

AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D. C. 20523
BIBLIOGRAPHIC INPUT SHEET

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Batch 66

1. SUBJECT CLASSIFICATION	A. PRIMARY Food production and nutrition	AC00-0000-G570
	B. SECONDARY Agricultural education, extension and advisory work--Asia	

2. TITLE AND SUBTITLE
Report

3. AUTHOR(S)
(101) Asian Agricultural College and University Sem. 1st., Bangkok, 1970

4. DOCUMENT DATE 1970	5. NUMBER OF PAGES 112p.	6. ARC NUMBER ARC
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7. REFERENCE ORGANIZATION NAME AND ADDRESS
N.C. State

8. SUPPLEMENTARY NOTES (*Sponsoring Organization, Publishers, Availability*)

9. ABSTRACT

10. CONTROL NUMBER <i>PN-AAE-258</i>	11. PRICE OF DOCUMENT
12. DESCRIPTORS Asia Education, higher Meetings	13. PROJECT NUMBER
	14. CONTRACT NUMBER CSD 2576 GTS
	15. TYPE OF DOCUMENT

CSD-2576 GTS
PN-AAE-258

**REPORT ON
THE ASIAN
AGRICULTURAL COLLEGE
AND UNIVERSITY SEMINAR**

**September 20 - October 5
1970**

in

THAILAND AND INDIA

by

**J. A. Rigney - Dean for International Programs
R. W. Cummings - Dean for Research**

North Carolina State University / Raleigh, North Carolina

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FOREWORD

The first Asian Agricultural College and University Seminar was an unusual and rewarding experience for the Asian members from ten countries, fourteen institutions, and associated ministries of agriculture or education. We visited two countries—Thailand and India—four universities and met with national and provincial agricultural leaders.

The two or three day visits to the four universities enabled us to study, observe, and discuss their objectives, program, and problems. We profited by the opportunity of getting to know and discuss mutual problems with our Asian associates. A process of communication was started that led the Seminar to suggest the organization of an Association of Asian Agricultural Colleges and Universities.

We are grateful to the U. S. Agency for International Development and North Carolina State University for organizing the Seminar. Arrangements for a second Seminar and the proposed Association are in Asian hands. We, however, will welcome support from the Agency for International Development, North Carolina State University, the Food and Agricultural Organization, and others.

M. C. Chakrabandhu
Rector of Kasetsart University
Bangkok and
Co-Director of Seminar

SUMMARY

Purpose and Background

Experience strongly suggested that Asian Agricultural institutions have progressed in their development to a point where agricultural leaders in that region could learn as much or more from studying each other's experiences as they could by visiting in the more developed countries. There were also strong suggestions that new perspectives in institution building could greatly facilitate such a study. A travelling seminar was organized with these assumptions in view.

Seminar Objectives

Specific objectives of the Seminar were to provide for a carefully selected group of Asian agricultural leaders a formal exposure to the newly formulated institution building concepts, and then in a series of visits to Asian institutions to use those concepts as an analytical frame for viewing institutional development strategies and progress.

Participation

Twenty-four prominent leaders from agricultural colleges and universities and Ministries of Agriculture and Education from ten Asian countries participated in the Seminar. There were also five observers from international agencies and five staff members.

Program and Itinerary

The two-week Seminar consisted of a day and a half of formal presentations in Bangkok, nine days of visits to five institutions in Thailand and India and two days of summarizing sessions.

Basic Principles

A keynote address pointed up usefulness of the Land Grant doctrine for the new agricultural universities in the past decade. Then three basic papers were presented. The first outlined new concepts in institution building, the second reviewed the role that external technical assistance can play in institution building, and the third paper explored the interdependencies among the various institutions and agencies that serve agriculture.

Seminar Discussions

Discussions between participants and the leaders and students at the institutions visited centered largely on a) leadership quality, style, strategy, decentralization, and student participation; b) institutional doctrine, role and goals; c) program relevance to country needs, qua-

lity, and diversity; d) organization and organizational procedure for program development, staff selection and rewards; e) sources of budgetary and technical support; and f) interactions with other agencies serving agriculture and with the general public.

Committee Reports

Eight committees were appointed at the beginning of the Seminar to focus attention on basic issues during the visitations. The committee reports at the summary sessions showed good understanding of the importance of the principles of institution building and the need to apply them at home.

Evaluation of Seminar

The participants were very pleased to be exposed to institution building concepts and to see these concepts in action in several different settings. They were less happy that the schedule only permitted time for studying institution building ideas and left insufficient time for looking at specific research programs underway. The participants were in accord on the need for an Asian organization which could enable them to continue and carry forward the exchanges of ideas and communication initiated by the Seminar.

The Seminar directors felt the Seminar far exceeded their greatest expectations in terms of the quality of participants, the insights and rapport that was developed among the participants and at the several sites visited and the understanding of institution building that was generated.

Follow-up Recommendations

The committees reporting at the plenary session of the Seminar made several recommendations for follow-up activities to capitalize on the momentum and interest developed in this session as summarized below:

1. Governments, universities and technical assistance agencies should initiate research on "systems of services that support agricultural development," and on the operation of such systems in institution building. It would be particularly helpful if the three universities visited—Kasetsart University, Uttar Pradesh Agricultural University and Punjab Agricultural University—would also make an assessment of the system of services supporting agricultural development in their respective areas and report their experiences to the other participating countries.

2. An Asian Association of Agricultural Universities should be established which would promote interchange of information and cooperation in teaching, research and public service among member institutions.

3. A second Asian Seminar should be convened in The Philippines in April, 1972, at which time a detailed proposal for the formation of

the Asian Association of Agricultural Universities would be presented by the Interim Committee.

4. Each Asian institution represented should take follow-up action by organizing seminars and self-evaluation exercises in which the institution building variables and linkage concepts are central themes.

REPORT ON ASIAN AGRICULTURAL COLLEGE AND UNIVERSITY SEMINAR

PURPOSE AND BACKGROUND

Experience strongly suggested that Asian Agricultural institutions have progressed in their development to a point where agricultural leaders in that region could learn as much or more from studying each other's experiences as they could by visiting in the more developed countries. There were also strong suggestions that new perspectives in institution building could greatly facilitate such a study. A Travelling Seminar was organized with these assumptions in view.

Several developments have occurred in the past few years that combine to indicate that a program of visitations to selected Asian institutions would be very productive for leaders in Asian Agricultural Colleges and Universities. These developments include very significant advances in the development of agricultural universities and related institutions that serve the needs of their developing agriculture. In the few instances in the past in which leaders of such Asian institutions have visited and studied the experience of other nations in the region, the experience has proven quite rewarding. It was evident from such visits that each can learn much about principles and strategies of effective institutional development from the experience of others in the region; and in many ways this experience may be even more valuable than the study of institutions in Western nations in which the political, cultural, social and economic situations are quite different. This suggests that organized visits to selected Asian institutions might be a very productive technical assistance activity.

There was reason to believe that the rather extensive body of information that has emerged in the last few years on the theory and strategy of institution building and the role of technical assistance in facilitating institutional growth could provide an excellent framework within which the institutional visits could be organized. Experience with these concepts in seminars and workshops held in the U. S. suggest that they should receive much wider exposure, particularly among the leadership of the new agricultural colleges and universities of the developing countries.

One of the deterrents to more rapid adoption of modern technology by farmers is the lack of an adequate system of services that is required to support the increased agricultural specialization. A candid and objective exploration of the interdependence between the agricultural university and the other elements in such a supportive system should be helpful in understanding the agricultural university's unique role and function in society.

All of these developments and observations are important to the design of efficient institutional development strategies in the next decade. Therefore, a Seminar was planned which would bring these points into play, would test the validity of the premises involved, and, if successful, would indicate new approaches in utilizing much of the information and experience that has been gained in recent years.

The Seminar was organized by North Carolina State University under funding by the Agency for International Development. It was scheduled for two weeks during which agricultural leaders from various nations in Asia were provided an opportunity to visit a sample of institutions in Thailand and India and to discuss their various features. The program of the Seminar was designed to expose the participants first to the newly formulated institution building concepts and to use those concepts as the basis for observations and analyses while visiting the different institutions.

SEMINAR OBJECTIVES

Specific objectives of the Seminar were to provide for a carefully selected group of Asian agricultural leaders a formal exposure to the newly formulated institution building concepts, and then in a series of visits to Asian institutions to use those concepts as an analytical frame for viewing institutional development strategies and progress.

The initial specific objectives for the Seminar were as follows:

1. To initiate an exchange of information among agricultural universities of Asia regarding the strategies for institutional development, their role in agricultural development, institutional goals, programs, and problems
2. To provide for a visit to a few representative agricultural universities during which there would be opportunity for discussions with administrators, faculty, and students as well as observations on how these institutions have developed in response to the needs and problems of the areas they serve
3. To observe the relationship of agricultural universities to other government agencies, agricultural industries, farmers and the general public
4. To consider the principles of strategy, organization, administration, governance, structure, program and operation conducive to successful development of agricultural universities
5. To consider the advisability and feasibility of mechanisms for a continuing exchange of information and experience between agricultural universities of the region in furthering their mutual development

As the Seminar got underway several ancillary objectives emerged which appeared to be important; namely, a) to test the basic assumptions on which the Seminar was premised, b) to evaluate this Seminar technique as a technical assistance approach, and c) to assess the value of the new institution building concepts as a communicative language for focusing the attention of administrators on the key issues which they must resolve. These secondary objectives surfaced as attempts were made to design evaluation procedures for the entire undertaking.

PARTICIPATION

Twenty-four prominent leaders from Agricultural Colleges and Universities and from Ministries of Agriculture and Education from ten Asian countries participated in the Seminar. There were also five observers from international agencies and five staff members.

Invitations were extended to the various countries of the Asian region to send representatives from designated agricultural colleges or universities. The total number of participants had to be limited to not over 40 in order for the Seminar to provide opportunity for full and active participation by each representative. This meant that each country could send representatives from only a few of its major colleges or universities. Since the harmonious working relationships between the universities, the Ministry of Education and the Ministry of Agriculture is so important to the university's capability of serving agriculture adequately, it seemed advisable to invite also representatives from one or both of these government agencies in each country.

In addition to the country representatives, a few observers were invited from such agencies as AID, FAO and UNESCO.

The total participation was, 34 including 24 representatives from ten Asian countries, five observers and five staff members. This group was joined by many additional staff members at each institution that was visited. The 24 country representatives included 15 from universities and nine from Ministry agencies.

Details on Seminar participants are given in Appendix A.

Each participant was requested to prepare and send to the Seminar a description of his home institution in accordance with a general outline provided to them. The description reviewed the institution's history, its stage of development, its present role and future hopes for its contribution to agriculture, the size, level of training and quality of its faculty, the composition of its student body, the general nature of its research and extension programs, its structure, organization, authorities and method of governance, and a brief description of its physical and financial resources. These reports were reproduced and made available to all participants in the Seminar. Additional copies are available from North Carolina State University.

PROGRAM AND ITINERARY

The two-week Seminar consisted of a day and a half of formal presentations in Bangkok, nine days of visits to five institutions in Thailand and India and two days of summarizing sessions.

The Seminar was convened in Bangkok and the program for the first one and one-half days was devoted to the formal opening of the Seminar and to the presentation of basic papers on principles of institutional development by Seminar staff members. This was followed by two days of visitation to Kasetsart University and to Suwan Farm.

The group then moved to India where they visited the Indian Agricultural Research Institute at New Delhi, the Uttar Pradesh Agricultural University at Pantnagar, the Punjab Agricultural University at Ludhiana, and visited with officials of the Punjab Department of Agriculture in Chandigarh. One full day in New Delhi was devoted to a review of the programs of the other institutions represented at the Seminar that were not visited during these two weeks. A final two days were devoted to a summary of the experiences and ideas gained by the participants and in determining what the next steps might appropriately be for this group.

The participants and staff were assigned to eight different committees which were given specific responsibility for reporting at the end of the Seminar summaries in specific areas of institution building. These summary reports are presented later in this report.

The detailed program and itinerary for the entire session is shown in Appendix B.

BASIC PAPERS

A keynote address pointed up the usefulness of the Land Grant doctrine for the new agricultural universities in the past decade; then three basic papers were presented. The first outlined new concepts in institution building, the second reviewed the role that external technical assistance can play in institution building, and the third paper explored the interdependencies among the various institutions and agencies that serve agriculture.

Three basic papers were given at the beginning of the Seminar and the essential features of these papers are abstracted below. The complete papers and the keynote address by K. A. P. Stevenson are given in Appendix C.

Principles of Institution Building by Dr. George H. Axinn—

Institution-building is here taken to mean the creation and development of agencies which have innovative influence in society. The essential elements are outlined and criteria of achievement are given.

In the introduction of new technology, innovations which persist are typically supported by the creation of formal organizations. These organizations need to be technically capable of performing or supporting the new function. Examples of such organizations include extension services, universities, family planning clinics, and research institutes.

A very large portion of significant change in the developing world is deliberately planned—it is engineered. The introduction of such change takes place primarily in and through formal organizations. These organizations have the intent of innovating. They seek to foster new kinds of relationships between and among people and with other things—and these relationships become normal if the institution succeeds. They develop new patterns of action.

This organization becomes “institutionalized” when it has established itself in its environment in such a way that it will obtain support from and exchange services with its environment—and thus achieve the capacity to persist and maintain its innovative activities. We may characterize *institution-building* for our purposes as a process of developing new agencies or organizations or reconstituting existing organizations equipped to plan or to execute programs in the area of economic and social development.

Institution Building Defined

In the last ten years scientists in many parts of the world have focused on what has come to be called "Institution Building." Two of the earliest of such research men, Milton J. Esman and Hans C. Blaise, defined institution building as: "The planning, structuring, and guidance of new or reconstituted organizations which a) embody changes in value, functions, physical, and/or social technologies, b) establish, foster, and protect new normative relationships, and action patterns, and c) obtain support and complementarity in the environment."

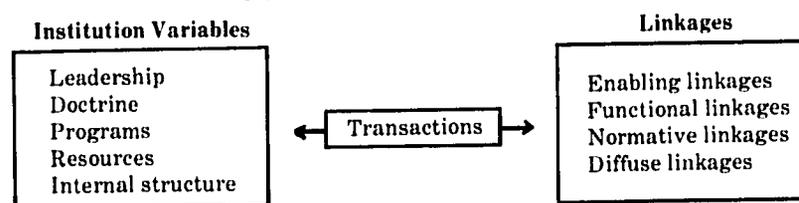
Institution-building is a double barreled activity. Change agents must a) build technically viable and socially effective organizations which can be the vehicle for innovations; and b) they must develop and manage relationships (linkages) with other organizations and groups on whom they depend for support and whose behavior they are attempting to influence. Building viable organizations and managing their linkages are closely interrelated aspects of a single institution-building process.

To be institutionalized, organizations must not only survive; they must be able to acquire operational resources, and to exert influence on their environment so that the innovations they stand for are taken up and incorporated by complementary organizations and groups with which they interact.

Esman and Blaise built a model—a way of looking at or thinking about this process of institution building. It is a collection of categories, developed for certain uses.

The Institution Variables

There are two groups of variables, or factors, that are considered important in understanding and guiding institution-building activity. These are called the "institution variables," which are essentially concerned with the organization itself, and the "linkage variables," which are mainly concerned with external relations. The institution-building universe has been simply depicted as follows:



The most important institutional variable is *leadership*. An organization without leadership may be out of control, and unless the leadership is both technically and politically *competent*, both for its internal and external responsibilities, and *committed* to innovation, the enterprise may be in trouble—even though its opportunities are otherwise favorable.

Doctrine is the most elusive of the institution variables. It is an expression of what the organization stands for, what it hopes to achieve,

and the styles of action it intends to use. Men are motivated to act partly by the expression of ideas and symbols. The doctrine helps the members of an institution to communicate with each other, and to develop a strong sense of common purpose. This increases both the satisfactions of the members of the organization and the effectiveness of the organization in dealing with the outside world. Doctrine is very important out in the public away from the institution. An institution is known by its doctrine as much as anything else. This sets the tone for the way people think about an institution, and it can be critical in the survival, growth and development of an institution.

The *program* is the sum total of the activities or the output of an institution. Each institution will have its own program reflecting the influence of its leadership and its doctrine.

Resources are the main input that the organization can either convert into products or services, or into increasing its own capabilities. Resources can be classified as personnel or staff, finances, equipment, facilities, and technical information. The problem of the institution-building is to mobilize these resources to the organization and to mount programs of action consistent with the capabilities of these resources at any point in time.

Internal structure includes formal and informal patterns of authority, division of labor among the components of the organization, the channels of communication among them, and the methods of mediating and resolving the differences and disputes that inevitably break out over policies, priorities, resource allocation, and, indeed, personalities, in any complex social structure.

The Linkages

Effective institutional leadership requires simultaneous attention to building the organization and to managing its environmental relationships. Four kinds of institutional linkages have been identified.

Enabling linkages provide legal and political authority for the institution to operate and access to essential resources.

Functional linkages provide the needed input into the organization and they utilize its output.

Normative linkages are relationships with other organizations which share overlapping interests in the objectives or the methods of the institution. These may be reinforcing or hostile.

Diffuse linkages are relationships with individuals or groups who are not organized in a formal organization, but which do influence the standing of the institution itself.

Criteria of Institutionalality

One of the questions which is critical in the business of institution building is: "What are the criteria for knowing that an organization has become institutionalized?" Three criteria are suggested by Esman.

First, the *survival* of an organization is a necessary but not sufficient condition for institutionalization. If an organization dissolves it will not become an institution. However, it could continue to get its

annual budget and continue to have personnel receiving their salaries and yet fail to actually become an institution.

The achievement of intrinsic value in its environment is the second task, and this can be measured by the *autonomy* it has gained in the development of its program, in its internal management, in its access to resources, and by the influence it is able to exercise on its external environment.

A third test is the *spread effect* of its activities—whether the relationships and patterns of action which the organization has developed become normal for other units within the society.

The Role of Technical Assistance in Institution Building by J. A. Rigney -

This paper addresses the questions of "which features of institution building are most readily accelerated by outside resources, what strategies are most productive in accomplishing these objectives, what is the best mix of inputs from technical assistance, and what are the best measures of institutional progress and maturity?"

A. Institutional characteristics sensitive to external influences

Much of the institution building process goes on in the absence of, or independent of technical assistance. Yet technical assistance can be a useful and even a critical influence in five areas:

As providers of change models. Outsiders are not restrained by the knowledge of customs, political currents, or inadequacies of support when they think about new models. Hence, their uninhibited but imaginative inputs can be useful.

As participants in the leadership function, especially in framing of new doctrine and priorities, in the development of new programs and in introducing drastic changes in organizational style.

As providers and allocators of valuable resources such as external experts, training for staff, equipment, and technical information.

As agents for transferring and adapting technology. Most technology must be carefully adapted to the local environment by systematic testing and altering if it is to succeed.

As providers of operational monitoring and continual self-examination of strategies for achieving the goals set for the institution, the shifting of resources and structure to accomplish the primary innovative objectives.

All of the above functions performed by outsiders are actions which eventually must be taken over by the institution itself. Therefore, the best strategies for technical assistance are those which are designed to leave these activities to the institution's own resources as quickly as possible, but not before they are well enough established to operate efficiently under their own resources.

B. Strategies in Institution Building

Strategies for Advisors

The trend in recent times is to change the strategy of providing

assistance of "advisors" in the direction of giving these persons a specific responsibility within the institution and using this as a platform from which advice may be sought and given. The great danger in this strategy lies in the ease with which everyone can lose sight of the fact that the "advisor" is there primarily for the purpose of *institution building* and not for accomplishing a specific piece of research or teaching a specified course. Thus, the new strategy requires walking a fine line between advising someone else in how to do his business versus doing it for him for a brief period of time. This suggests that the "advisor" should be selected, not only on his merits as a researcher or teacher, but also on his abilities as an *institution builder*.

Strategies for Participant Training

The most popular function of technical assistance has been the opportunity provided to local staff members to go abroad for further study and training. However, many individuals return home completely alienated from performing the responsibilities which their institution expects of them. Several new strategies are now appearing which hold promise of increasing the efficiency of this aspect of technical assistance. U. S. universities are just now beginning to allow Ph.D. students to work on problems from their own country and even to return to their own country for much of the research effort. Unfortunately, very few staff members have had the opportunity of learning new administrative procedures or studying different organizational structures and this point is receiving considerable attention and study by technical assistance agencies.

