is composed of heads of institutions or their representatives .

Still another suggestion was to have the expenditures subject to the approval of "only the Executive Board."

For the regular budget though, the Council should have approving authority, although it can give blanket authority to the Board.

Now, if changes were to be made in the budget, it would be the Executive Board that would make the changes. Furthermore, on the duty of the governing council, it was specified that it was a policy-making body. The Executive Board then would be adequate for the purpose of approving the budget.

In any case, the thrust of the suggestion was for flexibility. A sentence then could be added to Section 3 as follows: "In case of special budgets, the approval of the Executive Board shall be sufficient." Approved.

The association should be registered with the Securities and Exchange Commission so it would have juridical personality. This was essential. The association could be registered in the Philippines or any other country. In any case, registration in any country required "certain things dictated by law."

On Article VII, Amendments, it was suggested that the *120 days* proviso be qualified as 120 calendar days.

With consensus on this last provision of the Constitution, the moderator asked whether the body was ready to adopt the charter.

The approval of the Constitution was moved and seconded. No objections. APPROVED. It was eight minutes before eleven o'clock.

The moderator then proceeded to read the provisions of the proposed By-Laws.

Could there not be "a better word than *controlled* in the first line of Article III - Governing Council?" One possibility was to change the line to read "The affairs of the association shall be governed by the policies established by the Governing Council."

How about the word *administered*? How about recasting the first line to read "The governing body of the association shall be the Governing Council consisting of..."

It could also read as follows: "The management of the affairs of the association shall be vested in the Governing Council consisting of...." That "usually was the more direct and the more traditional way" of expressing the idea intended. There having been no objections, the modification was carried.

The legal requirements "from the standpoint of form" of registering the association were brought up. It was suggested that the drafting committee be empowered to add certain provisions to the documents "in order to fulfill the legal requirements of the country in which the association would be registered." This was to be done provided such provisions did not affect the substantive decisions made by the body. This suggestion was carried. In the Philippines the applicable agency would be the Securities and Exchange Commission. But if it was decided that the association be registered in any other country then it was the SEC in that country.

One last point that had to be decided was the location of the principal office of the Association. Section 4 of Article IV - Duties of Officers, stated that the secretary-treasurer "shall establish a headquarters for the Association and shall attend to the implementation and/or execution of such plans,....."

The offer of Dr. Umali, FAO Assistant Director-General and Regional Representative for Asia and the Far East, was reiterated. Dr. Umali had offered offices for the Asian association at the FAO's headquarters at Bangkok and "probably secretarial assistance to the association's Secretariat."

It was pointed out that according to the Constitution, the president of the association shall also be the chairman of the Executive Board. The office of the Association then should be wherever the president comes from so he would not be away from headquarters.

The preceding comment was really "more about the first president" the association would have. There would be other presidents later. Anyway, the need was to meet the legal requirement to have a principal office of the association. There could be branch offices.

The offer of Dr. Umali would be made in writing so that it would be formal. There having been no other suggestion, the moderator gave the delegates "seven ticks to decide." He counted seven. "It's Bangkok."

The moderator commended the group for doing "a wonderful job of going into the issues and making decisions."

There was, however, still another matter to be confirmed. Was it understood that the institutions represented then in the session were charter members? Yes, they were.

The plenary session ended with a hearty applause and words of commendation for the morning's chairman.

Election of Officers

Article IV, Section 2 in the By-Laws describes the mode of election of the Governing Council. In the proposed draft of the By-Laws, these officers included a president, a vice president, and a secretary-treasurer.

Initially, these three officers would be elected at the organizational meeting of the association. Thereafter, the vice president would automatically succeed to the presidency for the succeeding two year term provided he remained as head of the member institution which he represented. At each biennial convention, a new vice president was to be elected and a secretary-treasurer elected or re-elected.

That provision brought confusion thrice confounded. Most of the rest of the morning's proceedings was devoted to it, clarifying, modifying, changing it.

When the conceptual Babel ended, two major changes in the proposed provision had been adopted: (a) two vice presidents were provided for the association, a first vice president and a second vice president; and (b) the first vice president would automatically become the president for the succeeding two year term, provided he remained in position as head of the member institution he represented. In case the first president was no longer the head of his institution, his successor in his institution would assume the position of acting first vice president.

To reach consensus on these changes, considerable discussion ensued on the basic concept of institutional succession and the

mechanics of the two vice presidents system. Four alternatives eventually emerged, became defined, and later put to vote. This time, voting was taken by country, not by individual delegates.

The four alternatives voted on were as follows:

<i>Alternative 1</i>	<i>Alternative 2</i>
Post of President is vacated	Post of President is vacated
1st Vice President becomes the President and the 1st Vice President's post becomes a vacancy	1st Vice President becomes the President
2nd Vice President	2nd Vice President will be the first Vice President and the vacancy is the 2nd vice presidency
<i>Alternative 3</i>	<i>Alternative 4</i>
Post of President is vacated	Post of President is vacated He is replaced by the person who took his place in the institution
1st Vice President becomes the President	1st Vice President stays
2nd Vice President becomes first Vice President but no vacancy	2nd Vice President stays
(Vacancy not filled)	

The counting of raised hands indicated six countries voting for alternative 3 (three); four countries voting for alternative 2 (two); three countries voting for alternative 1 (one); and one country voting for alternative 4 (four).

Discussion began when the proposed version of Section 2 of Article IV of the By-Laws was first read. It was observed that it indicated a presumption to elect a new president should the presidency be vacated and the vice president who would take over the presidency was not qualified because he was no longer head of the institution he represented. This remark set off various suggestions of ways to fill up the vacancy.

The first possibility advanced was for the person who would take the place of the outgoing president of the institution to be the incoming president of the association. This proposal introduced the institutional approach in filling up a vacancy.

The other alternative was the personal or person-oriented approach. It was usual that in the election of a man, his personality, interest, and participation in the association are considered by the voters. It was granted that the institution he represented might also have influence on the decision of the members. But it was his personal qualities that they considered foremost. This view was followed up with the opinion that in case the vice president of the association no longer held his office in his institution, it would be easy for the executive board or the executive committee to elect another vice president, by referendum if necessary. Or perhaps the executive committee could run the affairs of the association without a vice president. Anyway, there would still be a president of the association.

Still another solution was suggested. The association could have two vice presidents, a first and a second vice president. In the event the first vice president's post was vacated, the second vice president would take over. This plan gave the advantage of providing continuity and at the same time giving enough time for the second vice president to prepare for the presidency.

It was possible, however, that the two vice presidents could both go out of office. Then the association would have not only one problem but two. This idea brought up another suggestion. In case of a vacancy, the Governing Council could fill up the vacancy as it saw fit.

Further support was cited for the institutional approach. It was the practice in the Association of Colleges of Agriculture

in the Philippines (ACAP) for the institution of the vice president to host the next annual convention of the association. "Sooner or later this practice will be followed by the Asian association." It provided an opportunity for the ACAP to move from one member country to another. If the institutional approach is followed, then the Asian association can also schedule its annual conventions from one member country to another.

A look into the duties of officers as provided in Section 4 was also made to help decision-making on the issue of replacement. It could be presumed that "people who get elected to the position of president or dean of colleges and universities of agriculture can preside over meetings and can deliver addresses and submit written reports. Moreover, everybody else in the council as part of this system of leadership could be depended upon to provide the guiding light, so to speak."

For the record, vote was taken on whether the delegates would opt for the institutional approach or the two vice presidents system. The result of this voting, however, was eventually reconsidered or put aside.

The institutional approach at this point in time meant that whoever succeeded to the association's vice president post as head in his institution would also take over the vice presidency of the association.

Voting by country on the two alternatives showed up four hands in favor of the institutional approach and two hands in favor of the two vice presidents system.

Later, a crucial observation prompted the delegates to reconsider their former consensus. The council would have to elect a new vice president in case of a presidential vacancy to which the incumbent vice president would be elevated. However, this could not possibly be done because the Governing Council would be meeting only once every two years. Item. "Suppose Mr. A who is the president now, after finishing one year in office was no longer available, the vice president would certainly take over. Now, in the next council's meeting, there will be no vice president." Response: "That suggests, it seems, that the idea of two vice presidents look like a good one. Shall we reconsider? (Laughter). We have only one lady member here but we can change our minds, can't we?"