Strategies for Commodity and Program Support

Program support must be supplied at the time the program is well formulated by competent staff who have rigorously assessed and demonstrated priority program needs and the support must be supplied on a flexible time schedule. If an institution does not yet have a trained staff or a revised and upgraded teaching program or a productive and exciting research program underway, it has little basis for deciding what additional equipment is most needed to enhance its activities. Thus, we have learned that sophisticated pieces of equipment add very little to the *institution building* exercise, and in fact, they may even be counter-productive by distracting the institution from establishing appropriate priorities in its programs.

C. Optimum Mix of Technical Assistance Inputs

The three major inputs which can be made through technical assistance—visiting professionals, foreign training for staff members, and commodity and program support—are not equally productive at the same stage in an institution's development. In the early phases of institutional development, the most urgent requirement is to get a "critical mass" of staff members who have sufficient technical background to be able to initiate effective programs in their respective departments. As soon as staff members begin to return from advanced

training abroad, it is urgent to capitalize on the enthusiasm which they bring with them and to provide them with guides and some resources for getting programs underway. It is at this point, that technical assistance advisors can be of greatest utility and it is at this point that a small amount of program support funds will go a long way. As the institution matures and its programs are well identified and the staff have good technical training, the need for different types of resources, including equipment, laboratories, research fields, etc., may become the most restrictive aspect of *institution building*.

An important consideration in allocating external resources involves the generation of public support. It is not good strategy to spread the resources evenly over the entire institution and wait for several years before any one segment is strong enough to attract public attention. Good publicity on the progress of some aspect of the institution is required almost every month of every year to keep the public interested in the institution's overall development. This means that "critical mass" level of input must be achieved in individual departments or programs one by one.

The allocation of external resources should be applied to the activities which are important to the nation's highest priority needs so that significant breakthroughs have an immediate effect on the national needs.

Finally, the allocation of external resources needs to be carefully tailored to the institution's capability for continuing programs which are started rather than yielding to the temptation to utilize outside funds which may compromise the institution's concentration on national priorities.

D. *Assessment of Institutional Progress and Maturity*

External assistance can be useful in assessing institutional progress and technical maturity at appropriate intervals. The concepts of institution building which were reviewed by Dr. Axinn have been used as the basis for assessing institutional progress where there is interest in measuring the dynamic, innovative, driving character of the institution. The measurement of the qualities of leadership, doctrine, program, structure, resources, and linkages is very difficult, but it is these qualities that spell the difference between an exciting, productive and innovative institution, versus one which may be relatively affluent but which does not serve as an agent for change within society.

A System of Services to Support Agricultural Development by Dr.

I. L. Baldwin -

This paper documents the need to view the various agencies serving agriculture as a "system" and presents several provocative hypotheses regarding their interdependencies.

The introduction of technological agriculture as a means of hastening agricultural development requires many services which were not required previously, or were only required in a rudimentary and un-

organized form. As agricultural development proceeds, the number of services increases and the institutions providing such services tend to become more highly specialized.

In the first U. S. college programs designed specifically to serve agriculture the early professors not only taught what little was known about agricultural production, they started simple agricultural research projects, and they performed both public service and extension functions. About two decades later a system of state agricultural experiment stations was established, and almost a half-century later the Federal Congress provided for a nationwide system of extension services. Over the last half century there has been a great proliferation of other services to support agriculture; in each case, the purpose was to supply a single highly specialized service.

As the less developed countries attempt to speed up the rate of agricultural development perhaps less highly specialized and more general agricultural institutions such as the U. S. had during this early period would be more useful initially. These might be less disruptive of valuable social patterns than would the more highly specialized institutions prevalent in the Western nations today.

If the maximum feasible rate of agricultural development is to occur, each of the necessary services must make its proper contribution at the proper time. Ideally there should be developed a system in which each institution or agency serves as one unit in an integrated program. Sometimes, we find such services to be fiercely independent and competitive. In other cases, we find them totally independent of and indifferent to the activities of related services.

At the start, in most less developed nations, little attention was given to the development of a *system* of services. Rather, almost total energy was devoted to the development of a series of services, and only minimum attention was given to the need for the development of a functioning system with adequate linkages between the various newly created institutions. Those responsible for developing an institution to provide a new service often have little understanding of other services which are being introduced, and each group tends to confine itself to its assigned task. Only recently has research on institution building and agricultural development revealed the importance of building "a system of services to support agricultural development."

In the larger less developed countries, federal support and federal leadership is essential for any balanced development of agricultural research and development. But state, regional and local initiative and support with adaptation to local conditions is just as essential. Neither can function well without the other.

There is remarkable agreement, in both developed and underdeveloped countries, as to the type of services needed to support agricultural development. However, the organizational patterns which relate these services one to another and the degree of emphasis placed on the different services vary greatly from country to country. While there is no "best" pattern or organization, nor is there a "correct" formula for the allocation of scarce resources among the many claimants, there are

basic principles which are useful in devising organizational patterns and in allocation of scarce resources. As a start towards identifying such principles, the following hypotheses are presented for testing throughout our Seminar:

I. The rate of agricultural development is dependent on the degree of effectiveness of the various services supporting agricultural development and on the degree to which they function as an integrated system.

II. The education of professional agriculturists and the development of an indigenous agricultural research service in the early stages of agricultural development deserve high priority in the allocation of scarce resources.

III. The effectiveness of agricultural extension and public service programs can rise no higher than the level of the availability of locally adapted, improved agricultural practices and the supply of professionally trained workers.

IV. Improved practices can be only marginally effective without the development of an effective and efficient infrastructure to supply the necessary inputs—credit, seed, fertilizer, pesticides, machinery, etc.—and the necessary marketing structure—preservation, storage, transportation and capital.

V. Agricultural development depends on the development and adoption of improved practices; adoption of improved practices is largely dependent on the probable profit to be gained by the adoption of the improved practice; profitability is often dependent on governmental policies, on prices, credit, taxation, import-export controls, etc.

VI. The development of an effective educational program for professional agriculturists in a developing country requires a faculty with both an interest in and an opportunity of assisting in finding solutions to the important problems facing agricultural development.

VII. To serve adequately the agricultural development of a nation, its agricultural colleges should continually survey the emerging needs of the nation for agriculturists with various types and levels of training and make the necessary programmatic changes to meet such needs.

VIII. In developing countries with large rural populations the elementary and secondary schools should be responsive to the needs of agricultural development and the agricultural colleges have a responsibility to assist in the development of appropriate agricultural educational programs in such schools.

IX. The agricultural college has a responsibility to assist in upgrading all agricultural workers whether in education, research, extension, public service or infrastructure activities through noncredit lecture, seminar, workshop, etc. programs, as well as by formal credit programs.

X. Where the resources—trained men and materials—available for agricultural research are in short supply heavy emphasis should be placed on applied adaptive and projective research both in agricultural colleges and in agricultural research stations.

XI. The agricultural research service has a responsibility to make information readily available to professional workers, in education, extension, etc. about progress being made in providing answers to critical agricultural problems.

XII. Since many important decisions affecting agricultural development—such as taxation, pricing, transportation, quarantine, water and soil conservation policies—are made at the highest levels of government, frequently with inadequate factual information, those directing agricultural research programs should give high priority to securing the data needed to enable the establishment of sound policies.

XIII. Many aspects of agricultural education, agricultural research and agricultural extension can be most efficiently and effectively managed at the Federal level and many others at the State level; and agricultural development will be best served by the development of integrated Federal-State programs.

XIV. The absence of adequate linkages among related but separate services often renders ineffective the independent services of each; and coordinated integrated programs are necessary to support rapid agricultural development.

XV. Strong viable linkages between associated agricultural services must be based on mutual respect for the assigned tasks of the services and on the development of the programs which bring significant benefits to each party.

SEMINAR DISCUSSIONS

Discussions between participants and the leaders and students at the institutions visited centered largely on a) leadership quality, style, strategy, decentralization, and student participation; b) institutional doctrine, role and goals; c) program relevance to country needs, quality, and diversity; d) organization and organizational procedure for program development, staff selection and rewards; e) sources of budgetary and technical support; and f) interactions with other agencies serving agriculture and with the general public.

The major benefit that was anticipated from the Seminar was expected to come from the discussions between the visitors and the host officials at the various institutions. The actual success of the Seminar was attested to by the quality of these discussions that occurred throughout the entire two weeks. The following summary of the topics discussed at various points during the visits will indicate the frankness with which questions were approached and the open, candid, and searching replies which were given during the course of the visitations.

The discussions are summarized following the guidelines of the basic papers, rather than attempting to give them in a sequential fashion, *viz*:

The institution Building Model

- Leadership
- Doctrine
- Program
- Internal Structure
- Resources
- Institutional Linkages

Role of Technical Assistance in Institution Building

Institutions to Serve Agriculture

- University
- Research
- Extension

The Institution Building Model

The reaction to the model on institution building was one of genuine appreciation for an analytic outline which would permit people to think about the important aspects of institution building in an orderly fashion. It articulated those intuitive feelings about institution building which most administrators develop with experience. It was agreed

here, as in various earlier seminars, that there was little new in the model; rather, its uniqueness is in the way it brings ideas together in an understandable fashion. Some participants cautioned that the model not be stretched too far in trying to conceptualize and solve all the problems connected with an institution. Others suggested that the capacity of an institution to change may be as good a measure of "institutionality" as some of those listed in the basic paper.

Leadership

Institutional leadership is always a delicate matter to discuss, particularly in the presence of the leader of an institution that is being visited. Several commented, however, that leadership is always understressed in considering plans for institution building or institutional renovation. Several were heard to remark at more than one site visited, "My word, they have excellent leadership here!" This expression of surprise in the quality of leadership is interesting, but the fact that attention was sharply focused on the various qualities sought in leadership is also worth noting.

It was observed that leadership tends to be "personality" oriented in many of the nations represented in Asia. The question was raised whether the model holds, therefore, under circumstances such as this. It was pointed out in response that the very essence of institution building is to create organizations which are so productive and innovative in nature and are sufficiently embedded and prized in the society that they survive and prosper as organizations rather than as personality cults.

Leadership style and procedure was always of high interest. *How can administration be decentralized with responsibility delegated to middle management and to the lower echelons?* This can only happen when administrations begin to "operate from norms of organizational practice rather than from specific controls exercised by single or a small number of individuals. One thoughtful administrator remarked, "Genuine freedom of speech and academic freedom are very difficult to achieve in less developed countries." That remark is of special significance in considering ways of stimulating the expression and upward flow of new ideas regarding institutional policy and management.

What proportion of time of a top administrator should be devoted to outside contacts in the development of appropriate institutional linkages? Answers to this question varied considerably from one place to another depending very much on the status of linkages already developed. A fair summary of the reactions seems to be, however, that more than 50% of top leadership's time should be devoted to the important facet of linkages in institution building.

What is the nature of student participation in institution governance in Asia? This was a lively topic at each stop and this tender subject received some of the most seasoned responses from administrators who have had this problem on their hands far longer than similar institutions in the U. S. Their views were that students come to the

University to be educated, and education includes the development of the capacity to accept responsibility for their own actions. Since these are the leaders in the next generation they must develop experience in administrative matters under the wise guidance and sympathetic counsel of university administrators. Furthermore, there are various aspects of student life, such as food service and the operation of hostels, which can legitimately be turned over to students to manage under the counselling of faculty advisors. Therefore, the experience of the Asian institutions indicated that they attempt to use students in an advisory role in determining institutional program and administrative policy. They appoint them to various boards and councils where their voice is heard and where they in turn have the opportunity to hear full discussion of various points of view on institutional matters before rendering judgments. In almost no instances, however, are students included in decision-making roles which are normally delegated to institutional administrators by statute.

We were led to believe that student activism is not regarded as a serious problem and that firm and aggressive leadership in the administration is responsible for keeping it within reasonable bounds.

Doctrine

The notion of doctrine was somewhat new to most of the participants as well as the host institution leaders, and their discussion of the topic reflected a strong U. S. influence on their thinking. Thus, the Land Grant Model was accepted by the participants almost universally as the modern, innovative and productive doctrine in building institutions to serve agriculture. There was a strong feeling that if the public demonstrates strong faith in an institution's program and productivity, it is a good criterion of the success of the institutional doctrine. Following this line of thinking, the questions that were put to the various administrators visited continually probed the practicality of the institution's programs. Is the education given, the research undertaken or the extension programs offered, in fact, of high priority and practical to the farmers, or are they operated for the prestige of the scientist or the institutional leaders?

There was some skepticism that doctrine might quickly become static, doctrinaire and traditional and thereby lose its force. At several points, the question was raised as to how to avoid obsolescence of doctrine, particularly as the rural scene changes and the needs of the rural people are modified. This is a question, in fact, which is even more pressing in the U. S.

Program

Most of the questions about institutional program dealt with the interrelationships between teaching, research and extension. The research and extension aspects will be discussed below under "Institutions to Serve Agriculture" and only the instructional aspects of the program are presented here.

There was some concern as to whether agricultural training could

quickly become too specialized in the Asian countries in terms of the actual long term needs of the nation. A more specialized curriculum satisfies the student's immediate goals, but there was considerable feeling that the country's long term development needs will still require a more general type of educational program.

What are the social programs of a university and what are its social responsibilities, especially in the area of population control? This question was not answered head-on in any of the discussions, but several people went away pondering the answer for his own institution. It was quite clear in India, for example, that the outstanding progress that was observed at all of the institutions visited was being strongly challenged in the rural areas by the continued unchecked population growth. Thus, the participants found themselves constantly deflected from the high hopes and excitement of institutional progress to the despair and hopelessness of catching up with the needs of the burgeoning population. One institutional leader remarked that a strong program in sociology and economics would be required for a university to have any possibility of attacking this problem successfully. He observed that his institution did not have sufficient strength nor depth in this area.

The employment opportunities for university graduates came up in almost every conversation on institutional program. What are the manpower requirements for agriculture? Where do most of the university graduates go? What is the possibility of employment for women graduates? Does the University's admission policy reflect the nation's needs for university trained people in different areas? These are typical questions about the relevance of the university's program to the country's needs. In general, each faculty within the university is given a specified number of seats, and in several but not all of the institutions visited this number is the same for each faculty. Manpower surveys and projections have been made for most of the areas visited, but particularly in Thailand, these have not been very accurate indicators of the rapidly increasing requirement for trained manpower. Furthermore, they have not accurately reflected the appropriate distribution among various specialities.

Women do not yet constitute a very large proportion of the student body of the agricultural universities in some countries, including India. However, the employment demands for women trained at agricultural colleges, particularly in home science, is far from satisfied.

Admission policies should be good indicators of an institution's judgment about the programs needed by the nation. There was considerable interest in the institutional policies governing admission from secondary vocational schools. It was interesting to find that admission policies, in some of the institutions, not only permit students to enter the university from secondary vocational schools, but in some cases college credit is granted for relevant experience.

Internal Structure

The questions uppermost in the minds of participants with respect

to the structural arrangement of the institutions visited dealt largely with policies which facilitate the recognition of meritorious service of faculty either through promotion or salary adjustments. It is not common to find agricultural institutions in Asia which use promotion in rank as a reward for meritorious service. These institutions normally have a given number of positions within each rank and when there is an opening a public announcement is made and applications are invited, both from within the university and from other institutions. A lower ranking professional within the university is not given preferential consideration but is compared objectively with all other candidates. Similarly, salary increases are tied largely to professional rank with only small latitude within ranks being available for rewarding meritorious service. This leaves the institutions with relatively small latitude for encouraging outstanding performance through such techniques as are normally found in the U. S. There is considerable use of public acclaim as a means of recognition of outstanding teaching or research. Certain fringe benefits are available to staff members in the form of housing and schools and entertainment for their children, but these are not normally applied differentially according to quality of professional performance. There was an overall feeling that presently used measures were inadequate for stimulating good performance.

The procedures for selecting staff members and administrators was a lively topic of conversation at every stop. The participation of faculty members in governance of the university was also examined in considerable detail at each site.

There were several opportunities to visit with students and student leaders to gain their impressions of the institutional organization and administration. In general, the student leaders were impressive for their mature perspective and their loyalty to the institution and its administration. They generally were candid in insisting that certain changes might help, but they seemed quite realistic as to the restraints which prevented their implementation. Students are generally organized into professional clubs, in intra-mural sports groups, in vocational clubs, and groups dedicated to cultural affairs. Nowhere in the institutions represented were they permitted to organize for purely political activities. Students are generally given full initiative in determining their food service, housing arrangements, and most of the extra-curricular activities found on the campus.

Resources

Questions about financial resources were relatively few since most of the participants were administrators and knew full well both the major source of their funds and the difficulties of altering that source markedly. Many questions were asked, however, about procedures for upgrading faculty competence through outside training or internal institutional activities and policies.

The division of the fiscal budget between academic instruction, research and physical plant operation was of considerable interest at all places. There was special interest in the operation of the large commer-

cial farm by the U. P. Agricultural University and the relationship between the income of that farm and the budget of the University. Since this approach had been established along the lines of the original U. S. Land Grant concept, there was reluctance to criticize it out of hand, but there was considerable skepticism that a university could operate from year to year largely on the basis of income from a farm which it operated. On the other hand, one participant has already suggested to his own institution that it consider the idea seriously.

Linkages

The term "linkages" became a useful addition to everyone's vocabulary almost from the first day of the Seminar. There were differing views as to which type of linkage deserved most attention, some favoring the "functional" and "normative," others insisting that the "enabling" linkages took priority.

In examining the relationship between a central university and the small colleges which have agricultural curricula or courses, there were many questions asked about how to consolidate a nation's commitment to small institutions which are not making a proportionate impact on the country's development. The same question was raised with respect to small or poorly used research and government farms. The Indonesia experiment of establishing two major "feeder universities" which would service the younger and less mature institutions was discussed with considerable interest by all.

Many questions were asked about the cooperation between university and farmers or farm groups, and the influence this cooperation has on public support. The direct farmer contact that was in evidence, both at the U. P. Agricultural University and the Punjab Agricultural University, provided strong evidence that this is a necessary source of support in any cultural setting.

It is perhaps fair to summarize the discussions and questions on this subject by saying that stressing the importance of linkages was a somewhat novel idea and one which had previously received inadequate attention. However, the experience of the institutions visited documented the importance of this activity as a vital part of institution building.

The Role of Technical Assistance in Institution Building

The discussion and questions regarding the role of technical assistance in institution building ranged rather wide but there was continual emphasis on a few major points.

1) Timing in the supply of technical assistance inputs is a most important factor. Good men or fine equipment supplied at the wrong time can be ineffective or even counter-productive.

2) An emphasis on the urgency for the host institution and the host government to take a firm responsibility in determining the role of technical assistance and its continuity.

3) The importance of coordination of all outside sources of technical assistance within a given country. The questions from the partici-

pants were frequently aimed at strategies for accomplishing these three items.

One of the great problems faced by host institutions, as well as technical assistance agencies, is the recruiting of productive "advisors" in this activity. Many questions were directed at the role of the advisor in the institutional setting, the style of operation which was most fruitful, and the technical assistance needs of host institutions in the future. In commenting on the qualities that were most desirable in advisors, stress was placed on integrity and knowledge of the country. Continuity of program from one advisor to the next was also a point of continued discussion. At one institution there was considerable speculation that a young post-Ph.D. who would be engaged directly in his own research in collaboration with host institution faculty might be even more helpful than a more senior person who merely advises.

The overseas training of faculty members continues to pose many problems at home. A variety of questions were aimed at the relationship between the returning staff member and those who stayed at home. Is he ostracized because of the exotic training and perspectives which he has gained? Does he lose his influence in the academic community? Is it necessary to place such great emphasis on the research activity of a person who goes overseas, since this is perhaps one of the great causes of the "brain drain?" In some cases, participants have been disadvantaged by loss of service increments for the periods of time spent in study outside their country—is this unavoidable? There was considerable interest in exploring additional opportunities for participant training within the Asian region in contrast to sending faculty members outside the area.

Institutions to Serve Agriculture

The interrelationships and the interdependencies among the various institutions that serve agriculture within a single country or region have many political implications and therefore the participants were eager to gain as much insight as possible on how effective linkages among them could be welded.

The Agricultural University

With the exception of some of the Agricultural Universities in India, such as the Punjab Agricultural University, most of the agricultural colleges and universities in Asia do not have national or regional responsibility for research and extension. However, the institution is expected to be conversant with the priorities in nation's agricultural problems, the best available technologies, and the most efficient methodology for disseminating the technology to the general public. How can the university develop and retain such expertise if it does not in fact engage in these activities itself? If it engages in these activities, must the university assume administrative responsibility for them or is there an alternative administrative structure that would give them adequate access to them? These were burning questions that were put to every administrator and leader at each of the sites visited.

In attempting to put their best foot forward, the hosting institutions initially displayed a facade of harmony and intimate cooperation between the university and the research and extension activities. The participants, however, were not content with superficial pronouncements in this respect. Their line of questioning continually probed the relationships between the Ministry of Agriculture's programs of research and extension, and those within the university. No administrator was spared as the participants sought to understand, not only what relationships existed, but how these were developed and cultivated. There was an obvious feeling among all of them that linkages among the various institutions serving agriculture was highly essential and productive.

Most of the questioning was directed at extension and research activities, but at one point the question was raised as to where agrarian reform fits into the network of institutions that serve agriculture. Unfortunately, no clear answer seemed to be available to this question.

Agricultural Research

In the area of research a large number of questions were directed at the subject matter of research and the results that were forthcoming. In fact, the participants were a bit unhappy that there was not more time to explore their particular disciplinary interests at various locations where exciting research was underway.

How does a research agency or a university determine which projects will receive high priority? Do they depend entirely on individual staff member judgment or is there an overall national plan against which research funds are committed? How is a particular research project approved? How long does it take from the time of its initial proposal until funds are committed for its execution? What is the medium of publication of results? What language is used? What is the target audience? These were common questions at each stop and the variety of answers and the rationale for them further documented the need for wise leadership in guiding such programs.

The relationship between the research of the Ministry of Agriculture and the research of the University was constantly challenged. Is there a flow of funds between the two organizations? Is there joint appointment of faculty members? Is there consensus between the agencies with respect to the projects on which each will work? What are the administrative problems of coordinating these activities and how are they tackled? The intensity with which these questions were pursued suggested that they were of high importance at all of the institutions represented in the Seminar.

At several locations administrators were requested to document their claim that participation in research had improved the teaching program. This documentation was easily made in such areas as changes in curricula, improvement in course content, authenticity and relevance of faculty lectures and an intensification of professional integrity which confrontation with live problems inevitably brings.

The participation of undergraduate and graduate students in re-

search activities was of interest. In general, undergraduate students are required to engage in practical farming activities as a part of their academic career, but few of them actually engage in research programs. Much of the university research program, however, includes graduate student participation, and they become an integral part of the university's research force.

The organization of research within the university took many forms. At several institutions every staff member is required to spend part time in either research or extension.

Several questions were directed at the judgment as to what is appropriate research for universities. For example, should studies be made on the problem of rural unemployment which results from the introduction of technology? Should crop varieties be developed for poor farmers who cannot afford the inputs that are required to benefit from high yielding varieties? Discussion of such questions by several people was very useful to the participants.

Agricultural Extension

There is an obvious role of the university in pre- and in-service training for extension personnel, and this role was explored in considerable detail. The relationship of the university to youth programs was also a subject of considerable questioning. What curricula in extension are appropriate? What should be the content of such curricula? How popular are extension courses and curricula among students? The consensus seemed to be that a few courses in extension methodology and communication were highly desirable, but that the main thrust of the curriculum should be in imparting acquaintance and confidence in subject matter areas that are important to farmers. Students tend to be sensitive to the job market and students are more plentiful where job opportunities are abundant.

How does a university put together a package of recommended practices for use in extension? How can it be sure that the recommended set of practices is economically sound? In India departmental workshops are held by the university before each season of the year. Suggestions are solicited and recommendations are "packaged" so as to provide an agreed upon uniform approach to the farmers. In one institution Farmers' Fairs are offered twice each year, and up to 100,000 farmers visit the University in a year's time. One participant suggested the advisability of putting the package of practices into pilot areas during a preliminary year in order to evaluate not only the economic returns for the recommendations, but also to judge the potential of such secondary problems as displacement of labor and other social implications. Departments of Economics are normally involved in the analysis of the results of packages of practices on various sizes of farms, and they supplement research data by incorporating farmer experience in their analyses.

What happens to the farmers increased income from the use of innovative practices? What is being done to encourage "capital formation" as a basis for greater national development? Who sees to the balance

that must be achieved between agricultural production and industrial development? These questions could only be asked where it was clear that the agencies serving agriculture have developed the obvious capacity for motivating the adoption of economically profitable innovative technology. One study was cited in answer to some of these questions which showed 22% of the increased returns were reinvested in the farm and the rest was spent on the purchase of consumer goods.

Who has responsibility in the case of outbreaks of diseases or pests—the university or some other government agency? A government agency normally has the immediate responsibility but, in the most fortunate of circumstances, they are able to call upon the scientific competence found within the university if the linkages between them has been cordial and effective.

Has the level of education made a measurable difference in the rate at which a farmer adopts new practices? The enterprising and innovative farmer is often illiterate and it is difficult to show a relationship between innovative inclination and literacy until a very high level of education is reached.

How are successful demonstration plots organized, and what is farmer reaction to demonstration plots? Demonstration plots are successfully organized by paying particular attention to every minute detail and practice that goes into the demonstration plots. These are best done with farmer cooperation so that he understands not only what is being done but why it must be done in such a meticulous fashion. The farmer reaction to such successful demonstration plots is one of initial interest and enthusiasm which soon gives way to a strong reliance on the university or the extension agency to solve any problem which arises.

COMMITTEE REPORTS AND RECOMMENDATIONS

Eight committees were appointed at the beginning of the Seminar to focus attention on basic issues during the visitations. The committee reports at the summary sessions showed good understanding of the principles of institution building and the need to apply them at home.

Eight committees were appointed at the beginning of the Seminar in order to press for active consideration and distillation of the concepts presented in the basic papers and their application in the institutional visits. Each participant, observer, and staff member was assigned to one or more of the committees which were most closely related to his interests. The committees were instructed to caucus frequently and to have a written report presented to the plenary session for discussion, modification and recording.

The technique proved very useful in providing a forum within which participants could present their own points of view as well as their interpretations and assessment of activities and approaches being observed. It also provided additional incentive to pose questions and seek analytical responses from the institutions visited.

The full reports are presented in Appendix D in the form in which they were modified and finally accepted by the entire group for recording. The following is a summary of their contents.

1. Committee on Systems of Services to Support Agricultural Development

The committee prepared a questionnaire to survey the opinion of all participants on the fifteen hypotheses posed by Dr. Baldwin's paper on "Systems of Services to Support Agricultural Development." The results of the survey indicate that 80% or more of the respondents believed that thirteen of Baldwin's hypotheses are valid.

The committee felt that there is a need for research on systems of services to support agricultural development in the 1970s. Research efforts on this should pay dividends in the same way as the research on institution building is paying dividends now.

The committee, therefore, recommended:

- a) That governments, universities, and technical assistance agencies initiate research on systems of research to serve agricultural development and operation of such systems in institution building
- b) That appropriate steps be taken to coordinate such research
- c) That the research results be made available to governments, universities, and technical assistance agencies as soon as possible

d) That three of the institutions visited—Kasetsart University, Uttar Pradesh Agricultural University and Punjab Agricultural University—be invited to make an assessment of the system of services supporting agricultural development in their respective areas. It is hoped that their rich experiences will serve a useful purpose for the other participating countries.

2. *Committee on Linkages Among Agricultural Institutions*

The committee suggested the following groupings, principles, and considerations for developing effective and efficient linkages among the various organizations serving agriculture.

a) *General Agricultural Services*

This includes national policies on political, social, economic and fiscal affairs.

b) *Specific Agricultural Services*

1) *Structure of research, education and extension education*

The structure of the university or college should translate into actions the basic philosophy of serving agriculture through the integration of these activities. Research and extension are universally regarded as state responsibilities dependent on public support but private industry should assume more responsibilities for them as agricultural development proceeds. Public institutions, however, must retain the responsibility and strength to establish standards.

2) *Regulatory and service function*

This includes agricultural statistics and market information services; quality control of farm inputs and agricultural products; and quarantine and protective services. Service of this type is almost entirely the responsibility of the government including land reform, cooperatives, and agricultural corporations.

3) *Infra-structure service*

This includes agricultural credit, supply of farm inputs and distribution of agricultural products. In practically all countries, these functions are performed partly by the government, partly by cooperatives and partly by the private sector.

The national government and the university play important roles in each agricultural service. Linkages within any function of research, education and extension should be developed and maintained between the government and the private sector.

International linkages are also viewed as important in extending cooperation among institutions in the Asian region. They should also cover the developing and strengthening of links with countries outside Asia on a bi-lateral basis and with regional, international, and non-governmental technical or scientific organizations.

The committee suggested (1) that each university establish as appropriate an Office of International Cooperation, and (2) that an Asian

Association of Agricultural Universities and Colleges be established as a permanent institution.

3. *Committee on Technical Assistance in Institutional Development*

The committee recognized that technical assistance in institutional development must be considered from the standpoint of the funding agency, the donor's operating agency, the recipient institution, and the coordinating or administrative agency of the recipient country. Technical assistance programs can only be effective or productive if a mechanism is devised to harmonize the diverse viewpoints of all of these agencies.

It was suggested that in considering the advisability of a technical assistance project, an evaluation should first be undertaken of the institution's problems, needs and capabilities by a team in which the donor agency, the recipient institution and a representative of another Asian country, are represented. The organizing of seminars in each of the respective institutions represented would provide an excellent basis for evaluating the institution's needs and for understanding the principles and philosophy of institution building.

4. *Committee on Goals, Responsibilities, Functions and Organization for Agricultural Education*

Agricultural universities and colleges should be service oriented institutions, primarily committed to the development and teaching of a wide range of applied sciences and technologies needed to build up the rural economy. The primary emphasis should be on teaching and research directly and immediately related to the solution of the social and economic problems of the rural society they seek to serve. They should also give specialized technical training to young and adult farmers and homemakers who are not candidates for degrees, and they should be concerned with the training of agricultural teachers for colleges and schools.

Agricultural universities and colleges should have the three functions of teaching, research and extension education. Practical utility rather than intellectual aristocracy must be the test of institutional integrity. These institutions should justify their existence on the basis of scientific knowledge they can gain, the services they render to the people, and the social welfare they promote by bringing the force of science and technology to bear on the problems of rural areas.

In order to successfully carry out the functions of good teaching, research and service, agricultural universities/colleges should have certain essential features including (1) a legal base which confers adequate powers to the university (2) adequate financial support from the government for the functions it is expected to perform (3) organizational and operational autonomy (4) integrated programs of education, research and extension.

Vocational education programs should be considered complementary to programs of higher agricultural education and as far as possible should be the concern of institutions responsible for higher education.

While the problem of out-of-school youth could largely be tackled through programs such as 4-H Clubs, Youth Clubs, supervised home farms, etc., the organization of agricultural polytechnics after the higher secondary stage would appear very necessary in most developing countries. Universities can help materially by preparing suitable books and teaching materials for these schools in subjects related to agriculture.

5. *Committee on Agricultural Extension and Public Service*

The committee supported the doctrine of extension in broad service to rural life by reaffirming the goals and responsibilities of extension to be those that are designed to support the doctrine of a standard of living, status and prestige of rural people which is at least as high as that of others and national self-sufficiency in food production. To this end, various goals, responsibilities, functions and organizational devices are enumerated by the committee.

6. *Committee on Agricultural Research*

The committee strongly recommended that the rationale behind the development of an agricultural research system, both on a national and a regional basis, be anchored in the concepts of *relevance, excellence and cooperation*.

The committee suggested that emphasis be placed on the attainment of certain goals, including:

1. Provide the dynamic pool of technical information needed to backstop agricultural education and extension
2. Identify research priorities which should be integrated with national agricultural programs
3. Relate research activities to problems that impede agricultural progress
4. Identify agricultural problems which require priority attention on a regional basis
5. Develop a "feedback mechanism" of bringing field problems to the attention of agricultural researchers
6. Establish intimate linkages in agricultural research activities in the region
7. Develop regional centers of excellence in various production fields at appropriate colleges or universities

Several strategies are identified that merit consideration. It is strongly recommended that each country establish a national coordinating body for agricultural research and education; that an inventory be made of existing agricultural research manpower, and that manpower gaps be identified; that an inventory be made of existing research facilities in the region to determine gaps in major subject matter areas needed for agricultural development; and the development to optimum capacity of some regional centers of excellence oriented along commodity lines.

Several recommendations were made for strengthening the regional ties in agricultural research. These included the initiation of a system of documentation of research activities and exchange of information among countries within the region. It also included a recommendation that an Asian Agricultural Research Conference be held every two years for research and extension administrators at which there would be an exchange of information on current research activities and an evaluation and up-dating of research priorities.

7. Committee on Follow-up to the Asian Agricultural College and University Seminar

There was unanimous feeling that some mechanism should be created to provide on a continuing basis for the valuable exchange of experience initiated with this Seminar. It was suggested that this mechanism might possibly take the form of an Association of Asian Agricultural Colleges and Universities which would promote interchange of information among member institutions and also would promote linkages in cooperation with regional and worldwide agencies.

To insure that the momentum generated by the Seminar was not lost, there was proposed the formation of an informal Interim Secretariat for the Association of Agricultural Colleges and Universities to be located at Kasetsart University in Bangkok.

A committee was established to work out details of a proposal for a permanent association and each institution participating in the Seminar was requested to designate a liaison officer with whom the Secretariat could maintain contact. The committee was charged with preparing and submitting a detailed plan for the Association by April 1, 1971. It was further recommended that the first meeting of the Interim Association of Asian Agricultural Colleges and Universities be held in The Philippines in April 1972.

8. Resolutions Committee

The committee affirmed that the Seminar had been quite successful in providing new ideas, valuable information and useful association with outstanding colleagues in the region. The committee expressed appreciation for the assistance, cooperation and hospitality on the part of the various individuals, institutions and governments who were responsible for the Seminar.

EVALUATION OF SEMINAR

The participants were very pleased to be exposed to institution building concepts and to see these concepts in action in several different settings. They were less happy that the schedule only permitted time for studying institution building ideas and left little time for looking at specific research programs underway.

The Seminar directors felt the Seminar far exceeded their greatest expectations in terms of the quality of participants, the insights and rapport that was developed among the participants at the several sites visited and the understanding of institution building that was generated.

Evaluation of the Seminar is presented under two headings; the first represents a summary of the reactions of the participants and the second is an overall evaluation by the Seminar directors.

Evaluation by Participants

The participants were asked to write a brief evaluative report on the Seminar for the benefit of the directors and the sponsoring agencies, and they were asked to respond to specific questions as follows:

1. *What are the shortcomings as well as the strong points of the Seminar?*

Shortcomings: The schedule was entirely too tight. The time for discussion among participants and for reading and reflection during the Seminar was too limited. This could have been remedied by reducing the time devoted to travel and to formalities such as receptions and speeches. It would have been helpful to have more time to look at actual research programs of interest to the individual participants.

There was a general impression that some of the very best Asian institutions were selected for visitation and this tended to concentrate conversation on successes rather than problems and methods for coping with problems. A better mix of less-developed institutions along with the good ones might have been more productive. Also, a better grouping of institutions with similar problems would have been beneficial.

A better balance between Ministry and University representatives among the participants would have given a better balance to the reporting and also to the potential impact at home.

Finally, a few participants felt that two weeks was too long for top administrators to be away from their responsibilities at home.

Strong points: This was the first opportunity for most of the participants to be exposed to formal discussion of the principles of institution building, to the concept of linkages and their importance in institution building, and to the real interdependencies that exist among various organizations that serve agriculture. They were uniformly pleased with the exposure to these concepts and the opportunity to discuss them long enough to understand their implications and their potential.

The opportunity of having firsthand contact with other institutions that have similar problems but that have made reasonably good progress in solving them was an exciting venture. The exchange of ideas, the stimulation that came from the discussions, and the exciting progress represented by the institutions visited were highly prized.

The presence of experienced leaders, including representatives from various international organizations, throughout the course of the Seminar was considered a great asset. This provided opportunity for individual participants to exchange ideas individually with these persons.

Finally, it was felt that the time of the Seminar was well organized and well utilized and that the overall direction was commendable.

2. *What are the two or three most important things that you learned from the Seminar?*

The answers fell quickly into a few categories; the first being the excitement of being introduced to the principles and the processes of institution building in a formalized manner and to being exposed to the literature on the subject. This opened up new horizons and points of view that were found to be very useful.

There is a renewed understanding of the importance of the linkages among the institutions serving agriculture, particularly those dealing with teaching, research and extension. The opportunity to see different administrative patterns for encouraging and strengthening these linkages and for integrating them into the common service of the rural people.

The opportunity to see various approaches to solving the problem of the proliferation of agricultural colleges was helpful, and finally the opportunity to associate with the top Asian leaders in agriculture in such a candid and probing exchange was considered to be a unique experience by most of the participants.

3. *What suggestions do you have for a future seminar?*

The College of Agriculture of the University of The Philippines indicated an interest in hosting the next seminar and suggested that it might consist of opening sessions plus three days of discussions and two days dedicated to a single field trip. No dissension was registered with respect to this proposal. Small variations were suggested with respect to scheduling, but in general, there was agreement that it should be kept to one week and that the scheduling should be much more relaxed than the present one.

Additional suggestions included the presentation of interim progress reports on institutional development, a concentration on systems of services to agriculture, and a suggestion of a better balancing of the delegates from each country to more appropriately represent the different elements in the system. There was an urgent plea for the continuation of the "spontaneous, democratic, and open discussions" which were held during the current Seminar.

4. *What actions or recommendations do you expect to make to your institution or government as a result of your participation in the Seminar?*

Three major steps are anticipated by most of the delegates. The first is to undertake an assessment of his own institution using the Seminar concepts as a guide, and hopefully being able to obtain assistance from the Seminar staff and from colleagues in other Asian countries.

A second recommendation is to undertake to strengthen the linkages between institutions having responsibility for teaching, research and extension. Some contemplated ways of merging administrative responsibility, and others intended to look for administrative means of enjoying the fruits of closer cooperation.

The third major area of activity proposed by most respondents was to hold a seminar for their own people in which they would attempt to bring to them the basic concepts of the present Seminar and to convey something of the power and importance of these concepts. One representative intended to outline these ideas in a report to the major administrative officials in the various national agencies serving agriculture.

Other ideas that were picked up by the delegates included the possibility of adding additional curricula to their university offerings, of sending their policy makers to study the Indonesian experiment on "feeder institutions," of studying the system of institutions and services to agriculture in the Punjab, or of sending their policy makers on a visitation program similar to the one enjoyed during this Seminar.

There was every evidence that the participants regarded this experience so highly that they felt it would be a mistake for their colleagues in high places not to have some of the similar advantages.

Evaluation by Project Leaders

The project was conceived against a set of assumptions about the stage of development of various agricultural institutions in Asia and the likelihood that Asian administrative officials, both within universities and in Ministry programs, could profit greatly by examining firsthand the experience of a few such institutions which have developed in political, cultural, social and economic settings similar to their own. Thus, an evaluation of the project should include an examination of the basic assumptions as well as an assessment of the degree to which the stated objectives were achieved.

The institutions selected for visitation proved to be an excellent sampling of various stages of institutional development and of various

degrees of coordination between universities and other organizations serving agriculture. It was fortuitous that the order of visitation was near optimum, since the gradation in complexity of formal and informal relationships between universities and other agricultural institutions permitted a graduated examination of the interdependencies among these institutions and the vital role which each must play. It would have been a mistake not to visit a variety of organizational patterns, levels of sophistication and styles of leadership; for it would have made it far too tempting to draw inaccurate generalizations from a distorted sample if the number of sites had been any smaller.

It is recognized that the schedule was extremely strenuous and did not allow time for examination in depth of individual research projects or other programs of interest. This had the advantage, however, of preventing a diversion of attention to subject matter content and forcing an overall concentration on institutional development, organization and progress. This was new ground and the mental discipline required to concentrate on it exclusively was very demanding. It would not have been possible to avoid dilution of effectiveness if the program had permitted each participant to take the easier road of pursuing his own professional interest instead of sticking to *institution building* concepts and strategies.