It is important to note, in conclusion, that the institutional approach was conceded to apply only at the vice presidential level but not at the presidential level. In the overall, the final consensus followed a combination of the institutional approach and the two vice presidents system. However, the two vice presidents system was accepted provided the two vice presidents do not come from the same country.

Election Day

The election of officers of the association filled the agenda on May 2. Who could vote? Who could be nominated? What manner of voting was to be observed — open voting or secret ballot? First, the delegates had to agree on the electoral procedures to follow.

Voting was to be done by institutional representation. The institutions which were signatories to the Constitution and By-Laws were eligible to vote.

The Association of Colleges of Agriculture in the Philippines had its own vote being "an institution within the purview of the Constitution." Also, since the president of the ACAP was also the head of an agricultural college member institution, he could vote in the latter capacity even as he delegated the ACAP executive secretary to vote for the ACAP.

The nominees would be the heads of institutions which were represented in the second seminar.

Nomination of the candidates by individuals was initially proposed but it did not take on. Later consensus decided that a nominating committee be created with members coming from three countries. The members would elect one among themselves as committee chairman. The nominating committee's role was to nominate the candidates for the different positions. But it would not preclude anyone from making additional nominations from the floor.

The countries and their respective representatives to constitute the nominating committee were then successively suggested. Final choice went to Thailand, the Philippines, and the Republic of China, represented respectively by Dean Pavin Punsri, Dr. Domingo M. Lantican, and Dean Yuen-liang Ku.

The nominating committee was given "five minutes" to meet. A recess was declared at 9:55 a.m.

The session resumed at 10:25 a.m. While waiting for the nominating committee to return and make its report, the body decided to go over and discuss the reports of the four working committees, namely, the committee on instruction, committee on research, committee on extension, and the executive committee. In addition, the group tackled a working paper on the 'Suggested Programs for the Association for 1972-74.' Discussion of this paper which embodied the plans of the association for the future was to occupy the delegates for some time yet after the completion of the elections in the afternoon.

Presented by the committee chairman, the report of the nominating committee noted that the committee "spent a lot of time exchanging opinions to be most certain about the nominations." Rector Chakrabandhu was the only one nominated for president. For the vice presidents, four were nominated. The one who would get the highest number of votes would be the first vice president, and the second highest, the second vice president. For secretary-treasurer two were nominated.

The mechanism for deciding the location of the biennial convention of the association was sought to be formulated since this issue was connected with the election of the first vice president. The view had been developing among some delegates that it should be held at the institution of the incumbent first vice president. This was essentially the practice of the association of agricultural colleges in the Philippines.

Another view held that there should be no linkage between the place of meeting and the position of vice president. Actually, no definite consensus could be reached on the issue. Many factors were involved such as the readiness of an institution to host a biennial meeting. (Later in the afternoon, in the discussion of future plans, the group acting as the Governing Council as provided for in Section I, Article II-Meetings of the By-Laws, would vote on where to hold the biennial meeting for 1974. But this decision specifically applied to the 1974 convention. The choice was Indonesia which received nine out of 14 votes.)

But to go back to the pre-election deliberations in the morning. Interestingly, although already settled, the issue of succession

once more cropped up in connection with the siting of the biennial convention. After an extended impasse, the group decided to go back to the nomination. It was moved and seconded that the nomination for president be closed, unanimously bestowing the choice on Rector Chakrabandhu to be the first to lead the Asian association.

Lunch hosted by the President of the University of the Philippines was waiting. The session adjourned at 12:50 a.m.

The session resumed at 2:30 p.m. The group proceeded to elect the two vice presidents, by writing two names on the ballot, and the secretary-treasurer. On the vice presidency, it was explained that if Dr. Bruno M. Santos got elected, he would be elected as representative of the Mountain State Agricultural College, not the ACAP (the issue of succession again!).

There were 16 voters. The number of ballots cast was 15. One abstained.

Dr. Soenjoto of Indonesia was elected first vice president, with 11 votes. Dr. Santos was elected second vice president with nine votes. Dr. Lantican received six votes, Dr. Rahman, four votes.

For secretary-treasurer, Dr. Bernardo was elected with 11 votes. Dr. Suraphol received two votes.

Following the counting of votes, a comment was made resulting in an important change in the position of secretary-treasurer. While the post of secretary-treasurer was elective, a full time "secretary" employed by the organization, was also needed for the Secretariat of the association. In other words, there was a need for "a provision of some kind that would make it possible to employ an officer, or whatever name you may want to call him, under the secretary-treasurer. He consults with the secretary-treasurer but he does all the work for the secretary-treasurer." Formal action on the suggestion, however, would have to wait until such time as it became feasible for financial reasons.

In any case, the association needed an executive-secretary at least during the first two years. Thus, "because of the importance of the position and considering that the secretary-treasurer would head the secretariat, it was important that the name of the

position of secretary-treasurer be changed." It might be called Secretary-General or Executive Secretary.

The suggestion approved was "that it be made Executive Secretary and that his duties be defined and that he would also perform the duties of a treasurer."

In conformity with Section 1 of Article V — Executive Board of the By-Laws, there was a need to elect two more members of the Board. Among the four nominees, Rector Kemal Biyikoglu of Turkey obtained the highest number of votes with 10 votes and Dean Pyo Hyun Koo of Korea obtained the second highest number with eight votes. Dean Pyo was represented by Mr. Ji Wong Cheong in the seminar. Dean Yeun-liang Ku and Dr. Omar Rahman, received seven and five votes respectively.

The president-elect, Dr. M. C. Chakrabandhu, capped the electoral proceedings with brief remarks of acceptance. The first chosen to lead the affairs of the Asian Association of Agricultural Colleges and Universities said:

"It is my honor and pleasure to address you now. I did not prepare any speech. And I would say this. First, I appreciate your kindness and faith in me by electing me president of the Association. I know that the duty of all officers during this period is very heavy. Considering the various committees' suggestions and recommendations, we are faced with a very heavy work schedule without available resources to back us. We realize that the duty imposed upon us is imminent and a very difficult one. Nevertheless, we will do the best we can to fulfill our duties. In the implementation of our duties we will encounter some difficulties. But we will try our very best to surmount them. We are happy to have had the support and participation of the distinguished delegates. I am sure that in the future we will have the same and even better support and participation than before. And so through your personal participation and personal correspondence, we expect you to give us your suggestions or anything which could contribute to the growth of the Association. You can help the Association by frequently supplying us with information for the newsletter, and when we request some information please respond as quickly as possible. There is another point which has not been mentioned so far. We need a collection of all materials

that we can get from your institutions, particularly the calendared information of the institution itself which may be useful to several members or non-members.

We have a good set of board members. I am sure that we can work effectively and do the best that we can in the time that we have to make the organization work.

The host country has done very well not only in managing the present seminar but also in giving us the things we need. The staff demonstrated a very high efficiency, and provided us service with pleasure. We thank them very much for their efficiency.

In behalf of the Interim Organizing Committee, I wish to express our appreciation for your faith and kindness. Thank you very much."

**ASIAN ASSOCIATION OF AGRICULTURAL COLLEGES
AND UNIVERSITIES
(AAACU)**

CONSTITUTION

Preamble

The Asian agricultural colleges and universities, aware of the responsibility of institutions of higher learning to contribute to the improvement of the human condition, believing that the world community of higher education achieves strength through cooperation and exchange of ideas, and aspiring to build enduring linkages among agricultural institutions for the promotion of instruction, research and extension, do hereby unite themselves in the pursuit of common objectives by establishing the Asian Association of Agricultural Colleges and Universities.

In the spirit of commitment to the agricultural sector of the society and to all of humanity which survives through the food and other commodities that it produces, we seek to build the most effective system of services to agriculture which will contribute to human welfare, dignity and quality of rural life, and opportunities for productive use of human talent.

Article I — Name

The Association shall be called the Asian Association of Agricultural Colleges and Universities, Incorporated, otherwise known as AAACU.

Article II — Objectives

The objectives of the Association shall be as follows:

1. Help enhance the effectiveness of programs in agricultural instruction, research and extension;
2. Formulate or promulgate plans, programs and policies that will enable the member institutions to achieve common or similar goals;

3. Determine ways and means by which member institutions may be able to build strong linkages among institutions and agencies serving agriculture; and
4. Exchange experiences among the members as to the means by which they can contribute more effectively to the advancement of human welfare in Asia.

Article III — Membership

1. There shall be two categories of membership:

Members — Under this category are the following:

- (a) agricultural colleges and universities that are members in their own right, and
- (b) associations of agricultural colleges and universities in the various Asian countries. Each member is entitled to a vote in the Association.

Affiliate members — Under this category are agricultural institutions or agencies and foundations that are genuinely interested in, and capable of, contributing to the success of the Association. Affiliate members are not entitled to vote in the Association.

2. Agricultural universities or colleges of agriculture in the Asian countries which award the baccalaureate or higher degrees or their equivalent degrees in the agricultural sciences and whose programs are dedicated to public service may be eligible for membership in the Association.

3. Associations of agricultural universities or agricultural colleges of Asian countries are eligible for membership on the basis of one membership for a single nationwide association.

4. Charter membership in the Association will be offered to institutions and associations of the countries which participated in the First and Second Asian Agricultural College and University Seminars, subject to their acceptance of the provisions of the Constitution and By-Laws.

5. Additional universities, colleges, or associations may be admitted to membership in the Association upon application and approval by the Governing Council provided they meet the established

criteria for eligibility and provided further that the total number of membership for any single country shall not exceed twenty-five per cent of the total Asian membership.

6. In the evaluation of applications for admission of any institution, the Governing Council shall establish suitable criteria including consideration of features such as, but not necessarily limited to:

Purpose of the institution

Leadership potentiality

Quality of instruction as judged on the basis of student enrollment, and preparation and performance of students

Academic achievement of its faculty

Participation of the staff in scholarly and scientific activities

Effectiveness and participation in programs of public service

7. Each member of the Association shall pay an annual membership fee the amount of which shall be determined by the Governing Council.

8. Research institutes, national agricultural institutions, international agencies, foundations, and agencies which provide financial and other support to any of the member institutions or groups of such institutions or which are responsible for coordination or maintenance of standards in such institutions may be eligible for affiliate membership with the Association, upon approval by the Governing Council.

9. Members may resign from the Association after giving six months notice of intention to do so to the Executive Secretary; the annual dues for the year already started shall remain payable.

Article IV — Organization and Officers

1. The principal policy-making body of the Association shall be the Governing Council consisting of the executive officer of each member of the Association or his designated representative. The officers and powers of the Governing Council are provided for in the By-Laws of the Association.

2. The implementing body of the Association shall be the Executive Board which shall be constituted as prescribed in the By-Laws of the Association.

Article V — Finance

1. At every regular meeting, the Governing Council shall take steps to obtain the funds necessary for the legitimate expenses of the Association, and may call for contributions from the members.

2. No member shall be entitled to representation or participation in the benefits of the Association unless such member shall have made the designated contribution for the year previous to that in and for which such question of privilege shall arise.

3. Expenditures for all work and activities of the Association shall be financed only to the extent provided for in the budget of the Association which shall be ordinarily considered and approved first by the Executive Board and later by the Governing Council. In case of special budgets, the approval of the Executive Board shall be sufficient.

Article VI — Meetings

The Association shall hold a regular meeting to be designated as the Biennial Convention, and such special meetings as the Executive Board may deem necessary. Details of the biennial convention and special meetings are provided in the By-Laws of the Association.

Article VII — Amendments

This Constitution may be amended at any regular meeting of the Governing Council by a two-thirds vote of the members in attendance, if the number present constitutes a quorum; provided that notice of any proposed amendment, together with the full text thereof and the name of the mover, shall have been distributed by the Executive Secretary to all member institutions at least 120 calendar days before the regular meeting.

ASIAN ASSOCIATION OF AGRICULTURAL COLLEGES
AND UNIVERSITIES
(AAACU)

BY-LAWS

Article I — Object of the By-Laws

The object of these By-Laws shall be to delineate all details of the form and functions of the Asian Association of Agricultural Colleges and Universities, Incorporated (AAACU) not specifically provided in its Constitution.

Article II — Meetings

Section 1. *Biennial Conventions*

The place, date and maximum size of member delegations to the next biennial convention shall be decided by the Governing Council at each biennial convention. This, however, may be modified by the Executive Board provided that the action of the Board is made known to all members at least two months before the original date.

At the biennial convention of the Association there shall be at least one or more sessions for the transaction of official business and one or more program sessions.

Section 2. *Special Meetings and Seminars*

The Executive Board may sponsor seminars and workshops on special topics from time to time as it may see fit in which a broader or more specialized representation from participating institutions and agencies may be invited.

Special meetings of the Governing Council may be held upon the call of the Executive Board for the purposes to be specified in the call.

Article III — Governing Council

The management of the affairs of the Association shall be vested upon the Governing Council consisting of the chief executive officer of each member of the Association or his designated representative, and the officers and members of the Executive Board. Each member of the Governing Council shall have one vote.

Decisions of the Council shall be by majority of the members present, if the number present constitutes a quorum. Thirty percent of the members constitutes a quorum.

Article IV — Officers

Section 1. *Officers*

The Officers of the Governing Council shall be a President, two Vice Presidents and an Executive Secretary.

Section 2. *Election of Officers*

A President, First Vice President, Second Vice President and Executive Secretary shall be elected by a majority vote of voting members present at the organizational meeting of the Association. Thereafter, the First Vice President shall automatically succeed to the presidency for the succeeding two year term, provided he remains in position as head of the member institution he represents. In case the First Vice President is no longer the head of the institution, his successor in that particular institution shall assume the position of Acting First Vice President. The Governing Council shall elect new Vice Presidents at each biennial convention and shall elect or re-elect an Executive Secretary. The newly elected officers will assume office at the close of the regular meeting in which they are elected.

Section 3. *Terms of Office*

The President and the Vice-Presidents shall serve for approximately two years, or until their successors shall have been elected. The Executive Secretary shall normally serve in his office for four years after his assumption of the office or until his successor shall have been elected.

Section 4. *Duties of Officers*

The President shall preside at the regular and special meetings of the Association and the meetings of the Executive Board during the two years following his election and until the concluding session of the next biennial convention. He shall deliver an address to the delegates of the biennial convention and render a written report of activities.

The First Vice President of the Association shall perform the duties and responsibilities of the President in case of the latter's absence or incapacity and such other duties which may be assigned to him by the President. He shall be Acting President of the Association in case the elected President retires or resigns or is no longer the head of the member institution he represents.

The Second Vice President of the Association shall perform the duties and responsibilities of the First Vice President in case of the latter's absence or incapacity and such duties which may be assigned to him by the President.

The Executive Secretary shall act as secretary-treasurer of the Governing Council and the Executive Board and shall keep the records, complete proceedings, and assets and accounts of the Association. He shall arrange for the legal establishment of the Association in the country where the headquarters will be located. He shall also establish the headquarters for the Association and shall attend to the implementation and/or execution of such plans, policies and programs as may be agreed upon to promote the welfare of the Association. He shall also be responsible for publishing a newsletter at regular intervals.

Article V — Executive Board**Section 1. *Composition of the Board***

The Executive Board shall consist of seven members and shall include the President, the Vice Presidents, the immediate past President, and two other *members elected by the Governing Council* for a two-year term from among its members with the Executive Secretary as Member-Secretary.

No two members of the Executive Board, aside from the Executive Secretary, shall be from a single country.

Section 2. *Power and Duties of the Board*

The Executive Board will be empowered to conduct the affairs of the Association in the interim between meetings of the Governing Council and shall report its interim actions to the Council at its next meeting.

The Executive Board shall meet at least once in two years and as often as it deems necessary at a place to be designated by the President for the purpose of organizing the biennial convention.

In the interim between the biennial conventions of the Association, the Executive Board shall fill the offices of the Executive Secretary of the Association or the Chairmen of the Committees, should these offices become vacant.

Article VI — Committees

The Governing Council shall constitute such organizational divisions and committees as it may find desirable for carrying out the work of the Association.

Article VII — Publications

The chairmen of the committees created by the Governing Council shall be responsible for furnishing the Executive Secretary such summaries of discussions at the meetings of the Committees as they may deem appropriate for publication through the proceedings or newsletter, or for purposes of record keeping. Similarly, the Executive Secretary shall be responsible for making available to all members the summaries of discussions at the meetings of the Executive Board and the Governing Council.

Article VIII — Amendment

The By-Laws may be amended at any regular meeting of the Association by a majority vote of the members in attendance, if the number present constitutes a quorum of the membership.

Part 5: Committee Reports

REPORT OF THE COMMITTEE ON INSTRUCTION

Agricultural colleges and universities¹ in Asia shall be committed to the agricultural development of their respective countries.