There was complete validation of the assumption that Asian administrators could learn much from the experience of each other in the strategies of institution development. The vigor and candor with which certain questions were pursued, and the nature of the questioning in general indicated that the participants were fully convinced that there was much to be learned, and their questions had this tone and purpose rather than that of an exhibitionist displaying his own understanding of a situation.

Much of the success of the Seminar depended on the quality of participants that were sent by the respective Asian countries. The participants were uniformly highly trained, highly respected, very articulate, and very dedicated and energetic leaders from their own institutions. They quickly developed a rapport and a degree of candor and frankness among themselves which made possible the free and friendly interchange of information about institutional progress, programs, and strategies. This could not have occurred in an assembly of less qualified people.

A very intensive program of institutional development has been underway over the past two decades in Asia. This has been supported by USAID through contracts with twenty-two U. S. Land Grant Universities involving a total of more than 260 contract years, with individual contracts normally providing 5 to 10 university staff members annually to the campuses of these institutions overseas. This program has supported a total of 66,500 participants from Asian countries during the period 1952-1969. The U. S. government contribution has been supplemented by very valuable support from The Rockefeller Foundation, The Ford Foundation, the Agricultural Development Council, the Food and Agriculture Organization of United

Nations, and other agencies. As a result of these combined efforts a generation of well trained, dedicated, imaginative and able leaders has emerged in the Asian Institutions from which these very high quality representatives to the Seminar were selected.

The objectives set forth in the initial proposal were achieved beyond our fondest expectations. The institutions visited included an agricultural university and a major research station in Thailand, and two state agricultural universities, a national research institute with a graduate program, and a brief visit with the officials of a State Department of Agriculture in India. This provided a sufficiently broad base for the participants to see in action all of the principles and strategies suggested in the basic papers presented at the beginning of the Seminar.

The papers themselves served as an excellent frame of reference against which visitations were made, and they provided a language and an outline which focused the participants' attention on important institution building facets and avoided undue concentration on physical and fiscal resources. The concepts themselves were new, but they proved to be highly attractive and useful to the participants who quickly adopted much of the language and easily fell into the habit of looking for linkages, leadership, program content, internal administrative structure, and institutional doctrine in addition to inquiring about sources of support. There is every evidence that this approach gave the participants a new perspective on the important elements in building institutions to serve agriculture.

It is the view of the project leaders that this Seminar was so successful that it should be tried again, both in the Asian area and in other regions of the world where institution building is of high concern to technical assistance agencies.

POST-SEMINAR ACTIVITIES

The Seminar generated considerable momentum among the Asian agricultural leaders which did not stop with the last plenary session. Some of the activities which have occurred in the four months since the Seminar are listed to indicate a continuing interest.

The committee which was constituted to work out the proposals for a permanent association and for other followup activities held its first meeting in New Delhi on October 4 and is continuing its work by correspondence. Information is being assembled regarding organizations in other regions having similar purposes and objectives and tentative proposals are being drafted for an Asian Association.

The secretary is issuing a newsletter to all participants at regular intervals reporting relevant information on the participating institutions and continuing activities. The first issue established the format and tone, and reported on immediate post seminar activities and plans. The second included information on a very effective seminar held in The Philippines on the building of linkages among institutions serving agriculture. The third newsletter reported a seminar series at the University of Agricultural Sciences at Bangalore, India. Subsequent issues are scheduled to feature information and developments among the other institutions of the region.

AID is providing support for publication and dissemination of the report on this first Seminar, the organization of a second seminar in The Philippines in the spring of 1972, the conduct of a similar seminar in Latin America, assistance to selected Asian institutions in self-evaluation studies, and for research on the relation of systems of agricultural services to development.

In March 1971, AID brought together in Washington representatives of the U. S. Land Grant Universities of the USA which are currently involved in agricultural university development contracts in Asia to review the experience of the Seminar and to consider the ways in which all concerned could most effectively support the follow-up activities. The FAO and Foundations were also included in the invitations to this meeting.

Studies on systems of agencies and services supporting agriculture at different stages of development are being planned in the USA by the Economic Research Service/USDA, and by the state universities of North Carolina, New York, Illinois and Washington. A two-day meeting was convened in Washington, D. C. February 10 and 11, 1971. These studies propose to take six time points—1840, 1870, 1900, 1930, 1950, and 1970—and describe the institutions and services supporting agriculture at each point with a view to discovering basic principles which

could serve as useful guidelines for the development of systems of services for agriculture, both domestic and foreign.

On February 9 and 10, 1971, a very intensive two-day seminar on the building of linkages among the education, research, and extension agencies in The Philippines was held at the College of Agriculture at Los Banos. Top administrators of twenty-two government agencies and eighteen agricultural colleges and universities were invited to participate.

FAO is considering establishing an agricultural education post in its Bangkok office to work with the chairman of the Seminar Follow-up Committee and the proposed association and to undertake other agricultural education activities in the region. FAO may also be able to provide office space in its regional office and its representative participated in the March 25 meeting, referred to above, called by USAID in Washington. FAO has scheduled a symposium on agricultural institutions for integrated rural development to be held in Rome in June, 1971.

APPENDIX A—Participants

REPUBLIC OF CHINA

Yuen-liang Ku
Dean, College of Agriculture
National Taiwan University
Taipei

Mien-Nun Sung
Dean, College of Agriculture
Taiwan Provincial Chung-Hsing
University
Taichung

INDIA

K. C. Naik, Vice Chancellor
Mysore University of Agricultural
Sciences
Bangalore

O. P. Gautam, Deputy Director for
Education and Center-States Relations
Indian Council of Agricultural
Research
New Delhi

Sukhdev Singh, Director of Res.
Punjab Agricultural University
Ludhiana

K. P. A. Menon, Secretary
Indian Council of Agricultural
Research
New Delhi

N. K. Anant Rao, Dean
College of Agriculture
Uttar Pradesh Agricultural
University
Pantnagar

K. Kanungo, Dean
Post Graduate Studies and Joint
Director
Indian Agricultural Research
Institute
New Delhi

INDONESIA

Jannes Hutasoit
Acting Rector
Institute Pertanian Borgoriense
Bogor

Harjono Samangoen, Dean
Faculty of Agriculture
Gadjah Mada University
Jogjakarta

Sjahrial B. Wahab
Acting Chief
Research Services, Directorate
General for Higher Education
Ministry of Education
Djakarta

R. P. Utojo
Advisory Assistant to Minister of
Agriculture
Ministry of Agriculture
Djakarta

IRAN

S. Vodjdani, Vice Dean
Faculty of Agriculture
University of Tehran
Karaj

JAPAN

Toshihiko Hino
Tropical Agricultural Research Center
Ministry of Agriculture
Tokyo

REPUBLIC OF KOREA

Hyun Koo, Pyo, Dean
College of Agriculture
Seoul National University
Suwon

In Hwan, Kim, Administrator
Office of Rural Development
Suwon

MALAYSIA

Rashdan bin Haji Baba, Principal
College of Agriculture-Malaya
Selangor

NEPAL

Netra Bahadura Basnyat, Director
Education Research Department
Ministry of Food and Agriculture
Katmandu

THE PHILIPPINES

Domingo Panganiban
Regional Director
Bureau of Plant Industry and
Member National Food Advisory
Commission
Ministry of Agriculture
Manila

Joseph Madamba
Professor of Animal Husbandry
University of The Philippines,
Los Banos and Technical
Consultant to the Undersecretary
of Agriculture

Fernando Bernardo
Director of Graduate School and
Professor of Agronomy
University of The Philippines
Los Banos

THAILAND

Pavin Punsri, Acting Dean
Faculty of Agriculture
Kasetsart University
Bangkok

Suraphol Sanguansri
Bangpra Agricultural College
Chon Buri

Thumnong Singalavanich, Director
General
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Ministry of Agriculture
Bangkok

SEMINAR STAFF

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**George H. Axinn, Executive Director
Midwest Universities Consortium for
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SEMINAR OBSERVERS

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**Ervin Petersen, Deputy Administrator
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Agency for International Development
Department of State
Washington, D. C. 20523**

**K. A. P. Stevensen
Senior Agricultural Advisor/FAO
Country Representative
United Nations Development Program
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P. O. Box 2544
Kuala Lumpur, Malaysia**

APPENDIX B—Program Outline and Itinerary

THAILAND

- September 20—A.M.*—Florida Hotel, Bangkok
—Assembly and Registration
- P.M.*
- “Get Acquainted” Reception
- September 21—A.M.*—KASETSART UNIVERSITY
—Inauguration
—Opening Remarks . . . M. C. Chakrabandhu, Rector of Kasetsart University
and Co-director of the Seminar
—Inaugural Address . . His Excellency the Prime Minister of Thailand
—Opening Session
—Purpose and Plans for the Seminar -
 . . . R. W. Cummings, Dean for Research and Co-director
 of the Seminar
- Keynote Address . . . K.A.P. Stevenson, FAO/Malaysia
- P.M.*—FLORIDA HOTEL
- Theme BUILDING INSTITUTIONS TO SERVE AGRICUL-
TURE
 . . . Frank W. Parker, Consultant to USAID, presiding
- Principles of Institution Building* -
 . . . George Axinn, Executive Director, Midwest University
 Consortium for International Activities
- Discussants Dr. Hyun Koo, Pyo, Dean College of Agriculture,
Seoul University, Republic of Korea
 . . . Dr. O. P. Gautam, Deputy Director General for Educa-
 tion and Centre-States Relations, Indian Council of
 Agricultural Research
- Role of Technical Assistance in Institution Building* -
 . . . J. A. Rigney, Dean for International Programs, North
 Carolina State University
- Discussants Dr. S. Vodjdani, Vice Dean, Faculty of Agriculture,
University of Teheran, Iran
 Dr. Don Kimmel, FAO/Rome
- September 22—A.M.*—FLORIDA HOTEL
—Theme INTERRELATIONS AMONG INSTITUTIONS SERVING
AGRICULTURE
 . . . R. W. Cummings, Chairman
- A System of Services to Support Agricultural Development* -
 . . . I. L. Baldwin, Vice President Emeritus, University of
 Wisconsin
- Discussants The University's Relations to National Resources
 . . . Dr. S. Wahab, Acting Chief of Research Services, Mini-
 stry of Education, Indonesia
 Extension and Community Development
 . . . Mr. Thumnong Singalavanich, Director General of
 Agricultural Extension, Ministry of
 Agriculture, Thailand

- Service and Supply Agencies
- ...Dr. Yuen-Liang Ku, Dean, College of Agriculture,
National Taiwan University
- Control Functions and Statistical Data Collections
- ...Dr. Domingo Panganiban, Regional Director, Bureau
of Plant Industry, Ministry of
Agriculture, The Philippines

P.M.—KASETSART UNIVERSITY

- KASETSART UNIVERSITY AND ITS PROGRAM -
- ... M. C. Chakrabandhu, Rector, Chairman of Session
- History, Organization, Governance, and Instructional Program-*
- ... Dr. Sanga Sabhasri, Chairman of Education Committee
- Research*..... Dr. Bunjird Katikarn, Chairman of Research Committee
- Extension*..... Mr. Porn Resanonda, Director of Extension
- Planning for Kasetsart's Future, and Its Relation to Other Universities in
the Nation*..... Dr. Sanga Sabhasri, NEC Vice-Chairman for Higher
Education Development Planning

September 23—*A.M.*—KASETSART UNIVERSITY

- Campus Tour
- Visit to Rice Research Center
- Meeting with administrative officers, students, deans, representatives of
governing board

P.M.

- Travel to Suwan Farm

September 24—*A.M.*—FIELD TOUR

- Suwan Farm, Vaccine and Serum Center, Pakchong Experiment Station, Land
Development Station near Pakchong

P.M.

- Travel to Bangkok
- Plane for New Delhi

INDIA

September 25—*A.M.*—INDIAN AGRICULTURAL RESEARCH INSTITUTE

- Welcome..... Shri K.P.A. Menon, Secretary Indian Council
Agricultural Research
- Purpose of the Seminar
- ... R. W. Cummings
- Reorganization of Agricultural Research in India
- ... Dr. B. P. Pal, Director General, Indian Council Agricul-
tural Research
- Reorganization of Agricultural Education and Agricultural Universities in India
- ... Dr. O. P. Gautam, Deputy Director General (Education)
Indian Council Agricultural Research
- Introduction to Indian Agricultural Research Institute
- ... Dr. M. S. Swaminathan, Director, IARI
- Inaugural Address
- ... Shri Fakhruddin Ali Ahmed, Union Minister for Food,
Agriculture, Community Development and Cooperation
- Vote of Thanks
- ... Dr. K. Kanungo, Dean and Joint Director, IARI
- LUNCH at the Institute of Catering Hotel Management and
Nutrition to observe the type of training and
experience provided by this unit

P.M.—INDIAN AGRICULTURAL RESEARCH INSTITUTE

- Visit to a farmer's fair which was in progress at IARI, showing new technological and scientific developments to visiting farm families
- Visited research programs in the field and laboratories of IARI
- Visited library and museum facilities of IARI
- DINNER at the Post Graduate Students Hostel—IARI— for presentations and discussions by students

September 26—A.M.—INDIAN AGRICULTURAL RESEARCH INSTITUTE

- Discussion of university programs of non-host countries (i.e. other than Thailand and India)

LUNCH hosted by Secretary of ICAR

P.M.

- Discussion of university programs of non-host countries continued
- DINNER hosted by Secretary of Department of Agriculture, Community Development and Cooperation

September 27—P.M.

- Bus to Uttar Pradesh Agricultural University (Pant Nagar), visiting farms and field demonstrations enroute
- DINNER hosted by Vice Chancellor of Uttar Pradesh Agricultural University

September 28—A.M.—UTTAR PRADESH AGRICULTURAL UNIVERSITY

- Visits to research projects in crops and livestock
- Visits to student crop production programs which are the practical part of the agronomy curriculum
- Visits to Seed Processing Plant which is part of UPAU's program in supplying foundation seed
- Visit to University Farm which is operated by University for income purposes
- Visit to teaching and research facilities of several Colleges of the University

P.M.

- History of Development and Organization of UPAU
 - ... Shri D. P. Singh, Vice-Chancellor
- Development of College of Agriculture
 - ... Dr. N. K. Anant Rao, Dean, Agriculture
- Development of College of Veterinary Medicine
 - ... Dr. B. K. Soni, Dean, Veterinary Medicine
- Development of College of Technology
 - ... Dr. Subbaraju, Dean, Technology
- Development of College of Basic Sciences and Post-Graduate studies
 - ... Dr. K. G. Gallakota, Dean, P.G.
- Development of Research Activities
 - ... Dr. Maharaj Singh, Director, Research
- Development of Extension Activities
 - ... Shri J. N. Misra, Director, Extension
- Program of Students Welfare
 - ... Dr. S. S. Ahluwalia, Dean, Student Welfare
- DINNER with students of UPAU

September 29—A.M.—UTTAR PRADESH AGRICULTURAL UNIVERSITY

Discussions Continued

- Development of Campus
 - ... Shri Hari Krishna, Director Works and Plants
- Cooperation with University of Illinois
 - ... Dr. R. R. Renne, Chief of Party
- Seed Production Programs
 - ... Dr. R. L. Paliwal Managing Director, Tarai Development Corp.

- Future Development Plans and Programs
 - ... Dr. D. P. Singh, Vice-Chancellor
- September 29—P.M.—RETURN TO NEW DELHI*
- September 30—A.M.*
 - Bus to Chandigarh
 - Inauguration of the Seminar
 - ... Dr. D. C. Pavate, Governor, Punjab
 - Discussions of relations between Department of Agriculture and Agricultural University
- P.M.*
- Tour of Chandigarh City
- Bus to Ludhiana visiting two farms enroute
- October 1—A.M.—PUNJAB AGRICULTURAL UNIVERSITY*
- Introductory remarks
 - ... Dr. O. P. Gautam, Deputy Director General (Education, I.C.A.R.)
- Welcome..... Dr. M. S. Randhawa, Vice-Chancellor, Punjab Agricultural University
- Remarks by:
 - ... Dean, College of Agriculture
 - ... Dean, College of Basic Sciences
 - ... Dean, College of Home Science
 - ... Dean, College of Veterinary Medicine
 - ... Dean, College of Agricultural Engineering
 - ... Acting Dean, Post-Graduate Studies
 - ... Director of Research
 - ... Director of Extension Education
- Visit to colleges of Agriculture, Basic Sciences, Home Science, Agricultural Engineering
- P.M.*
- Students' group meets the delegates
- Group Meetings (committees)
- TEA.....hosted by Vice Chancellor, PAU, to meet University Faculty Members
- October 2—A.M.—PUNJAB AGRICULTURAL UNIVERSITY*
- Visit to the field experimental programs in orchards, entomology, plant breeding, agronomy, pulses, soils, rice
- Delegates visit various colleges and departments according to their interest
- P.M.*
- General review of Seminar experiences and programs against the background of institution building concepts
- October 3—A.M.—PUNJAB AGRICULTURAL UNIVERSITY*
- Plenary Session
- P.M.*
- Close of Seminar
- DINNERhosted by Vice Chancellor, Punjab Agricultural University
- October 4—A.M.*
- Bus to New Delhi

APPENDIX C—Basic Papers

PURPOSE AND PLANS FOR THE SEMINAR

by
RALPH W. CUMMINGS

I trust that the inaugural session for this seminar, just concluded, has assured each of us of a cordial welcome as a participant in this seminar and has reinforced our conviction on the importance of the tasks to which we are addressing ourselves. Throughout the region embraced by this group, agriculture has always played a central role in the lives of the people and nations represented. With the burgeoning population of the present generation, agricultural science and its application to the deadly serious problems of assuring required food supplies during the years immediately ahead and of providing a reasonable standard of living for those engaged in its production are now coming into their own. There is an increasing recognition that continued reliance on the traditional production arts will give inadequate results. It is becoming increasingly urgent that we harness the tools and methods of modern science and apply them in a meaningful way to assure increases in the level and efficiency of agricultural production. The agricultural sciences cannot be treated in an abstract way as interesting intellectual exercises, but we are increasingly aware that our very survival may be dependent on how effectively we use them. The agricultural scientist must be a faithful and worthy servant of society and his position and worth will be measured against the standards of his contribution to the welfare of mankind.

One nation after another in the region, especially during the last two decades, has come to recognize the importance of this matter and has taken steps to build new institutions to serve the needs of a developing and increasingly productive agriculture and to develop the scientific basis and the trained scientific talent necessary thereto. No two nations have the same combinations of soils, climate, agricultural products, infrastructure, or social and political conditions. Still there are some basic considerations and objectives in which we can find common ground.

Science knows no geographic, climatic, social or political boundaries and, in recognition of this, this seminar has been assembled to bring together representatives from nations throughout the region to enable us to compare notes, to learn more about the approaches tried by each of us, to learn what approaches have been effective and hopefully, why under some circumstances, and also to learn if we can, some of the reasons for possible disappointments in others.

The last two decades have witnessed remarkable developments in

agricultural institutions within the region. Each of the nations invited to participate in this seminar (Afghanistan, Ceylon, Republic of China, India, Indonesia, Iran, Japan, Korea, Malaysia, Nepal, Pakistan, The Philippines, Thailand, and Turkey) has one or more agricultural colleges or universities either well developed or under development which has set its course in dedication to serving the needs and improving the opportunities and life quality of rural people. Each has been faced with a different set of circumstances and has a different framework of supporting institutions, agencies and services. Most of these nations have received substantial external assistance in their institution building programs. USAID has provided substantial support either directly or through contracts with U.S. Land Grant Colleges and Universities. Twenty-two U. S. universities have devoted a total of over 260 contract years to this task among thirteen Asian countries since 1952 under USAID support. Individual contracts normally provided 5 to 10 university staff members to the campuses of these overseas institutions. This program has provided travel and study opportunities in the USA for more than 66,500 staff members from the various agricultural colleges and universities of these Asian countries.

Additional support has been accorded by such agencies as The Rockefeller Foundation, the Ford Foundation, the Agricultural Development Council, the Food and Agricultural Organization of the United Nations, and other bilateral and multilateral organizations.

So many of us have had the opportunity to observe the institutions serving agriculture in Europe and America, but fewer have had the opportunity to study such institutions in our neighboring countries in the region.

It is the purpose of this seminar to stimulate the contacts and interchange among agricultural scientists in the region. We are now accumulating an impressive record of accomplishment under conditions in the region and we can learn a great deal from one another. Much of the experience within the region may be even more relevant to our own problems than some that we may observe in culture quite different from our own.