Each Asian agricultural education institution has its own areas of strengths and weaknesses. Towards accelerating the development of each institution, the weaknesses in one may be strengthened through a system of linkages with other institutions such as exchange of instructional personnel within the context of a mutually beneficial relationship. Also, through a scholarship program, the junior teaching staff of one institution may be further developed professionally through the graduate education program of a stronger institution.

Essential to the setting up of viable exchange programs among the various agricultural colleges and universities in Asia, the collection of statistical data from member institutions is hereby strongly recommended, particularly on the following:

1. Educational program, including:
 - (a) enrollment;
 - (b) admission requirements;
 - (c) graduation requirements; and
 - (d) curricula.
2. Teaching staff, including:
 - (a) classification;
 - (b) qualifications and specialization;
 - (c) promotion policies and procedure;
 - (d) salary schedule; and
 - (e) faculty development activities.
3. Placement of various categories of graduates and types of employment.
 - (a) B.S.
 - (b) M.S.
 - (c) Ph.D.

¹ Agricultural colleges and universities include agriculture, forestry, veterinary medicine, and fisheries.

4. Library facilities
5. Laboratory facilities

Every member institution shall furnish the Secretariat from time to time with up-to-date information regarding the above-mentioned items. The Secretariat, therefore, shall serve as a reservoir of essential information on the instructional programs of member institutions.

The AAACU should explore the possibility of publishing periodically a directory of member institutions.

Suggested topics for discussion at the Third Seminar (1974):

1. Criteria for assessment of trained manpowers in national agricultural development.
2. Curriculum development relevant to the requirement of national agricultural development.

Committee Members:

Prof. Soenjoto Soemodihardjo	(Chairman)
Dr. Omar Abdul Rahman	Member
Dr. Isabelo S. Alcordo	Member
Rector Kemal Biyikoglu	Member
Dr. Suraphol Sanguansri	Member
Dr. Amado C. Campos	Member
Dr. Celestino P. Habito	(Consultant)

REPORT OF THE COMMITTEE ON RESEARCH

The present Committee is of the opinion that the report on agricultural research during the First Asian Seminar has already adequately dealt with the various aspects of this subject, namely, (1) philosophy or rationale behind the development of an agricultural research system, (2) goals of such system, and (3) strategies in attaining these goals.

In consonance with the theme of the Second Asian Seminar, it is strongly recommended that in the development of an agricultural research system emphasis must be placed on the establishment of linkages both on national and regional levels.

The Committee recommends that appropriate steps should be taken towards implementation of the goals enunciated during the First Asian Seminar. However, realizing the scarce resources presently available to the members of the Association, it is recommended that the program for the next two years should include as top priority the project on making an inventory of existing agricultural research resources in terms of:

1. Manpower
 - (a) number of personnel and man-years devoted to research;
 - (b) breakdown according to disciplines;
 - (c) academic preparation; and
 - (d) research performance.
2. Facilities and equipment
3. Researches per se:
 - (a) Researches conducted during the past five years;
 - (b) Current researches; and
 - (c) Plan of activity during the next five years.

Justifications for recommending the above project for immediate implementation:

- (1) The project is basic and most feasible.

- (2) It will provide a basis for creating more cooperative efforts in solving agricultural research problems in this part of the world.
- (3) It will provide a basis for determining agricultural research manpower gaps existing in Asia.
- (4) It will create the necessary environment for developing a mechanism for continuing professional growth and exchange of research personnel.
- (5) It could lead to the initiation of a more comprehensive project on an inventory of existing research facilities in the region.

Committee Members:

Dr. Faustino T. Orillo	(Chairman)
Dean Ku-Sheng Kung	Member
Dr. Kavi Chutikul	Member
Mr. Oetomo Djajanegara	Member
Dean Pavin Punsri	Member
Dr. Fernando A. Bernardo	Member
Dr. Filomena F. Campos	(Resource Person)

REPORT AND RECOMMENDATIONS OF THE COMMITTEE ON EXTENSION

Introductory Remarks

The five members of the Committee on Extension of the Second Asian Seminar, after having reviewed the doctrine, goals, responsibilities, functions and organization of agricultural extension and public service as proposed during the First Asian Seminar, unanimously believe that the contents are extremely helpful in the realization of the rapid development of agriculture in any nation. Unless agricultural improvement could be put into practice through a well-planned and nationwide extension program, education and research in any agricultural college and university would be less meaningful. To be realistic, the members of the present committee agree that the problem of agricultural extension and public service should be tackled in such a way that the member institutions of the Asian Seminar undertake a survey in each of their respective countries. Each country should prepare a report on re-evaluation of the existing system of agricultural extension and public service in the nation for submission to the first biennial convention. Discussions and exchanges of opinion could be made based on the country reports. For getting it started and facilitating comparison, a tentative form of questionnaire for this purpose was prepared for the new Association to consider. As the new questionnaire was drafted in a hurry, the members of the Committee on Extension are fully aware that it is far from perfect and it is suggested that members of the Association be invited to make revisions on the questionnaire, and the questionnaire be sent to the member institutions for immediate action.

It is hoped that through such systematic survey or study bearing in mind the concept of phasic development of agricultural extension, a cooperative regional program of agricultural extension could be developed with the aid of modern computerized technics.

Committee Members:

Dean Yuen-liang Ku	(Chairman)
Dr. Bruno M. Santos	Member
Dr. Pisit Voraurai	Member
Dr. M. A. Boone	Member
Mr. Ji Woong Cheong	Member

Survey of Agricultural Extension Activities

Asian Association of Agricultural Colleges and Universities

Country _____ Institution _____

1. Do you have an agricultural extension program in your institution? Yes — No —
2. If your answer is no, is it possible for your institution to engage in extension activities? Yes — No —
3. If you are not now engaged in extension, what kind of projects, objectives or activities would interest you if extension were included in your future plans?
4. What organization controls agricultural extension in your country?
 - Ministry of Agriculture _____
 - Ministry of Education _____
 - Other (please list) _____

**ONLY THOSE INSTITUTIONS ENGAGED IN EXTENSION
NEED TO ANSWER THE FOLLOWING:**

5. To what extent does your institution engage in agricultural extension? List projects and explain how they are implemented.
6. Which of these projects do you feel are very successful and might be adopted by other countries?
7. What areas or projects are missing, weak or need improvement?
8. What cooperation does extension receive from other agricultural or teaching organizations? List these agencies and state the degree of cooperation as to excellent, good, average or poor.
9. How is the extension program financed in your country? Please list the sources of funds.
10. How do the salaries of extension personnel compare with those of the teaching and research personnel? Higher, the same, lower?
11. What is your table of organization? Include numbers of each criteria (director, assistant directors, specialists, provincial agents, etc.)
12. What is the turn-over rate in extension personnel?
13. What is the minimum education required to serve in extension? % B.S., M.S., and Ph.D. personnel on the extension staff.
14. What "in-service" training do you provide?

Pls. send this questionnaire to:
Executive Secretary, AAACU
University of the Philippines at Los Baños
College, Laguna
Philippines

REPORT OF THE EXECUTIVE COMMITTEE

The Executive Committee considers this Seminar a success as the ultimate purpose of organizing an Association of Asian Agricultural Colleges and Universities has been achieved. It is encouraging to note that there is general acceptance of the desirability of establishing linkages of institutions and services supporting agricultural development which was the theme around which most of the activities of the seminar revolved.

The various country reports and the subjects presented during the seminar indicated that progress has been made over the last few years in developing agricultural schools in terms of curricula, action programs, manpower development and the improvement of facilities. However, there is an apparent consensus that there is yet a need in Asia to recognize the important capabilities of agricultural academic institutions in making direct and substantial contributions to agricultural progress. The accomplishments of the seminar are notable and the Committee looks forward to more dynamic and sincere efforts on the part of the member institutions and organizations in carrying through the primary objectives of the Association as embodied in the recently approved constitution the ultimate goal of which is to make vital contributions to regional development.

It is important that a secretariat be organized immediately to keep things going before the momentum gained during the first two seminars gets dissipated. There will always be problems of implementation and financing will likely be the bottleneck. Possible assistance from various agencies and foundations should be explored to enable the organization to support its activities and launch its action programs particularly during the interim period when a system of funding is being established by the Association.

The job will not be an easy one and chances are it will need considerable time before the effect of the various programs that will be undertaken will be felt. The success of the organization

will depend to a great extent on how carefully the plans and projections are laid out from the very beginning. A great burden of responsibility, therefore, rests on the Officers of the Association who must exert extra effort in seeing to it that the Association is guided in the right direction and in providing the necessary leadership in helping the member institutions and organizations fulfill their commitments.