We are concentrating on the subject of agricultural colleges and universities. If these institutions are serving their essential role, they must concern themselves with the generation of new scientific information, testing of its application and usefulness, its propagation through the teaching and training of scientific talent, and of its application in practice. An agricultural college or university cannot operate in isolation from the sector of society it serves but must become intimately involved in a meaningful way not only in teaching but also in research and extension programs. This does not imply that there is any one best pattern for achieving such involvement. I am sure the members of the seminar will have many diverse ideas as to the best ways of accomplishing this. Hopefully, we can all improve our insights on this problem.

Each of you has been provided some background reading material. You have all prepared an analytical description of your own institu-

tion. The first one and a half days of the seminar will be devoted to discussion of principles of institutional development. During this period, I hope we can identify a few topics on which we may wish to prepare summary statements for review and debate in our final plenary sessions. We will be able to visit and study at first hand four institutions in Thailand and India. Each group represented will have an opportunity to discuss his own institution and outline its particular advantages and problems if any. Before we disperse, I hope that we can agree on some scheme for following up on our discussions in this seminar and on enlarging our interchange in the future. It will be up to you as to whether or not you may wish to develop any continuing organizational structure for this purpose and if so, what its form should be. You may perhaps wish to make plans for visiting other agricultural institutions and continuing your seminar, in subsequent years, at these other institutions in sequence, on some of the topics you find it useful to study in more depth and/or on a continuing basis.

As initially outlined, the specific objectives of the seminar are:

1. To initiate an exchange of information among agricultural universities of Asia regarding the strategies for institutional development, their roles in agricultural development, institutional goals, programs and problems.
2. To provide for a visit to and study of a few representative agricultural universities and discussions with administrators, faculty and students and observations on how these institutions have developed in response to the needs and problems of the area they serve.
3. To observe the relationship of agricultural universities to other governmental agencies, agricultural industries and farmers.
4. On the basis of experience in the various institutions of the region, to consider the principles of strategy, organization, administration, governance, structure, program, and operation conducive to successful development of agricultural universities and also the features to be avoided.
5. To consider the advisability and feasibility of mechanisms for a continuing exchange of information and experience between agricultural universities of the region in furthering their mutual development.

The group has been kept small deliberately. Each of you can thus have the opportunity, and you have the responsibility, to participate fully and to share your best thoughts with your colleagues here assembled.

Our sessions this afternoon will be held in the Florida Hotel. At that time we will provide more specific details on our schedule of activities and will distribute more reading materials.

Meanwhile, it is our privilege to have the keynote address from a pioneer leader in Asian agricultural university development, one who has dreamed dreams of what such institutions could and should become, and who has set the initial pattern for a very successful agricultural university in India.

KEYNOTE ADDRESS

K.A.P. STEVENSON
Senior Agricultural Adviser/FAO
Kuala Lumpur, Malaysia

Mr. Chairman, Distinguished Participants, Ladies and Gentlemen,

It is just ten years ago, Mr. Chairman, since you and I attended the formal inauguration of the U.P. Agricultural University, one of the first of the many autonomous Universities in Asia, which was specifically established for the purpose of the development of agriculture and the benefit of the rural people. This period, which coincides with the United Nations First Development Decade, has seen many changes of which perhaps the most significant is that developing countries have grown to recognize that investment in agriculture and the well-being of the rural people is a 'sine qua non' of economic progress. This recognition did not come easily and took the combined efforts of international agencies, bilateral agencies, the private foundations and large numbers of dedicated local workers, both official and non-official, to demonstrate that investment in agriculture in most countries in Asia paid rich dividends in terms of national well-being and, further, provided avenues of employment for the growing additions to the labor force. The cause was greatly assisted by the spread during the sixties of the new technologies, which showed that the transition from near subsistence agriculture to modern commercial farming, could be achieved in a relatively short period. But, it is not investment and technology alone that produce green revolutions. The late Dag Hammarskjöld once said, "Great economic development programs have been planned which are held back more by lack of men to direct them than by lack of capital. Fundamentally, man is the key to one's problems, not money. Funds are valuable only when used by trained, experienced and devoted men and women. Such people, on the other hand, can work miracles even with small resources and draw wealth out of a barren land". It is here, in providing the men to spear-head agricultural development programs, that the new systems of education adopted by the Agricultural Colleges and Universities in Asia have played a vital role.

It is indeed fortunate, Mr. Chairman, that the North Carolina State University has had the inspiration to call this Seminar, as agricultural education institutions in Asia have a great deal to learn from one another. Representatives of such institutions meet at international seminars in Europe or the USA but seldom do they have the opportunity to visit sister institutions working in similar conditions on similar problems in Asia. Some institutions have developed excellent inter-

university programs with Land Grant Colleges in the USA but there is very little exchange with universities in countries much nearer home. This Seminar, in which we shall learn about universities in the near East, South Asia, South-East Asia and as far East as Korea and Japan, will be extremely profitable. It will also include visits to two countries where studies will be made at firsthand. I hope, Mr. Chairman, that it will be the harbinger of inter-university arrangements within Asia itself and may even lead to an Association of Agricultural Universities and Colleges in Asia. If this is achieved in the coming decade, the North Carolina State University, the U. S. Agency for International Development, which has generously provided the funds and you, Mr. Chairman, whose brain-child it was, will have every reason to look back on this Seminar as a milestone in the development of regional cooperation in higher agricultural education in Asia.

It would be redundant to dwell unduly on how and why the new institutions were founded. This is well known to the participants of this Conference. At the same time, it is necessary to outline some of the essential features which are characteristic of the new systems and have led to their success. The theory of institution-building calls this the "doctrine" and, frankly, I like the jargon as it does imply a creed which should be followed, if success is to be achieved.

The first essential in the doctrine is that agricultural education, including research and extension, must meet the needs of the farming community. There is little room for the pedantic or "ivory-tower" approach. The aim is very clear—to help increase agricultural production and promote the well-being of the rural people, and to this end, all must work. The concept was very well described as long ago as 1862 by Senator Morill, who gave his name to the Act which established Land Grant Colleges in the USA. He said of the new institutions that they should be established "Upon a sure and perpetual foundation, accessible to all, but especially to the sons of the soil where all the needful science for the practical avocations of life shall be taught, where the higher graces of classical studies will not be entirely ignored, and where agriculture, the foundation of all present and future prosperity, may look for troops of earnest friends studying its familiar and recon-dite economies, at last elevating it to the higher level where they fearlessly invoke comparison with the most advanced standards of the world". The operative words of this quotation are that the agricultural universities and colleges must contain "troops of earnest friends" of the farmers and in that capacity constantly be promoting their interest.

Some of the other points of Senator Morill's doctrine are also worth attention. The exhortation not to ignore the classical or, to put it in modern parlance, the fields of sociology, economics, management, which give the student of agriculture a broader view of the agricultural science. Modern educational theory is striving to fuse the literary and the scientific for as the late Professor A.N. Whitehead said in his book, "The Aims of Education", "The antithesis between a technical and a liberal education is fallacious." In fact, the purpose of the agricultural

university or college is not only the development of agriculture but also the promotion of the well-being of the rural people and this involves knowledge of disciplines beyond agronomy and the pure sciences.

A third point covered by Senator Morill, and one which is apt to be forgotten today, is the need to give preference to the sons of the soil. I personally lay great stress on this as I feel that it is vital to the development of the rural areas for opportunities to be given to the sons and daughters of farmers to find the solutions to rural problems. It is certainly not the intention to exclude urban youth, but to give preference to rural youth when it meets the required admission qualifications. Besides, urban youth attends better schools and, accordingly, the fact that these students secure higher marks at school-leaving examinations is no guarantee that they are intensively superior to those from schools, who pass in the same division, but may have secured slightly lower marks. Given the opportunity, rural youth has done well in agricultural colleges and universities. One of my most gratifying experiences was to see three boys, the son of a farm laborer, a village barber and a village postman respectively earn straight "A" averages in the Graduate School of the University of Illinois, after completing their undergraduate work at an agricultural university in their own country. It is equally gratifying, and indeed rewarding, to see young extension workers with rural backgrounds transform a countryside just because, in addition to their scientific qualifications acquired at college, they know the habits and customs of farmers and can lead them out of the valley of fear and subsistence farming to profitable scientific agriculture.

Another essential of the general doctrine is the integration of teaching, research and extension. Without this, it is difficult as Sir Joseph Hutchinson, Emeritus Professor of Agriculture at Cambridge University, speaking at the recent World conference on Agricultural Education and Training held in Copenhagen in August 1970, said "To bring the farmer into the education system, not just as another group to be instructed, but as contributors to the development process through their experience and the critical test they provide for the theories and practices that emanate from research". It is true that in many Asian countries where university resources are limited, it may not always be possible to undertake all the research and extension work, as is done in the USA. During the course of this Seminar, the participants will visit institutions where the extent of involvement in State-wide research and extension varies. However, whatever the extent of the involvement, the University must, from the very beginning, integrate teaching, research and extension as this is, indeed, the tripod on which modern agriculture rests.

It is not possible in this address, Mr. Chairman, to exhaust all the tenets of the doctrine so I shall confine myself to two more. There are others, which many people here may consider more important, and I would crave their indulgence for not mentioning them purely for the lack of time. The first of these deals with courses and curricula and

what may loosely be called faculty autonomy, both within and outside the university. One of the least satisfactory features of many of the old agricultural institutions was the static curricula which could only be changed after a period of years and a great deal of red tape. This is self-defeating in agriculture which is constantly changing with the introduction of new technologies, new inputs and new methods. These have to be taught as and when they develop and the faculty must have the authority to make changes from year to year and even from semester to semester. In such matters, the faculty must be autonomous and not face interference from administration within the university or from State Departments of Agriculture outside. The faculty should also be in a position to adopt internal methods of examination, if it so desires. These matters are well known to all present here and this brief statement will suffice to make the point.

The last ingredient of the doctrine, which I would like to discuss, is the need for practical training in higher agricultural education. The Commission of Higher Agricultural Education at the World Conference described this rather well, "Although it is not necessary for the student to be expert in all practical techniques, he should have sufficient skill to have confidence in himself among practical men, and to be able to recognize areas of technique where innovations could be introduced with profit". This is particularly necessary in Asia where labor is often regarded as a menial task and some persons fight shy of practical work. It is perhaps true that much of the tedium and drudgery of farm work in Asia is due to the fact that persons with inventive minds do not actually perform the tasks themselves and, if they did, would find much easier and less time-consuming methods of doing them.

This, then, is roughly what might be called the doctrine of the agricultural universities and colleges in Asia over the last ten years. In some cases, it was necessary to start new universities in order to implement it. In others, it was possible to make adjustments in existing institutions. The results have been good. A paper, presented at the World Conference on Agricultural Education, spoke of the new Universities in Asia as being among the most outstanding developments in the field of agricultural education and training in the region, which will have a far-reaching effect in the training of agricultural personnel and the future development of agriculture". Apart from such international recognition, the new institutions are not without honor even in their own countries. A national Ministry of Food and Agriculture has stated, "The agricultural universities have played an increasingly vital role in accelerating the pace of agricultural development in the country. Many of them are today the seats of learning in the field of agricultural research and education and have demonstrated effectively what could be achieved through integration of teaching, research and extension. Through national demonstrations they are expected to play a key role in the communication of new technology to the farmers". These tributes to the role of the new institutions in promoting increased agricultural production are best read in the context of the fact that,

in the last ten years, the spectre of famine, which loomed large in many countries in Asia, has receded and, what is more significant, several countries which, in 1960, were heavily dependent on the import of food grains are today, in 1970, either self-sufficient or well on the road to self-sufficiency.

Before these paeans of self-praise lead us all into a state of complacency, I must hasten to add, Mr. Chairman, that, for my part, I see the last ten years as only the beginning and that there is a long way to go before we can acclaim a green revolution. The next decade will be more critical for the agricultural universities and colleges if they are to achieve the purpose for which they were established, which is not only the development of agriculture but the well-being of the rural people. Even in the field of agricultural development, much of the success has been limited to the introduction of high-yielding varieties and the use of inputs and modern techniques in areas which are irrigated or where rainfall is assured. Little has been done in dry and backward areas which constitute a large part of the arable land. Success has also been mainly in cereal crops and much more still remains to be accomplished in pulses, oilseeds, horticultural crops and the like. In the field of animal production, there has been a marked improvement in poultry and egg production and, where applicable, in pig production but the same cannot be said for ruminants. The development of fisheries has fared well only in a very few countries in Asia. The protein gap has yet to be filled. The Director-General of FAO has drawn attention to the Five Areas of Concentration towards which the universities and colleges have to focus their attention. All this makes an imposing list and still only covers agricultural development without tackling the equally important subject of the well-being of the rural people and their environment.

I have stressed, and continue to stress the importance of agricultural colleges and universities playing a greater role in the overall development of the rural areas, as I feel that, apart from the fact that this is written into their Acts and Statutes, there can be no true economic and social development in Asia unless the problems of the rural areas are solved. I also believe that it is the agricultural colleges and universities alone that can find the solutions to these problems and that, if they fail or procrastinate in dealing with these matters, the war on rural backwardness and poverty will be lost even though a few battles may be won in agricultural production "per se".

This, Mr. Chairman, calls for a change in policy in agricultural institutions and a wider responsibility and involvement in the process of rural development. It means greater attention to the economic, social and institutional problems of the rural economy with emphasis on agro-industry and agro-business. It may even call for a new type of agronomist, trained as a ruralist with skills in the whole rural development process, rather than in agriculture alone. There are few who would deny that persons so trained are not vital to the economic development of Asia, where so many countries are still predominantly rural. These countries, many of which have large populations, cannot

absorb the additions to the labor force by providing employment in large-scale industry, no matter how fast they industrialize. At the same time, the use of modern techniques in agriculture will result in a greater release of men and women to undertake nonagricultural activities. It is, therefore, incumbent that employment be found through economic activity generated in the rural areas themselves. It is to this end that the ruralist must devote his attention and where better can he be trained than in the agricultural college or university.

This concept is not entirely new nor is it alien to the functions of agricultural universities. Land Grant Colleges in the USA have introduced certain courses to this effect. The University of Wageningen in Holland has started a bold experiment in training an agricultural graduate on the basis of the human and social sciences as against the natural sciences. The new type of agronomist studies sociology, law, economics and institutional frame-work to develop a way of thinking which will fit him as a ruralist interested in the field of rural development. Some universities in Europe are talking of the "horizontal specialist" as against the "vertical specialist" in agriculture. I dislike the term "horizontal specialist", Mr. Chairman, as it reminds me too readily of heavy-weight boxers who spend most of their ring careers on the canvas but I can appreciate the concept in relation to agriculture. The new universities and colleges in Asia must also train such ruralists with, I would add, closer attention to agro-industry and agrobusiness.

In training such ruralists, the agricultural universities must continue to use the process of the integration of teaching, research and extension. This is essential, as one of the reasons why small individual business enterprises fail in the rural areas or are unable to compete with large industrial complexes, is that they have nobody to guide them or to provide them with the latest research. The same is the case of many rural institutions. The concept of a research and extension service located in the university must be brought into play not only for the development of agriculture but for the whole rural economy.

Provision must also be made for the involvement of rural women and rural youth in the development of rural economy. It is true that in Asia the involvement of women in this task is no easy matter but, at the same time, in many parts of Asia, women actually perform most of the agricultural operations. We must train women research workers and extension agents who approach rural women-folk and carry the message of modern agriculture to them. This work has been largely neglected and it is certainly not too early to make a start. The aspirations of rural youth have also to be met, if so-called green revolutions are not to change their color, and, since all of them cannot be absorbed in their fathers' occupation, research, extension and training must be devoted to making them useful and productive members of the rural community. This task too is the proper study of agricultural universities and colleges.

Another aspect which needs attention in the future is a closer link

between agricultural universities and State and National Planning Bodies. If the universities are to play a greater role in rural development, they must be associated with the planners so that they may have full access to and, indeed, advise on programs to be included in the plan. In order to be in a position to do this, agricultural universities must first establish that they have the competence and ability to advise on national development activities. Universities have to demonstrate that they are more than degree granting institutions and that they are in close touch with the needs and aspirations of the rural community. There should be chairs in rural planning and policy in each university and research conducted in this field. Where there are several universities in a particular country, it will be necessary to form an Association which can seek representation in planning forums. A close association with planning bodies is also important in terms of manpower requirements. Agricultural education is action-oriented, and it is necessary to turn out the type of graduate that is needed by the nation. A criticism of the new universities is that the success of the early institutions has led to a proliferation of agricultural universities, with the result that, in certain disciplines, more graduates are being produced than the country needs, leading to what is termed "educated unemployment". Close attention to man-power requirements can remedy this defect, if it so exists, and also guide the university as to the type of man or woman that it should produce.

A central coordinating body for higher agricultural education and research within a country, where one does not exist, is most necessary. It avoids duplication, and can also promote specialization, leading to centres of excellence in different universities and colleges. I see from the program outline that the participants will be visiting one such coordinating body, a National Council of Agricultural Research and Education, during the course of this Seminar so I shall not dilate on the theme. I would, however, state that I would like to see wider representation on such national councils, including representatives of rural industry and labor. In brief, a council which looks to the role of the agricultural universities and colleges in the whole of rural development.

Agricultural universities and colleges, through their Council, and on their own, should maintain close liaison with the general education system at all levels. The training of teachers to teach agricultural subjects in the general school system should certainly be given attention. It may not be possible or even desirable to conduct the entire training but help should be given, whenever required, and short-term vacation refresher courses may also be set up. In any event, an interest must be taken in this training as it is at the school level that students get their first exposure to agriculture, and unless the courses are stimulating and meaningful, they are likely to do more harm than good. There should also be close contact with other universities and colleges in professional and cultural activities. Agricultural universities and colleges should join Inter-University Boards, where they exist, and take part in all Inter-University functions in order to demon-

strate that they are part of the University community even though they may handle their own affairs somewhat differently.

It would be meaningless, Mr. Chairman, to end this key-note address without discussing the vexed question of the financial resources needed to complete the task, even assuming that the leadership and staff are available to implement it. All administrators of agricultural universities and colleges in Asia are only too familiar with conditions of financial stringency and the difficulties encountered in obtaining funds for their programs but, here again, I would commend recourse to the adoption of tired methods of planning and research. The first essential is a national plan for higher agricultural education including research and extension, which sets forth the objectives and outlines the programs. It should be a coordinated approach based on man-power requirements, eliminating as far as possible duplication and waste. All economies, which can be made without detriment to the goal, should be effected. This national plan should also contain the plans of individual institutions, where both their internal programs and those conducted jointly with other institutions are clearly outlined. The plan should cover teaching, research and extension and be based on the needs of the students and the rural community. It is my firm conviction that such a plan will find the finance it needs provided its protagonists have both the skill to present it in terms of cost-benefits, the universal requirement of development planning, and also a working knowledge of the sources of finance, both external and internal. These provisos are of some importance, as agricultural development programs, and in particular agricultural educational programs, have failed to secure funds because the economic implications were not cogently expressed or there was too compartmental an approach to sources of financial assistance. Studies in these fields will be particularly rewarding.

Agricultural education in Asia, Mr. Chairman, is indeed fortunate that it still attracts financial assistance from a large number of agencies who are prepared to act as partners in development. This assistance has, unfortunately, been channelled through different Ministries and Departments, which has sometimes resulted in a compartmental approach as well as a lack of coordination both in the planning and in requests for technical assistance. The first step, therefore, is to endeavor to coordinate all forms of technical assistance, international, bilateral and private, in order to ensure that they are all directed to planned objectives. There is no question of any form of regimentation, as technical assistance is a form of partnership and partners are only willing to cooperate when both agree. The strength of this cooperation has also been widely recognized by the agencies themselves. A good example is the joint sponsorship of the First World Conference on Agricultural Education by three separate agencies of the United Nations, FAO, UNESCO and ILO. We have examples nearer home with the joint sponsorship of the International Rice Research Institute at Los Banos in the Phillippines by the Rockefeller and Ford Foundations and in agricultural universities, where assistance in the develop-

ment of teaching, laboratory facilities, etc., has been provided by the US Agency for International Development, the research station has been developed by the Rockefeller Foundation and the extension services of the Ford Foundation. Asian nations also provide scholarships to students from neighboring countries and many of them have started technical assistance programs in the field of agriculture. The United Nations Development Program has expressed its readiness to view sympathetically new ideas for assistance in the fields of agricultural education and training. Finally, Mr. Chairman, even bankers are interested. The World Bank has come forward with loans to agricultural universities sponsoring programs of seed production and would be willing to finance other ventures of developmental interest. If all these forms of assistance can be properly harnessed to a plan, external finance should not be a major problem.

There is still the question of internal finance. Once again a planned approach will secure better results. Most developing countries have adopted some form of national planning and financial resources are ear-marked for programs included in the plan. It is extremely difficult to secure funds for programs, however praise-worthy, if they are not included in the national or State plan. Hence, the correct procedure is to prepare a plan for agricultural education; link it to the development of the rural economy; indicate its benefits in economic terms; highlight its effect on the balance of payments by showing its foreign exchange earnings, both through increased exports and through import substitution, and, finally ensure its inclusion in the national plan. If this is done, internal finance gets ear-marked for the programs included in the plan for agricultural education and the battle is won. There are also other sources of finance. Steps should be taken to obtain funds from agro-industry and business institutions which are assisted by the work of agricultural universities and colleges. These institutions may be autonomous bodies in the public sector such as National Seed Corporations or Fertilizer Corporations or Private Companies dealing in agricultural inputs or commodities. In either case, they should be approached to provide funds for research and extension activities or to endow chairs in specialized fields. They should also be encouraged to provide scholarships to students. This fund raising approach, so ably performed by university administrators in the USA and Europe, has not been given due attention in Asia and should be pursued much more vigorously.

A final word, Mr. Chairman, on behalf of the students. For too long have students in agricultural colleges been looked upon as second class citizens in the academic world, studying unsophisticated subjects and with little hope for rewarding employment after they leave college. The new systems of agricultural education, with their emphasis on high standards of scientific achievement and the employment opportunities they have created, through agricultural diversification as well as in research and extension, have gone a long way to improve the image. The close association of these universities with the entire gamut of rural development will throw open additional opportunities for gain-

ful employment in agro-industry, trade and commerce. The universities must make a purposeful effort to ensure that their graduates secure the best positions available and set up modern placement services to this end. They should have the closest contact with employers and arrange for regular visits of these employers to the university campus. In these days, when students all over the world are restless as they fail to see the purpose of their education, the agricultural colleges and universities in which education has a very definite purpose—raising the standard of living of the rural people—can set the pace for student involvement and show the world that motivated students still place learning above all else. They, together with the faculty, constitute the advance guard of the “troops of earnest friends” of every man and woman in the rural community.

In conclusion, I would emphasize the urgency of these problems. Many countries in Asia have declared policies for the development of the rural economy, which include the promotion of rural institutions, rural industrialization, the creation of employment in the rural areas, community development, rural youth programs, rural business and banking, etc. If the agricultural universities and colleges miss this opportunity to play a leading role in the evolution of the correct lines of action to coordinate and implement these policies, they will not only fail to meet their objectives but will also miss the chance of proving their worth. This is the time, Mr. Chairman, ladies and gentlemen, to grasp the nettle.

PRINCIPLES OF INSTITUTION BUILDING

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Change is the name of the game. Change from the old to the new—change from the familiar to the strange and different. Change faces all of us every day; because this is a changing world . . . a rapidly changing world.

All of us resist change because we like the familiar and the comfortable. We don't like to adjust to situations which are different. Change is usually painful. But change is continuous.

If the change is organized and systematic and designed to improve the human condition—we call it development. Each new bit of change can be labeled as an innovation—a new idea—something different which is not like it was before—and perhaps promises to be better. Through change, we seek a better world. Through change we seek to produce more, to save more, to be able to eat more . . . to provide better clothing and housing and all of the other human needs and wants.

Thus, change is sometimes seen as evil and disturbing—a force to be resisted. From another point of view—the same change is seen as good and desirable—necessary for progress and improvement.

When I was a small boy, I lived on a farm. My father plowed the fields with the help of a horse, who pulled the plow. My older brother and I tried to convince him to sell the horse and buy a tractor. There were many, many reasons why a tractor was better for us than the horse. But my father resisted this change. He knew and loved the horse. The tractor cost much money and was strange and unfamiliar. It was an innovation—to be avoided if possible.

Many years later, as a young professor in a faculty of agriculture, I tried to convince the dean that an electric typewriter would be better for his secretary to use than the hand operated machine which she had. His response was the same. The electric typewriter represented change. It was expensive. It was new and different and from the point of view of the dean—it should be resisted and avoided if possible.

The same may be said of the idea of applying chemical fertilizer to a field of maize or wheat. The same may be said of the thought of sowing rice in rows rather than broadcasting it. The idea of investing one's money in a bore hole so that water can be pumped onto the land for irrigation in a dry season is an innovation. It is a change at the time it is first introduced. To those most closely affected, it must

be resisted and avoided if at all possible. This is the human response to change. This appears to be as universal as any other aspect of the human condition. We resist change; we do not want to do things differently than our habit indicates. We like to respond in the same old way. This is true for the tiller of the soil—for the professor of agriculture—for the vice-chancellor of the university—for you and for me.

Usually, a change comes from outside. That is, in any society, people have a certain willingness and ability to make changes. But their willingness and ability to make change usually relates to their communication with other people outside the immediate society. That's where the ideas tend to come from for change.

Throughout human history, of course, there have been changes. Change is as continuous as it is painful. However, a very large proportion of the important change taking place in today's world is deliberately planned. That is, it is engineered. Persons like you and like me deliberately introduce innovations or changes in order to improve the human condition. We may be working in agriculture, trying to increase the yields of certain crops or increase the quality of food. We may be working in government trying to make procedures more efficient or organizations more effective. We may be working in a university, trying to change it so that students learn more of the things they need to know. We may be working in research organization trying to change it so that the findings of research will have more practical usefulness to the people of the nation.

Change has many characteristics. One of the most significant ones, observed over the years—is that once a new practice or a new idea is introduced—that is, once an innovation has come along—there is a great tendency for those who have tried it to put it away—to put it aside—to reject it—and go back to the “good” old ways of doing things.

You have probably seen changes introduced which persist only as long as the introducer is around. When he leaves, people go back to their old practice and cast off the innovations.

This is where the institution comes in. In the introduction of new technology, innovations which persist are typically supported by the creation of formal organizations. These organizations need to be technically capable of performing or supporting the new function. Examples of such organizations include extension services, universities, family planning clinics, and research institutes.

That is to say, a very large portion of significant change in the developing world is deliberately planned—it is engineered. The introduction of such change takes place primarily in and through formal organizations. These organizations have the intent of innovating. They seek to foster new kinds of relationships between and among people and with things—and these relationships become normal if the organization succeeds. They develop new patterns of action.

The thing which was changed is usually referred to as new or different—on the positive side we like to think of it as being developed or modernized.

If you study the historical record, there is evidence that mere technological transfer does not last. Technology, when it is transferred from one group to another, from one individual to another, from one society to another—does not tend to persist. More often than not, it fails to take hold, leaving in its wake dislocations and confusion. Thus, we come to the idea that if you really want an innovation to last in a place or among a group of people, build an organization which will support—and help this organization to become institutionalized. If it is institutionalized, the new organization has established itself in its environment in such a way that it will obtain support from and exchange services with its environment—and thus achieve the capacity to persist and to maintain its innovative activities.

We may define *institution-building* as a process of developing new agencies or organizations or reconstituting existing organizations, equipped to plan, or to execute programs in the area of economic and social development. But actually, they could be programs in any area.

Institution Building Defined

The process of institution-building has been going on for thousands of years. Ever since man first learned how to talk to his neighbor, and be understood, there have been human institutions.

Most of them have not been as well organized, as formally structured, or as large and complex as the Ministries or the Faculties of Agriculture some of you represent. But there have been institutions since the beginning of recorded history. And men have been in the process of building them, modifying them, destroying them, and rebuilding them, during all of that time.

Like other fundamental human processes, it is only in relatively recent times that scholars have systematically studied this process. In this sense, the process of institution building is like the process of digesting or the process of respiration. It goes on whether we study it or not.

In the last ten years, however, scientists in many parts of the world have focused on what has come to be called—"Institution Building." Two of the earliest of such research men, Milton J. Esman and Hans C. Blaise defined institution building as: "The planning, structuring, and guidance of new or reconstituted organizations which (a) embody changes in value, functions, physical, and/or social technologies, (b) establish, foster, and protect new normative relationships, and action patterns, and (c) obtain support and complementarity in the environment."¹

Professor Esman later said "Institution-building is a double barreled activity. Change agents must both (a) build technically viable and socially effective organizations which can be the vehicle for innovations; and (b) they must manage relationships (linkages) with other organizations and groups on whom they depend for support and show behavior they are attempting to influence. Building viable organizations and managing their linkages are closely interrelated aspects of a single institution-building process.

“An institution has been built—the activity can be adjudged successful—when the organization (or organizations) and the innovations for which it stands have been accepted and become a valued and functioning part of the environment. To be institutionalized, organizations must not only survive; they must be able to acquire operational resources, and to exert influence on their environment so that the innovations they stand for are taken up and incorporated by complementary organizations and groups with which they interact.”²

Then, working with many other scholars in a variety of countries around this world, they built a model . . . a way of looking at, or thinking about, this process of institution-building. The model is a set of concepts—a set of words with special definitions.

It is a collection of categories, developed for certain uses. It grew out of a long history of human social evolution; out of the contemporary wisdom of the behavioral sciences; out of the fertile mind of Professor Milton Esman, and many of his colleagues and contemporaries. It is an invention of thinking men who wanted to understand certain phenomena better, exchange ideas and accumulate experience, and enhance our ability to manipulate improvement of the human condition.

The categories . . . concepts like leadership, doctrine, and program . . . are nothing magic or ultimate. They are like other category systems invented by scholars. They may be useful aids to thinking. With them, we can build hypotheses, test them, and develop principles. These principles, in turn, can be useful guides to action.

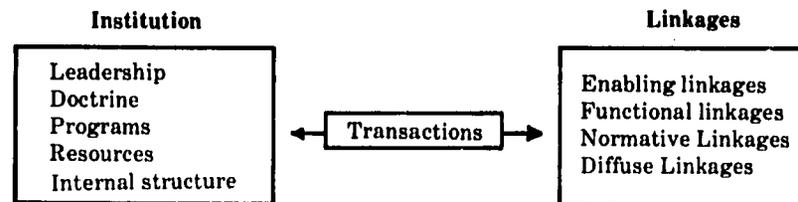
As is the case in other category systems, the categories are governed more by the knowledge, discipline, and insight of those who invented them than by the nature of the world.

During the past six or seven years, many scholars interested in the institution-building process, have tried the categories. They did research on the building of such institutions as the University of Nigeria, the Public Administration Institute for Turkey, the Ecuadorian Universities, the Agricultural Universities of India, a Brazilian business school, the Thai Institute of Public Administration, and many, many other institutions.³

As a result of this research, the categories, or concepts, were changed, refined, and improved. In the following discussion, I shall draw heavily on the work of those who have conducted the field research, but most of all on the papers of Professor Milton J. Esman, now at Cornell University.

The Institution Variables

There are two groups of variables, or factors, that are considered important in understanding and guiding institution-building activity. These are called the “institution variables,” which are essentially concerned with the organization itself, and the “linkage variables,” which are mainly concerned with external relations. The institution-building universe has been simply depicted as follows:



The most important variable is *leadership*. Guidance requires leadership and this is especially true where the problem is not to maintain the status quo, but rather to achieve behavioral changes within an organization and in an environment which may impose obstacles to the intended changes.

An organization without leadership may be out of control, and unless the leadership is both technically and politically *competent*, both for its internal and external responsibilities, and *committed* to innovation, the enterprise may be in trouble—even though its opportunities are otherwise favorable.

Leadership in a faculty of a university, for example, includes the Dean and Heads of Departments. It might also include certain professors or other members of the staff. In addition to the formal leaders who have authority by virtue of their positions and titles, there are always informal leaders, who exert influence because of their age, or reputation, or expertness or the sheer vigor or competence of their activity.

Doctrine is the most elusive of the institution variables. It is an expression of what the organization stands for, what it hopes to achieve, and the styles of action it intends to use. Men are motivated to act partly by the expression of ideas and symbols.

Examples of doctrine in the university world might be such notions as the commitment to the service of people. Some universities have this doctrine of service. Other universities are concerned only with scholarship for its own sake. One ministry, for example, may have doctrine of loyalty to the minister . . . as a man . . . as a person. Another ministry may have doctrine of loyalty to its clientele . . . the people it serves. These are just examples of kinds of doctrine.

If an institution has a doctrine that is clear and consistent and is understood among its members, then the doctrine helps them to communicate with each other, and to develop a strong sense of common purpose. That increases both the satisfactions of the members of the organization and the effectiveness of the organization in dealing with the world outside. And, of course, doctrine is very important out in the public, away from the institution. It is known by its doctrine as much as anything else. That sets the tone for the way people think about an institution, and it can be critical in the survival, growth and development of an institution.

Another concept is the *program* which an organization undertakes. The program is the sum total of the activities—or its output. It has

been called "the doctrine translated into action." For a ministry of agriculture, the program may consist of reporting on crops; enforcing laws relating to cultivation; distribution of seed, fertilizer, and pesticides; perhaps making loans to cultivators; perhaps even extension education activities. Each institution will have its own program . . . reflecting the influence of its leadership and its doctrine.

And the next important institutional variable is *resources*. The size and quality of these resources are important in determining how effective the organization is going to be. Resources are the input that the organization can either convert into products or services, or into increasing its own capabilities. Resources can be classified as legal or political authority, personnel or staff, finance, equipment and facilities, and information. The problem of the institution-builder is to mobilize, that is to attract, these resources to the organization and to mount programs of action consistent with the capabilities of these resources at any point in time.

Perhaps the most important resource to an organization is its staff personnel. Also, information about its external environment is crucial. An organization operating an information vacuum cannot make rational decisions. And though it is not the only resource that organizations need, *money* is indispensable to finance facilities and equipment as well as current operation. Wherever the money comes from, the leadership of an organization must work at meeting the expectations and catering to the demands that insure the reliable flow of funds.

And that brings us to *internal structure*. Any organization, including an organization that is becoming an institution, must achieve technical competence in all of its components and effective cohesion among them. This includes formal and informal patterns of authority, division of labor among the components of the organization, the channels of communication among them, and the methods of mediating and resolving the differences and disputes that inevitably break out over policies, priorities, resource allocations, and, indeed, personalities, in any complex social structure.

Thus we have five important concepts among the institutional variables. They are leadership, doctrine, program, resources, and internal structure. Now let's look at the other side, which were called the "linkage variables."

The Linkages

Some leaders are more interested and more effective in the internal management of their organizations than in guiding their external relations. Yet, effective institutional leadership requires simultaneous attention to building the organization and to managing its environmental relationships. Every organization is engaged in a network of relationships with other organizations. Some organizations split up the leadership task—having sort of an "inside man" and an "outside man" at the top. One of them worries about the institutional variables. The other one is concerned about the linkages with the outside world.

Four kinds of institutional linkages have been identified.

One of these is the *enabling linkages*. These provide authority to operate and access to essential resources. Enabling linkages may also be used to protect the organization against attack and to guarantee its access to resources during the critical period when it is developing its capabilities, but is not yet strong enough to deal with its external environment on its own terms.

Then we have another kind of linkage which has been named the *functional linkage*. This one provides the needed input into the organization and takes away its output. This category of linkages includes relations with those institutions which are the real or potential competitors which perform or seek to perform similar functions and services. Thus, the agricultural faculties of a university might have enabling linkages with a Ministry of Education, which protects them and nurtures them. They might have functional linkages with a Ministry of Agriculture, which might employ a good share of their graduates. And, of course, they might have functional linkages with a Ministry of Education as well—such as a relationship with the budget department of the Ministry which reviews and supports its annual operating expenditures.

Other kinds of relationships are called *normative linkages*. These are relationships with other organizations which share overlapping interest in the objectives or the methods of the institution. These may be reinforcing or hostile. A faculty of agriculture at a university might have normative linkages with an agricultural research institution which has similar personnel, and which, from time to time, shares the same problems.

And then there are *diffuse linkages*. These are relationships with individuals or groups who are not organized in a formal organization, but they do influence the standing of the institution itself. An example of this might be the farm population served by a faculty of agriculture. Or it could be members of the public at large who supply, through taxation, its financial resources. For a faculty of agriculture, it could be the parents of the students. At any rate, linkages with groups like this are often very important.

Thus we have identified *enabling linkages*, *functional linkages*, *normative linkages*, and *diffuse linkages*. These are important from the standpoint of those who are responsible for administering any institution. The rational management of an organization's linkages requires a "cool and continuous assessment of the environment," broken down by the specific relationships which are important to its purposes. Appropriate tactics must be devised to deal with each of them—consistent with the organization's operational capabilities. The leadership has available doctrine and programmatic output as instruments to cope with these external linkages.

Criteria of Institutionalality

Now let us turn to one of the questions which is critical in the business of institution building. When is an institution really an insti-

tution? What are the criteria for knowing that an organization has become institutionalized?

Dr. Milton Esman has suggested that the *survival* of an organization is a necessary but not sufficient condition for institutionalization. If the organization dissolves—if its budget is cut off and if its staff resigns—it will not become an institution. But, it can continue to get its annual estimates each year—and continue to have personnel receiving their salaries—and yet fail to actually become an institution. That's why Professor Esman says that survival of the organization is *necessary* but not a *sufficient* condition of institutionalization.

The achievement of intrinsic value in its environment is the second task, and this can be measured by the autonomy it has gained in the development of its program, in its internal management, and in its access to resources; and by the influence it is able to exercise on its external environment.

A third test is the *spread effect* of its activities—whether the relationships and patterns of action which the organization has developed become normal for other units within the society.

I have an hypothesis along this line which suggests that institution development effort tends to be punctuated by a series of crises. Some crises are more severe than others, and the crises are intermittent rather than continuous.

That is, an institution, like a university, for example, has a real crisis when the ministry through which its financial support is received decides to reduce the amount of money it will get. One kind of crises may be a speech by the minister in which he says he is going to do this. Another kind of crises may be caused at the date at which the money is to be received. The day may come and the day may go—and the money itself is not received by the bursar or the financial officer of the institution.

Or the crisis may merely be that a department head of the organization comes to the top man and says he is going to resign. Another crisis of the university could be that the students are demonstrating—marching around the house of the rector or the vice-chancellor, and insisting that he arrange better jobs for them after they graduate.

The point is, there will always be such crises. One could argue that the longer the time between crises, on the average, the more institutionalized the organization is. Also, one could argue that the less severe the average crisis is, the more institutionalized the organization is. Thus, by measuring the severity of each crisis and the time space between crises, one can make predictions regarding institutionality. In its simplest form, the longer the time between crises, the lesser the severity of the crisis, the further along is the process of institutionalization.

Another scholar, Dr. Martin Landau, has pointed out that “as a system develops, it tends to become specialized: its parts assume definite structures and functions.

“As a system develops, it tends toward centralization: differentiated structures and specialized functions become subject to essential control which operates to integrate the various behaviors in the system. And, the organizational form of a living system tends toward hierarchy: its value structures and functions are arranged in terms of level, the higher levels comprehending the lower.”⁴

From this point of view, the more complex the organization becomes, the more institutionalized it will be: thus the very complexity of the organization can be index or a criterion for measuring institutionalization.

Using the Institution-Building Model

So much for defining the concepts or the categories in this institution-building model. How do you use them?

Well, if your task is to build a viable organization—one which will survive and carry out some function, be supported by its environment, and influence that environment—then there is a significant day-to-day and long-range task of guiding that complex system through uncertainty. We don't really know what will happen tomorrow. But strategic planning ought to precede and inform any institution-building exercise. This is where some of the results of institution-building research come to bear fruit.

Here are some examples of the kind of propositions that come out of the research.⁵ Some of these are just common sense—and if you took the categories I have been describing, and thought about them in relationship to each other, you might have come out with the same conclusions. I have numbered these so that we can review them from time to time during the next few weeks in our formal discussions. For example, one of them is: (1)—Changing leadership makes it difficult to achieve continuity in expressed doctrine. If you have, for example, a new minister every six months, it would be difficult for that ministry to develop a doctrine and have it well known in the nation outside as well as internally.