The Committee noted with interest the concern of the participants over the lack of representatives from other countries particularly India and Japan. The Committee interprets this as a sign of recognition of the important influence and support that these countries can contribute to the effectivity and success of the Association.

The Committee observed with satisfaction the active participation of the delegates, particularly by the representatives from Thailand which comprised the biggest delegation from any participating country. The contributions of the delegates from Indonesia, Korea, Malaysia, Taiwan, Turkey, Vietnam and of course the host country, the Philippines, to the success of the seminar are likewise acknowledged. The kind cooperation of Mexico and Brazil, non-Asian countries, in sending a resource speaker and an observer respectively deserves notice. The committee wishes to express its appreciation for the valuable cooperation of the Philippines, through the University of the Philippines, the National Food and Agriculture Council and the Association of Agricultural Colleges of the Philippines which enabled the seminar to fulfill its objectives. The support of the Food and Agriculture Organization of the United Nations, the Ford Foundation, the United States Agency for International Development, the Southeast Asian Center for Graduate Study and Research in Agriculture and the North Carolina State University are gratefully acknowledged.

The Executive Committee recognizes the efficient and excellent manner in which the various working committees and the Secretariat of this seminar have carried out their respective assignments and congratulates them for doing a wonderful job.

In the light of the foregoing observations and analysis the Committee proposes the following recommendations:

1. That the current officers sit down together, preferably before the end of this session to map out future courses of action, particularly the immediate steps that must be followed during the interim period before the Association is fully organized.

2. That plans be made immediately for the next meeting of the Association with the aim of finalizing organizational set-up; pinpointing priority action programs and making necessary projections towards the attainment of the primary objectives.

3. That positive steps be made to raise funds, especially from contributions of the members to sustain the activities and programs of the Association.

4. That the offer of the FAO Regional Office in Bangkok for office space and possibly secretarial help and other forms of assistance be formally accepted in writing by the Association through the President.

5. That the Association considers establishing or maintaining linkages with regional and international organizations such as the FAO, SEARCA, BIOTROP and other centers of the SEAMEO with the aim of coordinating with these organizations the action programs of the Association.

6. That efforts be made to attract as many members as possible from other Asian countries particularly India and Japan.

7. That the proceedings of this seminar carry on record the valuable contributions of individuals, institutions, organizations, committees and all those who in one way or the other contributed to the success of the seminar and that the Chairman of the Executive Committee be authorized to make the necessary letter of acknowledgement to all concerned and make the arrangement for the publicity of the salient accomplishments of the Second Asian Seminar.

Committee Members:

D. M. Lantican	(Chairman)
M. C. Chakrabandhu	(Vice-Chairman)
B. M. Santos	Member
R. E. Fronda	Member
J. D. Drilon Jr.	Member
J. A. Rigney	(Member-Consultant)

**PROPOSED LONG-RANGE PROGRAM FOR THE ASIAN
ASSOCIATION OF AGRICULTURAL COLLEGES
AND UNIVERSITIES (AAACU)**

The guiding philosophy of the AAACU as reflected in the preamble of its constitution and its objectives provide the framework for the type of projects, programs and activities that the Asian Association should formulate and pursue. It is therefore of paramount importance to bear in mind that the AAACU member institutions aim to "achieve strength through cooperation and exchange of ideas," enhance the effectiveness of agricultural colleges and universities through the "integration of instruction, research and extension," and "help build strong linkages among institutions and agencies serving agriculture."

Committee recommendations during the First Asian Agricultural College and University Seminar held in Thailand and India in 1970 include many possible projects and activities for the association that was yet to be born. During the Second Seminar, the committees on instruction, research and extension identified some priority projects for implementation until the biennial convention in 1974. Excellent background papers read by distinguished speakers during the First and Second Seminars also provided insights into some of the emerging realities and problems facing the agricultural colleges and universities in Asia. With all these materials as bases, the AAACU Executive Board has decided to adopt the following long-range programs for the AAACU:

1. Bimonthly publication of an expanded AAACU Newsletter to help close the communications gap among Asian agricultural colleges and universities and serve as a vehicle for academic interchange. Most, if not all, faculty members and administrators of AAACU-member institutions should receive regularly copies of the Newsletter.

2. A program to foster the establishment of more nationwide associations of agricultural colleges and universities and to promote communications and cooperation among the existing

ones. These national associations should also facilitate exchange of teaching materials and scientific information among agricultural colleges and universities.

3. A program to encourage and support the consolidation of crop science societies, animal science societies, societies of agricultural economists, etc. in Asian countries into Asian confederations of scientific societies so that there will be more academic interchange among Asian professors and scientists who speak the same language.

4. A program to encourage and support surveys of manpower requirements in agriculture in South Asian and East Asian countries where data and information on this have not yet been compiled. These surveys, together with the surveys of manpower requirements in Southeast Asia now being undertaken by SEARCA, should provide a guide for colleges and universities to determine their share of responsibility in meeting the manpower demand accordingly.

5. A program to encourage and support comprehensive studies on agricultural research systems in Asian countries where such studies have not yet been done. Completed studies on agricultural research systems in India, Indonesia and the Philippines have proven to be very useful as bases for reorganization and channeling resources and efforts to fill existing gaps. Similar studies should prove to be very useful also in other Asian countries.

6. A program to encourage and support studies on the agricultural extension service systems in Asian countries. Results of such surveys should be very useful to national governments in planning organizational structures and improving policies relative to agricultural extension service in the country.

7. A program to encourage and support national studies and seminars on system of agricultural services. These studies should involve key administrators to ensure the integration of planning, budgeting and implementation.

8. A long-range program to establish a consortium of graduate schools of agricultural sciences (including veterinary medicine, forestry, home science, fisheries, agricultural economics, and agricultural engineering) in Asia. This program should provide

funds for a meeting of deans of graduate schools of agricultural sciences in Asia to formulate and sign a memo of understanding to utilize pockets of excellence for graduate work. It will be necessary to review and perhaps harmonize the policies and rules of graduate schools, without reducing standards, to thresh out problems of admission, accreditation, exchange of students and possibly professors. It will be necessary to provide flexibility to enable students to undertake thesis research in their home countries or in appropriate leading research centers.

9. A program of regional workshops and seminars on special topics such as vocational and technician training courses, curriculum for agricultural entrepreneurs, innovative extension methods and approaches, food processing, and post-harvest handling and marketing. The criteria for determining priorities for workshops and seminars should include (1) existing needs of member institutions and the countries they represent and, (2) the likelihood that the workshop or seminar will lead to the production of books and teaching materials based on Asian data and information.

10. A program to ensure current awareness of scientific literature in Asian periodicals in agricultural sciences as a solution to the inability of (a) small agricultural colleges, experiment stations, research centers, and (b) individual professors and researchers to subscribe to scientific journals. The "current awareness program" will consist of providing subscribers with tables of contents of periodicals in Asia and elsewhere. Professors and scientists interested in particular articles may order xerox copies from any of the leading libraries of agricultural sciences in the region. Ways and means should be explored to partly subsidize the cost of producing xerox copies of articles.

11. Biennial conventions of the Asian Association to consist of basic background papers for discussions, business sessions and optional educational field trips. The Association should consider the adoption of a financial plan that will enable delegates to pay, on easy terms, for the cost of their participation in the convention.

In many of the activities and project proposals above, it is clear that the role of the Asian Association of Agricultural Colleges

and Universities will be to create an awareness of progressive developments in agricultural education and science in Asia, to encourage cooperation and catalyze concerted action toward the solution of common problems and to provide leadership in studies of regional interest, particularly in setting up efficient systems of agricultural services.

AAACU's strategy is to mobilize the tremendous high-level manpower now available in the agricultural colleges and universities of agricultural colleges and universities of agricultural sciences in Asia to accomplish its mission.

Taken in this light, the agenda for AAACU are clearly realistic. The Asian Association can approach educational institutions, government organizations and funding agencies regarding specific project proposals; it can commission on contractual basis the services of qualified professors and scientists of agricultural colleges and universities; it should be able to make available Asian consultants for specific projects; and it can disseminate results and information where they may be most useful.

There is no doubt that the possibilities for greater regional cooperation and accelerated agricultural growth with the help of the Asian Association is tremendous. However, the Asian Association will need financial support from international funding agencies to be able to accomplish its important mission.