Here are some others on leadership:

(2)—Co-membership of the leadership of an institution in other government agencies strengthens enabling linkages of a particular institution. If, for example, the rector of a university is also a member of the national cabinet, it will strengthen the enabling linkages for that university.

Here's another (3)—High frequency of interaction between institution leadership and government leadership can serve to strengthen enabling linkages with the institution.

On the other hand (4)—Institution leadership will be most effectively maximized when it is independent from frequent higher government interference.

Here's another one (5)—the leadership of an institution which is personally and professionally acceptable to the leadership of its clients will be more effective as a bargaining agent for that institution and

thus have the potential to strengthen the institution's functional linkages.

I mentioned doctrine as being one of the most important concepts. Here are some propositions in regard to doctrine.

(6)—Where there are other client groups besides the government in the environment, the concept of service, without being tied to any institutional form, can be important for promoting enabling relationships.

(7)—The institution's doctrine should be at such a level of specificity that, while allowing for personal differences in leadership, philosophy and ability, the main thrust of the institution in a national context will be clearly defined.

(8)—The ability of the institution to obtain resources and approval from the government is related to the degree of total and active commitment on the part of the government leadership to the doctrine of the institution and the government.

(9)—The higher the level of specificity of an institution's doctrine, the less the freedom the institution's leadership has in major policy changes, but the more clearly the institution is defined to competing and complementing organizations in the environment.

(10)—As the relevant publics in the environment increase, the doctrine of the institution will have to be sensitive to those religious, ethical, and cultural norms prevailing within those publics.

And then there are several in regard to program. For example:

(11)—As long as the government is the major clientele group in the environment, the program of the institution must be responsible to the government leadership. If government leadership is committed to change and to development, the institution program will reflect this commitment. If government leadership is not committed to change and development, the institution's program will reflect this lack of commitment.

(12)—To the extent that the institution's program is developed with clientele group needs in mind, so as to have "high visibility" of the output, the outputs will come to have perceived value by the clientele group.

(13)—Programs should be designed so that they do not come into immediate and obvious conflict with existing and competing programs until the institution has established secure linkages in the environment.

Here are a couple of propositions with respect to resources:

(15)—Given the low level of social mobilization in most countries, and the resultant lack of potential client groups for relationships with the institution, most organizations are dependent on the government for providing inputs, for consuming outputs, and ultimately for institutionalization.

(16)—To the extent that publics exist in the environment, efforts expended through the mass communication media, giving the institution a high visibility, will serve to create a favorable climate for increased support in terms of human, physical, and technological resources.

I have mentioned sixteen (16) propositions about institution building. In the next few days and weeks, let's challenge these, change or modify them, and perhaps add a few others. That will be one tangible value of this traveling seminar.

Well, what does all this mean to you and to me as institution-builders?

It offers us some aids in thinking and some guides to action. As we try to develop and to improve—to build your institution and mine—let's consider leadership, doctrine, program, resources, and internal linkages, normative linkages, and diffuse linkages. Then we can plan a grand strategy of institution-building which will increase the probability of achieving our goals.

Thus, the institution-building model doesn't answer the questions for your particular organization. But, for a growing, developing institution—the institution-building model does suggest what questions ought to be asked. And as you ask them, and develop your own answers—again you will be planning an appropriate grand strategy for the further building of your institution.

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1. Milton J. Esman and Hans C. Blaise: *Institution-Building Research—The Guiding Concepts*, Inter-university Research Program in Institution Building, Pittsburgh, Pennsylvania, mimeograph, 1966.
 2. Esman, *Institution-Building as a Guide to Action*, AID-CID Conference on Institution-Building and Technical Assistance, Washington, D. C., December 4-5, 1969.
 3. For a list of such studies, see *The Inter-University Research Program in Institution-Building, Review of Phase 1*, University of Pittsburgh, December 1, 1968, and *Building Institutions to Serve Agriculture*, Committee on Institutional Cooperation, Purdue University, October 1968.
 4. Martin Landau, "On the Use of Functional Analysis in American Political Science," *Social Research*, Vol. 25 (1968).
 5. See particularly, *Institution Building and Rural Development: A Study of United States Technical Assistance Projects*, Indiana University, June 30, 1968.

THE ROLE OF TECHNICAL ASSISTANCE IN INSTITUTION BUILDING

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Technical assistance has become a key part of foreign aid programs of most of the aid-giving nations during the past two decades along with economic aid. Some of the technical assistance has been directed toward the creation or the modernization of institutions to serve agriculture. I am sure that everyone in this Seminar has had some contact with this type of aid, and we will see much of it in operation during our visits these next three weeks.

Dr. Axinn has focused our attention on the various aspects of institution building and the several institutional variables which must be recognized in the process. If you will recall those variables (leadership, doctrine, resources, program, and internal structure) you may well ask which, if any, of them are susceptible of major influences from the outside. What aspects of leadership, for example, can be built or improved by external inputs? If we can identify those features of institution building that are most readily accelerated by outside resources, the next questions are "what strategies are most productive in accomplishing this objective?", "what is the best mix of inputs from technical assistance?" and "how is institutional progress and maturity assessed?" This line of inquiry will be the subject of this paper.

A. *Institutional characteristics sensitive to external influences*

It is institution building—not technical assistance—that is the main interest in this Seminar. Much of the institution building process goes on in the absence of, or independent of technical assistance. Yet experience has shown that technical assistance can be a useful and even a critical influence in certain aspects of institution building.

Dr. Esman¹ claims that technical assistance appears to be very useful or even critical in five areas:

1. *As providers of change models.* It is difficult to generate new ideas about an institution's organization, its style of operation or its role in society without stimulation from the outside. There is considerable inhibition to the imagination from knowing too much about the local environment. There are too many reasons why new approaches cannot be successful or should not be tried.

Outsiders are not restrained by the knowledge of customs, political currents, or inadequacies of support when they think about the new models. It is not that they are more intelligent—they just have fewer inhibitions. Of course, it is presumed that the outsiders have had experience with alternative institutional models and have studied them analytically.

2. *As participants in the leadership function*, especially in framing of new doctrine and priorities, the development of new programs and in drastic changes in organizational style. The introduction of these new elements into an institution requires not only the basic conceptualization of the ideas, but also needs the guiding hand of someone experienced in the operational techniques required by the new system. The effective installation of the new system is difficult at best, and it is virtually impossible if no one is experienced in making it work.
3. *As providers and allocators of valuable resources* such as external experts, training for staff, equipment, and technical information. These resources are generally necessary for change to occur, but they are virtually impossible to supply them from local resources in adequate amounts in the early stages of institutional change. These new resources normally represent additional expenditures over and above the traditional institutional costs, rather than reallocation of existing resources. Therefore, outside assistance may be crucial to the innovations even though the proportion of resources provided from the outside may be small relative to the entire institutional resources.
4. *As agents for transferring and adapting technology*. The early years of technical assistance proceeded under the assumption that transfer of technology was simple and that it could be accomplished with very little adaptive research. It is now clear that most technology must be carefully adapted to the local environment by systematic testing and altering if it is to succeed. It is one thing to have “book knowledge” of a technology, but it is quite another to understand a technology so well that symptoms of malfunction are recognized and the causes removed. This experience with a given technology is usually imported from foreign sources until local experience has been developed.
5. *As providers of operational monitoring and continual self-examination*. This is a relatively recent function that has been provided from technical assistance, and is to be sharply contrasted to the usual “control” or auditing type of monitoring that plagues all institutions. Operational monitoring refers to the continual examination of strategies for achieving the goals set for the institution, the shifting of resources and structure to accomplish the primary

innovative objectives and taking advantage of changing opportunities in the environment.

It is important to note that all of the above functions performed by outsiders are actions which eventually must be taken over by the institution itself. Therefore, the best strategies for technical assistance are those which are designed to leave these activities to the institution's own resources as quickly as possible, but not before they are well enough established to operate efficiently under their own resources. This brings us to the next three questions which we posed in the beginning:

- a) What are the best strategies for accomplishing the above objectives for technical assistance?
- b) How do the requirements for external inputs change as the institution develops?
- c) How do we assess institutional development or maturity in terms that can guide the employment of the best strategies?

These questions have been raised by technical assistance agencies as well as by recipient institutions from the beginning, but recent developments in the understanding of the *process* of institution building has thrown new light on them. It has been very instructive, for example, to attempt to "operationalize" the basic concepts presented by Dr. Axinn in attempting to answer these questions. We will discuss the basic concepts as they relate to the three major categories of inputs from technical assistance; namely, technical personnel, foreign training for local staff, and funds for equipment and program support.

B. *Strategies in Institution Building* *Strategies for "Advisors"*

There has been considerable confusion as to the actual role that technical assistance advisors are supposed to play in institution building activities. Typically they have been recruited because of their technical competence and professional experience, and their record is normally appraised as though they were going overseas to act out the same role as they performed at home. This usually leads, however, to considerable frustration on the part of the advisor as well as his colleagues in the host institution.

A few years ago, a research team attempted to analyze the role of advisors to determine what they should accomplish by their physical personal presence overseas which could not be accomplished better some other way. If it were simply a matter of imparting technical information to a colleague, it is likely that one or two years study abroad for the colleague would be a more efficient way to accomplish the same purpose and at a cheaper cost. This matter was examined in detail in a paper entitled "Role of Technical Personnel in the Technical Assistance-Institution Building Process"² in which a construct or model is presented describing what the "advisor" must accomplish by his personal presence and which cannot be accomplished some other way. This paper was written from the point of view of U. S. agencies sending personnel overseas. You might find it instructive to read this

paper but you would perhaps find it even more instructive if you were to attempt to write a similar paper from your own point of view. Basically, that paper identified several rather subtle transformations which are to be guided by the "advisor", including such things as:

- a) The identification of the basic role of the institution and the part which individual departments and individual professionals must play if the institution is to perform its role well.
- b) The identification of new styles of operation in teaching or research or extension which should be experimented with in the local environment in order to find appropriate models for that particular situation.
- c) The development of a sense of team spirit and leadership in pursuing the institution's goals, and
- d) The identification of resources including financial, physical, and technical resources required to achieve the institutional goals.

Recent studies have documented what most of you have known for many years; namely, that an "advisor" who merely advises is normally not very successful. On the other hand, a person who is engaged in a professional activity within the host environment is continually sought out for advice on a wide variety of subjects. Thus, the trend in recent times is to change the strategy of providing assistance from "advisors" in the direction of giving these persons a specific responsibility within the institution and using this as a platform from which advice is sought and given. Following this strategy the "advisor" can test new styles of leadership within the local environment and demonstrate them on a limited scale. The principles which underlie this style of operation can be explored in great detail with a wide circle of colleagues. A new doctrine or philosophy or attitude toward the institution's role in society can be discussed during a coffee break in the daily activities on a more impersonal basis than if the "advisor" has a formal appointment to talk about these matters in the Director's office. Alternative styles of management, possible sources of support, and new styles of teaching can all be brought into such a conversation with a minimum of embarrassment. Thus, the new strategies for "advisors" is turning much more strongly in the direction of giving them a specific institutional responsibility and considering their advising role as something which will occur naturally from their professional success.

The great danger in the above strategy, however, lies in the ease with which everyone can lose sight of the fact that the "advisor" is there primarily for the purposes of *institution building* and not for accomplishing a specific piece of research or teaching a certain course. Thus, the new strategy requires walking a fine line between advising someone else in how to do his business and doing it for him for a brief period of time. This approach requires a high degree of coordination and rapport between the technical assistance team and the leadership of the host institution. There is the further danger that "advisors"

will be selected solely on their merits as a researcher or teacher without due consideration for his abilities as *an institution builder*.

Strategies for Participant Training

Perhaps the most popular function of technical assistance has been the opportunity provided to local staff members to go abroad for further study and training. This has been highly prized because it has greatly strengthened the institution's overall technical competence and also because it gives the individual a considerably increased market value upon his return home. It has not, however, always contributed efficiently to the *institution building process*.

Many individuals have been sent abroad for advanced training only to return home completely alienated from performing the responsibilities which the institution expects of him. In other cases, he has returned home with a completely divergent view of the role which his institution should perform in society. There has been a tendency to select institutions abroad at which staff members will be trained on the basis of their prestige in certain disciplines. What is not always appreciated, however, is the fact that while the staff member is studying at an institution abroad, he is also being submitted to that institution's philosophy and attitude toward institutional role. Thus, it would be very difficult to imagine a Ph.D. from Cambridge University who would return home and have the same outlook, the same doctrine, as the problem-oriented, service institutions that are called Land Grant Universities in the U. S. It is too much to expect that a returning individual will again reverse his philosophy after such an exposure abroad. Many staff members have been sent to U. S. institutions where their research for the Masters or the Ph.D. degree has been concerned with a very narrow segment of a scientific problem and which involved the use of highly sophisticated equipment. Upon the completion of such research, the individual's appetite for more practical but urgent research needed in his own country is severely limited. This has greatly contributed to the "brain-drain" pressures of the past decade.

Several new strategies are now appearing which hold promise of increasing the efficiency of this aspect of technical assistance. U. S. universities are just now agreeing to allowing Ph.D. students to work on problems from their own country and even to return to their own country for much of the research effort. There are yet many details to be worked out in such a system, but it points to alternative strategies that should be considered in improving the participant training programs.

One further point in the participant training program is receiving renewed attention; namely, training for administrative duties. Very few staff members have been sent abroad to get an advanced degree and have at the same time had the opportunity of learning new administrative procedures or studying different organizational structures. This point has received considerable attention and study by technical assistance agencies; but as yet, no consensus has been reached as to

the best solutions. Suffice it to point here that a research degree in physiology or economics does not automatically qualify an individual for an administrative position. And the converse situation is equally important; namely, an administrator who has minimum training in modern science and technology is at serious disadvantage in guiding young well-trained staff members.

Strategies for Commodity and Program Support

It is a very common sight to visit university laboratories and research facilities which have received technical assistance and find sophisticated pieces of laboratory equipment that have never been used or that have been used only sparingly in research or instruction. There is hardly a laboratory in the world that does not have at least a few such monuments to inadequate strategies in technical assistance. There is a strong tendency to disregard the necessity for using the same efficient criteria in spending outside funds as is used in committing internal resources. This may seem, at first glance, to represent poor judgment, but it is more likely that the external funds were made available at the wrong time. If an institution does not yet have a trained staff or a revised and upgraded teaching program or a productive and exciting research program underway, it has little basis for deciding what additional equipment is most needed to enhance its activities. If the funds must be committed within a limited period of time, there is little alternative but to plunge into the purchase of "prestige" pieces of equipment that could never be purchased under any other circumstances. Thus, we have learned from past experience that sophisticated pieces of equipment add very little to the *institution building* exercise, and in fact, they may even be counter-productive in distracting the institution from establishing appropriate priorities in its programs. The real lesson here is to supply program support at the time the program is well formulated by competent staff who have rigorously assessed and demonstrated priority program needs, and to supply the support on a flexible time schedule.

C. Optimum Mix of Technical Assistance Inputs

We have already intimated that the three major inputs which can be made through technical assistance; namely, visiting professionals, foreign training for staff members, and commodity and program support, are not equally productive at the same stage in an institution's development. There is considerable evidence from the past fifteen years of experience to show that some of these inputs are much more productive early in an institution's development and others become much more efficient in the later stages. Several attempts have been made to develop some theory which would guide us in these matters and research is still under way on the subject. In the meantime, there are certain guidelines which might be useful.

In the early phases of institution building, the most urgent requirement is to get a "critical mass" of staff members who have sufficient technical background to be able to initiate effective programs in their

respective departments. This is the part of technical assistance which takes the longest time and therefore, it should be started at the earliest possible moment. This cannot be done, however, without some pre-planning of the institution's new role and doctrine and some idea of the programs which will be undertaken. Thus, all of the elements of an institution must receive some attention from the very beginning, but it should be possible to concentrate external resources in the area of staff training much earlier than has been customary in the past.

As soon as staff members begin to return from advanced training abroad, it is urgent to capitalize on the enthusiasm which they bring with them and to provide them with guides and some resources for getting programs underway. It is at this point that technical assistance advisors can be of greatest utility and it is at this point that a small amount of program support funds will go a long way. As the institution matures and its programs are well identified and the staff have good technical training, the need for different types of resources, including equipment, laboratories, research fields, etc., become the most restrictive aspect of *institution building*. By this time, however, it should be producing sufficiently exciting results to attract local support.

One part of the strategy in allocating resources that has proven to be important, involves the generation of public support. Education and research organizations find it difficult to obtain support over a long, continuing period under the best of circumstances, and if there is little in the way of exciting results coming from the organization, it is difficult to maintain enthusiastic public support and to increase it as the institution grows. Therefore, in allocating resources and in deciding where and how to use external resources, it is well to remember that some good publicity on the progress in some aspect of the institution is required almost every month of every year to keep the public interested in the institution's overall development. This means that "critical mass" level of input must be achieved in individual departments or programs one by one. It is not good strategy to spread the resources evenly over the entire institution and wait for several years before any one segment is strong enough to attract public attention. External resources provide the opportunity to give emphasis in one area until that area is strong, and then shift to another. This, of course, creates internal political problems, but they can be tolerated easier than total lack of public support.

Another important aspect in the allocation of external resources suggests that they should be applied to the activities which are important to the nation's highest priority needs. Thus, it may be academically satisfying to make a significant breakthrough in theory relating to nuclear physics. It is much more important to the institution's development of linkages and resource support, however, if its significant breakthroughs have an immediate effect on the national production of rice or corn. It is quite possible to realize progress in institution building through either of these activities, but those which are closely

related to the nation's priority needs will serve the overall process much better.

Finally, the allocation of external resources needs to be carefully tailored to the institution's capability for continuing programs which are started. It is not uncommon, for example, to find outsiders waxing enthusiastic over the development of a segment of the institution far out of proportion to that institution's later needs. For example, there has been a strong pressure to develop programs involving the peaceful uses of atomic energy over the past fifteen years. Since the amount of external funds available for developments in this area have been rather large, some institutions have been lured into developing much stronger programs in basic physics or nuclear engineering than they could later support with their own resources or which they could justify in terms of their total national needs. Thus, by yielding to the temptation to take on the large institutional program in this area, the total institution building operation is compromised.

D. *Assessment of Institutional Progress and Maturity*

We suggested in the beginning that external assistance could be useful in assessing institutional progress and technical maturity at appropriately useful intervals. Earlier studies suggested that inadequate assessment of institutional progress resulted in several cases of termination of external support before the institution was prepared to capitalize on the investment that had been made up to that point. The question was raised in these studies as to the particular aspects of institutional growth which would provide indices of maturity that were most useful for administrative action in changing strategies. Several attempts have been made in the Asian areas to use the concepts of institution building which were reviewed by Dr. Axinn as the basis for assessing institutional progress. One of the most recent and the most comprehensive of these studies is one which has just been completed for the Punjab Agricultural University of India. The basic criteria and the rationale for this study are reported in a book entitled, *A Method of Assessing Progress of the Agricultural Universities in India*, and copies of this publication will be made available to us in New Delhi. In the meantime, let us take a quick preview of some of the essential elements that have emerged.

The normal tendency in project evaluation is to enumerate the institutional features that are easily counted, such as the numbers of classrooms and laboratories, the volumes in the library and the number of advanced degrees held by faculty members. There is no question but that these are essential characteristics of a modern technological university. But institutional evaluation cannot stop there if we are interested in knowing the dynamic, innovative, driving character of the institution that was referred to by Dr. Axinn. There are a number of more subtle qualities that need to be measured also. For example, consider the following sets of questions:

1. How adequate is the institution's leadership?

- a) How fragile or how well entrenched is the leadership, both politically and technically?
- b) How deep is the leadership structure within the institution? Does it rely on one man or is it dispersed among several?
- c) How influential is the leadership among the real "power structure" of the country, i.e., does the institution's leaders hold the confidence of the nation's leaders and thereby merit their support?
- d) How bold and imaginative is the leadership in stimulating and rewarding performance by the staff?
- e) How deeply is the leadership at all levels committed to the innovative goals set for the institution?
- f) How skillful is the leadership in linking the institution to the other public and private agencies?
- g) If the leadership pattern has not developed satisfactorily, what changes in strategy by the technical assistance agencies is indicated?

These questions are likely to be embarrassing or dangerous to ask. The answers that are forthcoming will surely be strong attempts to protect the image of those responsible for the technical assistance project. Yet it is worth considerable effort to know the answers to questions like this even if they must be inferred from quite indirect approaches.