APPENDICES

APPENDIX A

OFFICIAL DELEGATES

Republic of China (2)

Dean Yuen-liang Ku
Dean, College of Agriculture,
National Taiwan University
Taipei, Taiwan

Dean Ku-sheng Kung
Dean, College of Agriculture
National Chung Hsing University
Taichung, Taiwan

Indonesia (2)

Mr. Oetomo Djajanegara
Secretary, Institute Pertanian
Bogor
Bogor, Indonesia

Prof. Ing. Soenjoto Soemodihardjo
Vice-Chairman, Consortium of
Agricultural Sciences
Coordinator, Agrocomplex
University "Gadjah Mada"
Jogjakarta, Indonesia

Iran (1)

Dr. Abbas Davachi
Dean of Agricultural Faculty
University of Teheran
Karaj, Iran

Korea (1)

Mr. Ji Woong Cheong
Instructor, College of Agriculture
Seoul National University
Suwon, Korea

Malaysia (1)

Dr. Omar Abdul Rahman
Dean, Faculty of Veterinary Medicine and Animal Science
Universiti Pertanian Malaysia
Serdang, Malaysia

Philippines (6)

- | | |
|---|---|
| Dr. Isabelo S. Alcorido
President, Central Mindanao
University
Musuan, Bukidnon
Philippines | Dr. Domingo M. Lantican
Officer-In-Charge
U.P. at Los Baños
College, Laguna
Philippines |
| Dr. Amado C. Campos
President, Central Luzon State
University
Muñoz, Nueva Ecija
Philippines | Dean Faustino T. Orillo
U.P. College of Agriculture
College, Laguna
Philippines |
| Director Roberto E. Fronda
National Food and Agriculture
Council
Department of Agriculture
and Natural Resources
Diliman, Quezon City
Philippines | Dr. Bruno M. Santos
President, Association of Col-
leges of Agriculture in the
Philippines, and President,
Mountain State Agricul-
tural College
Baguio City
Philippines |

Thailand (6)

- | | |
|---|--|
| Dr. Kavi Chutikul
Dean, Faculty of Agriculture
Khon Kaen University
Khon Kaen, Thailand | Dr. Suraphol Sanguansri
Director, Bangpra Agricultural
College
Sriracha, Chonburi, Thailand |
| Miss Ladasiri Limangkura
Chief, External Relations Office
Kasetsart University
Bangkok, Thailand | Mr. Thumnong Singalavanija
Director, Agricultural Exten-
sion Department
Bangkok, Thailand |
| Dean Pavin Punsri
Faculty of Agriculture
Kasetsart University
Bangkok, Thailand | Dr. Pisit Voraurai
Dean, Faculty of Agriculture
Chiengmai University
Chiengmai, Thailand |

Turkey (1)

- Rector Kemal Biyikoglu
Ataturk University
Enzurum, Turkey

Vietnam (1)

Dr. M. A. Boone
Animal Science Adviser
National Agricultural Center
Saigon, South Vietnam
SSN USAID/ED-
UC/Florida APO 96243, San
Francisco

S U M M A R Y

Republic of China	2
Indonesia	2
Iran	1
Korea	1
Malaysia	1
Philippines	6
Thailand	6
Turkey	1
Vietnam	1
T o t a l	21

INTERNATIONAL OBSERVERS

- | | |
|---|--|
| Dr. Erly Dias Brandao
Rector, Universidade Federal
de Vicosa
Vicosa, Minas Gerais, Brazil | Dr. Frank W. Parker
Consultant, Agricultural and
Fisheries Division
Technical Assistance Bureau
Agency for International
Development
Washington, D.C.
U.S.A. |
| Dr. Madison Broadnax
Deputy Director, Office of Ag-
riculture TAB
AID/Washington, D.C.
U.S.A. | Mr. David Steinberg
Research Coordinator
Regional Economic Develop-
ment Office
AID Bangkok, U.S.A. |
| Dr. Celstino P. Habito
Consultant, FAO Regional Office
Bangkok, Thailand | Dr. John Stone
Extension Advisor, Office of
Agricultural Development
USOM, Thailand |
| Dr. Said Mugharbel
Division of Agricultural Educa-
tion and Science
UNESCO-Paris | Dr. Phillip D. Smith
AID Agriculture Officer
Asia Bureau
Washington, D.C. |
| Dr. Shao-er Ong
Associate, Agricultural Develop-
ment Council
Kasetsart University
Bangkok, Thailand | |

LOCAL OBSERVERS

- Major Luis L. Alfonso (Ret.)
Senior Program Advisor
Asia Foundation
Philippines
- Dr. Ray E. Borton
Department of Agricultural Economics
U.P. College of Agriculture
College, Laguna
Philippines
- Dr. Rosendo R. Capul
Deputy Director
International Institute for
Rural Reconstruction
Silang, Cavite
Philippines
- Dean Chi-Wen Chang
Visiting Professor, SEARCA
Taiwan
- Dr. E. Walter Coward
Research Sociologist
International Institute for
Rural Reconstruction
Silang, Cavite
Philippines
- Mr. Dalmacio A. Cruz
Senior Specialist
International Institute for
Rural Reconstruction
Silang, Cavite
Philippines
- Dr. Juan M. Flavier
Vice President
International Institute for
Rural Reconstruction
Silang, Cavite
Philippines
- Dr. Horst B. K. Geuting
SAA/FAO Country Representative
UNDP/FAO, Manila
- Dr. Leon G. Gonzalez
Emeritus Professor
U.P. College of Agriculture
College, Laguna
Philippines
- Mr. Allen C. Hankins
DAD/Agricultural Division
USAID, Manila
- Dr. Gerald Korzan
Ford Foundation MCC P.O. Box
740
Makati, Philippines
- President Salvador P. Lopez
University of the Philippines
Diliman, Quezon City
Philippines
- Dr. Edwin B. Oyer
U.P.-Cornell Project Leader
U.P. College of Agriculture
College, Laguna
Philippines
- Mr. Menandro S. Pernito
Field Supervisor
International Institute for
Rural Reconstruction
Silang, Cavite
Philippines
- Dr. Sebastian S. Quifiones
Central Mindanao University
Musuan, Bukidnon
Philippines

Dr. R. W. Roskelley
Social Scientist
International Institute for
Rural Reconstruction
Silang, Cavite
Philippines

Dr. Kenneth L. Turk
Director, International Agricultural
Development
Cornell University, Ithaca,
N.Y.
U.S.A.

Dr. Gil F. Saguiguit
Assistant Director
Southeast Asian Regional
Center for Graduate Study
and Research in Agriculture (SEARCA)
College, Laguna
Philippines

Dr. Kamol Janlekha
Project Leader
Southeast Asian Regional
Center for Graduate
Study and Research in
Agriculture (SEARCA)
College, Laguna
Philippines

Dr. Frank W. Sheppard
Assistant Director
Agricultural Division
USAID, Manila

SPEAKERS

Dr. Romulo A. del Castillo
Officer-In-Charge
U.P. College of Forestry
College, Laguna
Philippines

Dean Faustino T. Orillo
U.P. College of Agriculture
College, Laguna
Philippines

Professor Jose D. Drilon Jr.
Director, Southeast Asian Regional
Center for Graduate
Study and Research in Agriculture (SEARCA)
College, Laguna
Philippines

Ing. Leonel Robles
Director, Division of Agricultural
and Marine Sciences
Technological Institute of
Monterrey
Monterrey N.L., Mexico
Director de la Division de Ciencias
Agropecuarias y Maritimas
Instituto Tecnologico y de Estudios
Superiores de Monterrey
Monterrey N.L.
Mexico

Dr. H. Brooks James
Vice President, Research and
Public Program
University of North Carolina
U.S.A.

Dr. Salvador P. Lopez President, University of the Philippines Diliman, Quezon City Philippines	Honorable Arturo R. Tanco Jr. Secretary, Department of Agri- culture and Natural Re- sources Philippines
Dr. Bruno M. Santos President, Association of Col- leges of Agriculture in the Philippines, and Pre- sident, Mountain State Agricultural College Baguio City Philippines	Mr. Francisco B. Tetangco (vice Director R. E. Fronda) Manager, Program Management Staff National Food and Agricul- ture Council Philippines
	Dr. Dioscoro L. Umali FAO Assistant Director-Gen- eral and Regional Represen- tative for Asia and the Far East, Bangkok, Thailand

S U M M A R Y

Delegates	21
International Observers	9
Local Observers	20
Speakers	10
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T o t a l	60

APPENDIX B

OUTLINE OF ACTIVITIES AND ITINERARY (April 24 to May 2, 1972)

Theme of Seminar: Linkage of Institutions and Services Supporting
Agricultural Development

April 23

- Arrival at the Manila International Airport and trip to the University of the Philippines at Los Baños

April 24 — A.M.

- Registration, Continuing Education Center (CEC), U.P. at Los Baños
- Campus tour
- Keynote session, CEC
- Pambansang Awit (Philippine National Anthem)
- Opening remarks by Dr. M. C. Chakrabandhu, Chairman, Interim Organizing Committee and Rector, Kasetsart University, Thailand
- Remarks by Mr. Roberto E. Fronda, Executive Director, National Food and Agriculture Council, Philippines
- Welcome to U.P. Los Baños by Dr. Domingo M. Lantican, Officer In-charge, U.P. at Los Baños
- Address by Dr. Salvador P. Lopez, President, University of the Philippines
- Introduction of the keynote speaker by Prof. Jose D. Drilon Jr., Director, Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA)
- Keynote address by Hon. Arturo R. Tanco Jr., Secretary of Agriculture and Natural Resources, Philippines
- Remarks by the Seminar Chairman, Dr. Fernando A. Bernardo, Director of Graduate Studies, U.P. College of Agriculture

Master of Ceremonies: Dr. Thomas G. Flores

P.M.

- Lunch at the U.P. Los Baños Union, Sponsored by the U.P. at Los Baños

Afternoon Session

- Dr. M. C. Chakrabandhu, Chairman

- Basic Background Paper:

The Opportunities, Role and Viability of Associations of Agricultural Colleges and Universities

By Ing. Leonel Robles, Director, Agricultural and Nautical Sciences Division of the Technological Institute of Higher Studies of Monterrey at Monterrey, N.L., Mexico and Secretary, Latin American Association of Higher Agricultural Education

Ing. Robles was introduced by Dr. M. C. Chakrabandhu, Session Chairman.

- Discussants

Prof. Ing. Soenjoto Soemodihardjo, Vice Chairman, Consortium of Agricultural Sciences and Coordinator, Agrocomplex University *Gadjah Mada* at Jogjakarta, Indonesia

Dr. Bruno M. Santos, President, Association of Colleges of Agriculture in the Philippines and President, Mountain State Agricultural College at La Trinidad, Benguet, Philippines

- Coffee break

- Presentation of the draft proposal for an Asian Association of Agricultural Colleges and Universities, with suggested Constitution, By-Laws, and procedure for its organization and operation

By Dr. M. C. Chakrabandhu

- Discussion

- Dinner at the CEC

- Film and Slide Show (Dr. Benedicto A. Parker, In-charge)
 - a. Land of the Sun Returning
 - b. U.P. at Los Baños

April 25 — A.M.

— Basic Background Paper:

The Agricultural University's Relationship to Other Agencies and Institutions Serving Agricultural Development

By Dr. Dioscoro L. Umali, Assistant Director-General and Regional Representative for Asia and the Far East, Food and Agriculture Organization (FAO)

Dr. Umali was introduced by Dr. R. W. Cummings, Ford Foundation and Session Moderator.

— Discussants

Mr. Thumnong Singalavanija, Director, Agricultural Extension Department, Bangkok, Thailand

Dean Ku-sheng Kung, College of Agriculture, National Chung Hsing University, Taichung, Taiwan

Moderator: Dr. R. W. Cummings

— Coffee break

— Basic Background Paper

Criteria and Approaches to the Establishment of Priorities in the Allocation of Resources in Support of Agricultural Development

By Dr. H. Brooks James, Vice President, Research and Public Program, University of North Carolina, U.S.A.

Dr. James was introduced by Dr. Madison Broadnax, Deputy Director, Office of Agriculture Technical Assistance Bureau, Agency for International Development (AID), Washington, D.C., U.S.A., and Session Moderator.

— Discussants

Dr. Abbas Davachi, Dean of Agricultural Faculty, University of Teheran, Karaj, Iran

Dr. Omar Abdul Rahman, Dean, Faculty of Veterinary Medicine and Animal Science, Universiti Pertanian Malaysia, Serdang, Malaysia

Moderator: Dr. Madison Broadnax

P.M.

- Lunch at the UPLB Union, Sponsored by the UP-Cornell Graduate Education Program

Afternoon Session

- Basic Background Paper:

Population in Relation to Economic Growth and How the University Addresses Itself to This Problem

By Dean N. K. Anant Rao, College of Agriculture, G. B. Pant University of Agriculture and Technology, India (Editor's note: Unable to attend the seminar, Dean Rao, however, sent his paper and is printed in this report. Dr. F. W. Parker was designated to lead the discussions on the topic. Dr. Parker's extemporaneous remarks are also included in this report.)

- Extemporaneous Remarks:

The Population Problem

By Dr. Frank W. Parker, Consultant, Agricultural and Fisheries Division, Technical Assistant Bureau, AID, Washington, D.C., U.S.A.

Dr. Parker was introduced by Dr. Madison Broadnax, Session Moderator.

- Discussants

Dean Yuen-liang Ku, College of Agriculture, National Taiwan University, Taipei, Taiwan

Dr. M. A. Boone, Animal Science Advisor, University of Florida, Contract Team, National Agricultural Center, Saigon, South Vietnam

Moderator: Dr. Madison Broadnax

- Coffee break
- Visit to different units and departments of the U.P. College of Agriculture
- Dinner, CEC
- Film and Slide Show (Dr. Benedicto A. Parker, In-charge)
 - a. SEARCA: The Seed of Progress
 - b. Decade for Action

April 26 — A.M.

- Dr. Celestino P. Habito, FAO/Bangkok, Chairman
Reports: Selected Institutions in the Philippines
- Focus on Linkage:
Organization, Functions and Activities of the National Food and Agriculture Council (NFAC)
By Mr. Francisco B. Tetanco, Program Management Staff, National Food and Agriculture Council, Philippines
- Focus on Linkage:
Programs and Activities of the Association of Colleges of Agriculture of the Philippines (ACAP)
By Dr. Bruno M. Santos, President, Association of Colleges of Agriculture in the Philippines and President, Mountain State Agricultural College, Benguet, Philippines
- Coffee break
- *Present Programs and Future Plans of the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA)*
By Jose D. Drilon Jr., Director, SEARCA, Los Baños, Laguna, Philippines
- *The U.P. College of Forestry Programs: Linkages with Other Institutions and Agencies*
By Dr. Romulo A. del Castillo, Officer In-charge, U.P. College of Forestry
- *The U.P. College of Agriculture Programs: Linkages with Other Institutions and Agencies*
By Faustino T. Orillo, Dean, U.P. College of Agriculture
- *Introducing the UPCA/SEARCA Social Laboratory*
By Dean Chi-Wen Chang, Visiting Professor of Agricultural Education, U.P. College of Agriculture

P.M.

- Lunch at the CEC

Afternoon Session

- Dr. J. A. Rigney, Chairman
- Country Reports on Linkage of Institutions and Services Supporting Agricultural Development
- *Republic of China*
- *Indonesia*
- *Malaysia*
- *Thailand*
- Dinner at Sulo Restaurant, Makati, Rizal, Sponsored by the SEARCA

April 27 — A.M.

- Dr. J. A. Rigney, Chairman
- Continuation of Country Reports
- *Republic of Vietnam*
- *Philippines*
- *Turkey*
- *Korea*
- *Iran*

P.M.

- Lunch at CEC

Afternoon Session

- Dr. M. C. Chakrabandhu, Chairman
- Nomination and acceptance of members to the committees on instruction, research and extension
- Field trip: IRRI field experiments and demonstration plots
- Coffee break at IRRI
- Field trip: Field experiments and demonstration plots at the U.P. College of Agriculture and Central Experiment Station
- Dinner at CEC
- Committee meetings

April 28 — A.M.

- Field trip (whole day)
- Dr. Tito E. Contado, UPCA Director of Extension Education, Chairman
- Field trip to the social laboratory in Pila, Laguna
 - Linga Livestock and Poultry Raisers' Association
 - Visit to a Rice Seed Farmer
- Lunch at Pagsanjan Rapids Hotel, sponsored by Agricultural Development Council, New York, U.S.A.

Afternoon

- Visit to the Franklin Baker Coconut Processing Plant, San Pablo City
- Visit to the Barrio Development School, Masaya, Bay, Laguna

April 29 — A.M.

- Field trip (Departure: 6:30)
- Dr. Tito E. Contado, Chairman
- Visit to the headquarters of the Philippine Rural Reconstruction Movement, San Leonardo, Nueva Ecija and briefing by Col. Mendoza, Director of Field Operations, PRRM
- Lunch at PRRM

Afternoon

- Briefing on the Nueva Ecija Land Reform Integrated Project by Deputy Director Exconde
- Briefing on the Upper Pampanga River Development Project by Engineer Miranda
- Visit to the Cabanatuan Farmers' Cooperative Marketing Association and briefing by Mrs. Leonila Chavez, Manager
- Visit to Central Luzon State University, Muñoz, Nueva Ecija
- Dinner, Sponsored by the Central Luzon State University
- Overnight stay at CLSU

April 30 — A.M.

- Trip to Baguio City, summer capital of the Philippines (Departure: 7:30)
- Visit to the Triala (Nueva Ecija) Farmers' Cooperative

P.M.

- Lunch at the Pines Hotel, Baguio City

*Free Afternoon**May 1 — A.M.*

- Plenary Session at the Pines Hotel Conference Hall
- Moderator: Director Jose D. Drilon Jr., SEARCA
- Further discussions on the proposal to form an Asian Association of Agricultural Colleges and Universities
- Voting on name of Association
- Coffee break
- Adoption of Constitution and By-Laws

P.M.

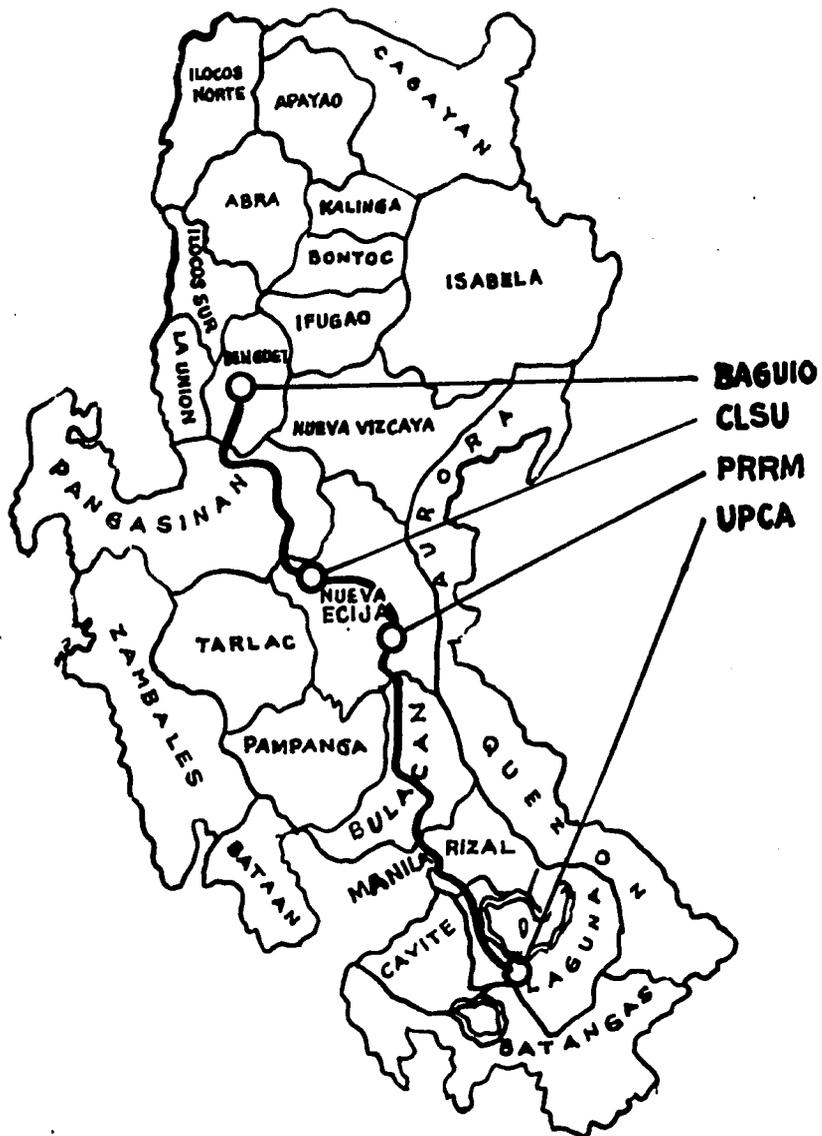
- Lunch at the Pines Hotel

Afternoon

- Field trip
- Mr. A. Castro, Chairman
- Sotanghon (Mung Bean Noodle) Factory
- Mountain State Agricultural College, La Trinidad, Benguet
- Camp John Hay
- Philippine Military Academy
- A Philippine handicrafts store

May 2 — A.M.

- Dr. M. C. Chakrabandhu, Chairman
- Discussion of election matters
- Reports of the different committees, namely, instruction, research, and extension
- Report of the Executive Committee
- Discussion of "Suggested Programs for the Association for 1972-74"
- Report of the Nominating Committee
- Nomination and unanimous election of Dr. M. C. Chakrabandhu as president of the AAACU



MAP OF NORTHERN LUZON, PHILIPPINES SHOWING THE RELATIVE POSITION OF UPCA TO THAT OF PHILIPPINE RURAL RECONSTRUCTION MOVEMENT, CENTRAL LUZON STATE UNIVERSITY AND BAGUIO.

APPENDIX C

COMMITTEES

Interim Organizing Committee:

Rector M. C. Chakrabandhu	Chairman
Vice Chancellor K. C. Naik	Vice-Chairman
Dr. F. A. Bernardo	Secretary
Dr. James Hutasoit	Member
Dean Hyun Koo Pyo	Member
Dr. R. W. Cummings (Ford Foundation)	Consultant
Dr. Edward Nicholson (UNDP)	Consultant
Dr. Don Kimmel (FAO)	Consultant

Seminar Executive Committee:

Dr. D. M. Lantican (UPLB)	Chairman
Dr. M.C. Chakrabandhu (KU)	Vice-Chairman
Dr. B. M. Santos (ACAP)	Member
Dir. R. E. Fronda (NFAC)	Member
Prof. J. D. Drilon, Jr. (SEARCA)	Member
Dr. J. A. Rigney (NC State)	Member-Consultant

Seminar Chairman:

Dr. F. A. Bernardo

Seminar Co-Chairman:

Dr. M. C. Chakrabandhu

Coordinating Committee:

Dr. F. A. Bernardo	Coordinator
Dr. C. C. Jesena, Jr.	Assistant Coordinator
Miss L. D. Yñiguez	Protocol Officer
Miss D. M. Torreta	Finance Officer
Mr. A. T. Umali	Assistant Finance Officer

Dr. C. C. Jesena, Jr.	Chairman, Secretariat
Mr. J. G. Lometillo	Chairman, Reception and Travel
Mrs. V. B. Fernandez	Chairman, Registration and Invitations
Dr. T. E. Contado and Dr. B. A. Parker	Co-chairmen, Program and Field Trip
Mr. P. M. de la Paz	Chairman, Publicity and Newsletter
Mr. D. Castro and Mrs. S. C. Exconde	Co-chairmen, Accommodations and Food Service
Dr. J. F. Jamias	Chairman, Publication of Highlights of The Seminar
Mr. M. G. Añonuevo	Chairman, Transportation
Prof. S. R. Bautista and Eng. R. R. Villanueva	Co-chairmen, Hall Arrangements

WORKING COMMITTEES

Committee on Instruction

Prof. Soenjoto Soemodihardjo	Chairman
Dr. Omar Abdul Rahman	Member
Dr. Isabelo S. Alcorido	Member
Rector Kemal Biyikoglu	Member
Dr. Suraphol Sanguansri	Member

Committee on Research

Dr. Faustino T. Orillo	Chairman
Dean Ku-sheng Kung	Member
Dr. Kavi Chutikul	Member
Mr. Oetomo Djajanegara	Member
Dean Pavin Punsri	Member
Dr. Fernando A. Bernardo	Member

Committee on Extension

Dean Yuen-liang Ku	Chairman
Dr. Bruno M. Santos	Member
Dr. Pisit Voraurai	Member
Dr. M. A. Boone	Member
Mr. Ji Woong Cheong	Member