- 2. Is there commitment to an innovative doctrine?
 - a) Is the new role for the institution a realistic one, i.e., is it consistent with real country needs? Is it being accepted both internally and externally?
 - b) Is the new institutional doctrine well articulated by the institutional leaders?
 - c) What proportion of the administrative and professional staff understand and actively support the new doctrine?
 - d) What are the social and political conflicts generated internally and externally by the new doctrine? How well are these tensions being resolved?
 - e) What official and public acclaim is generated for the new doctrine?
- 3. Is the program content adequate?
 - a) How completely has the institution developed the content of its new program?
 - b) How relevant is the program to the country's needs and the stage of the country's economic and social development?
 - c) How widely is the new program understood by the staff? How strongly are they committed to it?
 - d) Is there good agreement between the new program and the new doctrine for the institution?
 - e) What quantity and quality of results are being produced by the new program?
- 4. Is the internal organization adequate?
 - a) Are there still serious deficiencies in the organizational struc-

ture or are most of the difficulties traceable now to personal weaknesses and personalities which no amount of reorganization will cure?

- b) Has the institution been over-organized to a point of having all administrators and no workers?
 - c) Does the organization facilitate the guidance and leadership functions of management in addition to the usual control functions of the institution?
 - d) Does the organization permit incentive rewards for good service and a sense of cohesion and loyalty among the staff?
 - e) Does the organization strike an appropriate balance between a sufficient "centralization of authority to provide leverage for change" and a sufficient decentralization to encourage the flow of ideas, decision-making and responsibility by middle management?
5. What is the supply of resources?
- a) What are the prospects for continued and increased financial support from sources inside the country? Are they commensurate with the requirements being built into the new institution or must the institution's future depend on continued external support?
 - b) What is the capacity of the staff to bring their full technical training to bear on the institution's outputs? Are they over-trained for the resources available? Are they too specialized for the tasks at hand?
 - c) What provisions are developed for upgrading the capability of the existing staff and for continuing to supply new staff? What provisions are made for maximizing the use of library facilities and the scarce sophisticated equipment and laboratory facilities within the institution?
6. Are the linkages with other institutions and with the public adequate?
- a) What public services are being offered to other governmental agencies that will encourage their support of the new institution?
 - b) What is the status of conflict and competition or alternatively of cooperation and mutual support with other public agencies?
 - c) How effectively is the product or the influence of the new institution being accepted by the public?

The measurement of the above qualities is very difficult, but it is clear that the questions asked are seeking information on institutional qualities that spell the difference between an exciting, productive and innovative institution, *versus* one which may be relatively affluent but which does not serve as an agent for change within society. As we visit a number of institutions during the next three weeks, these questions will constantly come to mind and you will perhaps be asking yourself whether it would be possible to gain information along these lines. We have taken the time to ask these questions in some detail in order to focus your attention on them and to remind you that just as

clothes do not make the man, neither do physical facilities make an institution.

In summary, we have

1. Considered the aspects of institution building that can be affected by technical assistance.
2. Looked at various strategies for utilizing the inputs from technical assistance most effectively.
3. Reviewed some questions which can be useful in assessing institutional progress and maturity as guides to further administrative action.

We hope these concepts will be helpful to you in the days ahead.

1. Milton J. Esman. *Institution Building as a Guide to Action*. Paper presented to AID-CIC Conference on Institution Building and Technical Assistance. Washington, D. C. December 4-5, 1969.

2. J. A. Rigney and K. McDermott. *Role of Technical Personnel in the Technical Assistance-Institution Building Process*. N. C. Ag. Expt. Sta. Tech. Bul. 189, 1968.

A SYSTEM OF SERVICES TO SUPPORT AGRICULTURAL DEVELOPMENT

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I. INTRODUCTION

First, let me express my pleasure in having been selected as a member of this Asian Agricultural Traveling Seminar. I am confident that this seminar will be of great value to all who take part and I count it a privilege to be one of those.

The program this afternoon is designed to establish a preliminary frame-work around which we can organize our observations and discussions as we visit the various institutions. Our traveling seminar is designed so that each of us will learn from the others, and the program this afternoon is designed on the same principle. Following a short general discussion, I will present fifteen "propositions" or "hypotheses" relating to the services which support agricultural development and raise certain questions about each. My presentation of these does not imply that I personally believe that they should be considered to be established as factual statements. However, these are not mere figments of imagination. There is considerable evidence to support the basic theme of each. They may be poorly worded and they may not be universally valid. I suggest that we check the validity of these; discard those not valid; modify those needing modification; and add new ones.

II. INSTITUTION BUILDING AND SYSTEM DEVELOPMENT

This afternoon I want to present my conviction that agricultural development is in large measure dependent on the development of a true system of services to support agricultural development, and to discuss the application of the theoretical concepts of institution building to the development of a system of institutions.

As we discuss the theory and practice of institution building we usually think of an institution as one with visible symbols of existence such as; land, buildings, equipment, etc. Institutions such as universities, research stations, banks, fertilizer factories flash across our minds. Actually the institution is a group of humans working together on well defined programs, with an agreed on method of operation and directed toward certain established goals. The land, buildings and equipment are only the outer covering for a human organization. These

physical attributes may facilitate the operation of the institution or they may merely advertise the presence of the institution. However useful these physical features may be, we must never mistake them for the human organization which constitutes the institution.

One of the dictionary definitions of "system" is "a regularly interacting or interdependent group of items forming a unified whole." In a properly functioning system of services to support agricultural development, each service or institution will regularly interact with the others and they will be interdependent, one with another. Such a properly functioning system constitutes an institution just as truly as the component parts of the system are themselves institutions.

The principles and the theoretical concepts of institution building are just as applicable to the building of a system of institutions as they are to the building of the individual institutions. The practice of institution building utilizes these principles and concepts in the same fashion regardless of whether the task is that of building a system of institutions or that of building one of the individual institutions. The task of building the system may be more difficult for several reasons. Many more people are involved; communication is more difficult because those involved usually are not physically located close together; and most significant, there is much less recognition of the need to build a system of services to support agricultural development.

You will find me frequently using the term institution development, instead of institution building. Development connotes a continuing process. In contrast, building connotes a process with some definite terminal points. Buildings may be and usually are finished at some point. Development should never be finished. Human development is a never ending process and our human institutions must never become static and self complacent.

III. SERVICES TO SUPPORT AGRICULTURAL DEVELOPMENT

I am using "services to support agricultural development" to cover any organized human activity which enables, or encourages or assists in agricultural development. I have deliberately used the term "agricultural development" rather than "rural development". In most situations "agricultural development" is one, but only one, component of "rural development". "Agricultural development" is less complicated than "rural development," but agricultural development is dependent upon the smooth interaction of many factors.

I use the term, agricultural development to cover both increased agricultural production and improved distribution of agricultural products. The use of the term "increased agricultural production" implies an overall increase in production as well as an increase in hectare yields and an increase in yield per unit of labor.

The "service to support agricultural development" can be grouped or classified in many ways, but I think this a useful one.

1. *Basic but indirect services.* Here I place professional agricultural education and organized agricultural research. These programs

are basic to agricultural development, but they do not directly touch the farm operator. Without trained personnel at the professional level and the results of applied and adaptive research, the direct services to agriculture will be poorly staffed and have little worthwhile information to pass on to the farmers.

2. *Direct services.* Here I am placing public service, adult education and extension programs. With adequately trained staffs who are equipped with new and significant information, these services can become direct agents of agricultural development.
3. *Infra-structure services.* Here I place those services which supply the inputs demanded by technological agriculture such as fertilizers, pesticides, agricultural equipment, irrigation and drainage facilities, credit facilities, etc. Included here also are those services which supply the inputs demanded by technological agriculture such as fertilizers, pesticides, agricultural equipment, irrigation and drainage facilities, credit facilities, etc. Included here also are those marketing, processing and distributing facilities which serve to move farm products to the market. They might well be called the "action" services. They are absolutely essential for technological agriculture but they follow in time sequence both, the basic services of professional education and research and the direct services which provide education, training and information for the farmer.
4. *Related services.* Here I place the general public and community services such as public health, general education, community development, local government, etc. These are all necessary for agricultural development, but they are general in character and provide the background within which the other more directly related agricultural services operate.

IV. AGRICULTURAL DEVELOPMENT AND SOCIAL CHANGE

Traditional agriculture, even in the least developed situations, is not devoid of services to agriculture. They are general in character rather than being highly specialized. They tend to serve the total needs of the village or community. Agriculture is not something apart from the total life of the family, the tribe, the village, the state and the nation. For a variety of reasons these changes have occurred more rapidly in some nations and in some regions than in others.

Change is a normal process in all societies, but the rate of change is very important in determining the overall effect of the change. Relatively small changes, occurring infrequently are easily absorbed. Attempts to impose larger changes at more frequent intervals may result in severe dislocations. Let me give you an example, from my own country, of the effects which come from the rapid introduction of some aspects of modern technology in agriculture. The widespread introduction of labor saving machinery in agriculture has resulted in the rapid movement of labor from the farms to the cities. In many instances there were too few job opportunities in the city, and migrants

were forced to accept public relief. Even where the city could offer satisfactory job opportunities many undesirable effects were deeply felt throughout our society.

Rapid increases in population during the last few decades have placed a heavy premium on more rapid agricultural development in many of the developing nations. This inevitably leads to an attempt to introduce technological agriculture as a means of hastening agricultural development. Considerable progress has been made in raising the overall quantity of agricultural production in most countries. Unfortunately in many countries the population has increased rapidly as has agricultural development, with no real increase and even a decrease in food per capita. Just as agricultural development in my country brought a very rapid movement of the population from the farms to the cities, so is agricultural development in other countries bringing about an increasing urbanization. Although this traveling seminar is not designed to study the effects of agricultural development, we as agricultural scientists, dare not ignore them.

V. *THE DEVELOPMENT OF A SYSTEM*

As the less developed countries attempt to speed up the rate of agricultural development and as we try to give technical assistance, there is a strong tendency to copy or to adapt the many highly specialized services and institutions which characterize our highly developed agriculture. Unfortunately, there has been too little attention given to the development of a system of services. Unless these highly specialized services are interdependent and do interact the result may be chaos instead of progress.

Many of the attempts to secure rapid agricultural development during the late 40's and early 50's were based on an assumption that the "know how" of technological agriculture could be transferred to the underdeveloped countries without the necessity of developing an adequate system of institutions for agricultural instruction and research. Slowly it has become clear that each nation must develop its own indigenous institutions, which will train professional agriculturalists and will carry out the necessary adaptive and applied agricultural research. "Imported" training and "imported" research results cannot substitute for "home grown". It is for this reason that I have listed higher agricultural education and organized agricultural research as the basic services or institutions upon which all agricultural development rests.

Another fundamental mistake in the early efforts to speed up agricultural development was made in assuming that the necessary linkages between the many new and rapidly expanded basic, direct and infra-structure institutions would develop naturally, as such linkages had grown in the more developed countries. In the more developed countries the various services were developed slowly over many decades. In my country, the first such institutions were provided for through Federal legislation in 1862. In that year the U. S. Department of Agriculture was established and provision was made for establish-

ment in each state of a Land Grant College of Agriculture and Mechanic Arts. These were both new ventures. They grew slowly, both in size and in multiplication of programs. About two decades after passage of the Land Grant College Act, the Federal Government made provision for the establishment of a system of State Agricultural Experiment Stations. It was almost a half century later when the Federal Congress provided for a nation wide system of Agricultural Extension Services. These Research Stations and Extension Services were actually out-growth of the work of the Land Grant Colleges. Linkages were present from the beginning. During the last half century in the United States there has been a great proliferation of services to support our agriculture. But even these came slowly enough to enable their absorption into an overall system with only minor and temporary difficulties.

In an effort to move rapidly into the age of technological agriculture the underdeveloped countries have attempted to develop very rapidly a full range of the services and institutions which the developed countries developed slowly and one at a time. If the maximum feasible rate of agricultural development is to occur, each of the necessary services must make its proper contributions at the proper time. Conceivably, this could happen without regular interaction among the services. Practically, it does not happen unless such interaction occurs. Ideally there should be developed a system in which each institution serves as one unit in an integrated program. Sometimes, we find such services to be fiercely independent and competitive. In other cases, we find them totally independent of and indifferent to the activities of related services.

At the start, in most less developed nations, little attention was given to the development of a *system* of services. Rather, almost total energy was devoted to the development of a series of services, and only minimum attention was given to the need for the development of a functioning system with adequate linkages between the various newly created institutions. Those responsible for developing an institution to provide a new service often have little understanding of other services which are being introduced, and each group tends to confine itself to its assigned task. Only recently has research on institution building and agricultural development revealed the importance of building "a system of services to support agricultural development." We must devote far more attention to the development of linkages among the many often highly specialized services which are being created.

Up to this point, I have been discussing the need to develop a system of different services to support agricultural development. Let me now turn to the need for development of a system based on Federal and State cooperation in a single area of service. I will again refer to the experience of my own country. Practically all who have attempted to identify actions of overriding importance to the success of our agricultural development place high on the list those actions which created Federal-State cooperative programs in agricultural education, agricultural research and agricultural extension. These include—among

others—the Land Grant College Act, the Adams, Hatch, Bankhead-Jones and Purnell Acts in Agricultural Research and the Smith-Lever and the Smith-Hughes Acts in Agricultural Extension and Vocational Agricultural Education.

The needs in our country which brought forth these cooperative Federal-State-regional-local cooperative programs are duplicated today by the needs of the larger, less developed countries. Federal support and federal leadership is essential for any balanced development of agricultural research and development. But State, regional and local initiative and support with adaptation to local conditions is just as essential. Neither can function well without the other. We must give increased attention to the development of truly cooperative systems of education, research and extension at the Federal, State, regional and local levels. As our traveling seminar proceeds, I suggest that we examine carefully the need for such systems and the patterns which are being used to support such systems.

VI. *HYPOTHESES FOR CONSIDERATION*

There is remarkable agreement, in both developed and underdeveloped countries, as to the type of services needed to support agricultural development. However, the organizational patterns which relate these services one to another and the degree of emphasis placed on the different services vary greatly from country to country. Clearly there is no "best" pattern of organization, nor is there a "correct" formula for the allocation of scarce resources among the many claimants. However, I believe that there are basic principles which are useful in devising organizational patterns and in allocation of scarce resources. As a start towards identifying such principles, I am presenting some "hypotheses" for testing this afternoon and throughout our seminar.

HYPOTHESIS I: "The rate of agricultural development is dependent on the degree of effectiveness of the various services supporting agricultural development and on the degree to which they function as an integrated system."

This sounds logical, but can we establish that all of the existing services are necessary for agricultural development and that the value of an integrated system of services is greater than a series of uncoordinated services? What observations have you made and what kind of evidence should we look for as our traveling seminar moves on?

HYPOTHESIS II: "The education of professional agriculturists and the development of an indigenous agricultural research service in the early stages of agricultural development, deserve high priority in the allocation of scarce resources."

Can the hypothesis be validated? Should agricultural education and agricultural research be bracketed together or should one have priority over the other?

HYPOTHESIS III: "The effectiveness of agricultural extension and public service programs can rise no higher than the level of the availability of locally adapted, improved agricultural practices and

the supply of professionally trained workers." Can we import improved agricultural practices and expect them to be useful without local trial and adaptation? If we have a good improved practice, will it "sell itself" or do we need trained extension workers? What does this hypothesis imply with regard to allocation of scarce resources?

HYPOTHESIS IV: "Improved practices can be only marginally effective without the development of an effective and efficient infrastructure to supply the necessary inputs—credit, seed, fertilizer, pesticides, machinery, etc.—and, the necessary marketing structure—preservation, storage, transportation and capital."

Can this be validated? If true, what does this imply with regard to the responsibilities of agricultural education, research and extension? What does it imply with respect to allocation of scarce resources?

HYPOTHESIS V: "Agricultural development depends on the development and adoption of improved practices; adoption of improved practices is largely dependent on the probable profit to be gained by the adoption of the improved practice; profitability is often dependent on governmental policies, on prices, credit, taxation, import-export controls, etc."

Can each of the three clauses be validated? If true, what implications does this have for the programs of agricultural education, research and extension?

HYPOTHESIS VI: "The development of an effective educational program for professional agriculturists in a developing country requires a faculty with both an interest in and an opportunity of assisting in finding solution to the important problems facing agricultural development."

What evidence can be found to establish the validity of this proposition? How can opportunities be provided to the staff member of agricultural colleges which do not have both responsibilities and support for research and extension, and how can interest in such activities be developed?

HYPOTHESIS VII: "To serve adequately the agricultural development of a nation, its agricultural colleges should continually survey the emerging needs of the nation for agriculturists with various types and levels of training and make the necessary programmatic changes to meet such needs."

As agricultural development has proceeded in the more developed countries what changes have occurred in the type of the first job of the college graduate? Can the changes in demand for agricultural college graduates be predicted in advance? If so, what indications will be useful?

HYPOTHESIS VIII: "In developing countries with large rural populations the elementary and secondary schools should be responsive to the needs of agricultural development and the agricultural colleges have a responsibility to assist in the development of appropriate agricultural educational programs in such schools."

Can the validity of both causes be established? If true, how can the agricultural college assist the elementary and secondary schools in developing and strengthening the needed programs?

HYPOTHESIS IX: "The agricultural college has a responsibility to assist in upgrading all agricultural workers whether in education, research, extension, public service or infrastructure activities through non-credit lecture, seminar, workshop, etc. programs, as well as by formal credit programs."

Is this valid? Should each agency carry its own in service training programs? Should there be some division of labor between the Agricultural College and the other agencies? What advantages and disadvantages are there to each method?

HYPOTHESIS X: "Where the resources—trained men and materials—available for agricultural research are in short supply, heavy emphasis should be placed on applied adaptive and projective research both in agricultural colleges and in agricultural research stations."

Is this valid in equal measure for both colleges and research stations? Will adherence to this principle affect the rate of "brain drain"? How?

HYPOTHESIS XI: "The agricultural research service has a responsibility to make readily available information to professional workers, in education, extension, etc. about progress being made in providing answers to critical agricultural problems."

Is this valid or should information be provided only after a solution has been found to a problem? Would the adoption of such a practice improve progress in agricultural development?

HYPOTHESIS XII: "Since many important decisions affecting agricultural development—such as taxation, pricing, transportation, quarantine, water and soil conservation policies—are made at the highest levels of government, frequently with inadequate factual information, those directing agricultural research programs should give high priority to securing the data needed to enable the establishment of sound policies."

Can it be demonstrated that the availability of needed information will improve the chances of securing the adoption of sound policies?

HYPOTHESIS XIII: "Many aspects of agricultural education, agricultural research and agricultural extension can be most efficiently and effectively managed at the Federal level and many others at the State level; and agricultural development will be best served by the development of integrated Federal-State programs." Can each of the clauses be validated? Are there differences in the degree of validity for agricultural education, research and extension? In each service, what type of activities can best be managed at the Federal and at the State levels? How can integrated Federal-State systems of agricultural education, research and extension be developed?

HYPOTHESIS XIV: "The absence of adequate linkages among related but separate services often renders ineffective the independent services of each; and coordinated integrated programs are necessary to support rapid agricultural development."

Are both clauses valid? What are the pitfalls of attempting to develop integrated programs? Are linkages between certain agricultural institutions more important than others?

HYPOTHESIS XV: "Strong viable linkages between associated agricultural services must be based on mutual respect for the assigned tasks of the services and on the development of programs which bring significant benefits to each party."

Are both clauses valid? What examples can you cite of strong viable linkages which are bringing significant benefits to each party? How can such linkages be developed? What is required to make permanent linkages which initially are based on personalities, on law, or on regulation?

VII. *PANEL DISCUSSION*

The task is urgent. Agricultural development must move rapidly in the next few decades, if food production is to keep pace with population growth. Perhaps the younger people feel the need for haste more deeply than do some of us who are older, because it is their lives which are at stake. It is my belief that one of the prime reasons for the unrest and the unease which we find among all the peoples of the world and particularly the younger generation lies in the fact that human organizations have not changed as rapidly as technology has changed. This is just as true with respect to the institutional changes necessary to meet the challenges of modern agriculture as it is in any other field.

Neither this afternoon nor during the remainder of the seminar will we find the answers to all the questions which I have raised nor will we establish the validity of nor discard, all of the hypotheses. But I am confident that our observations and our discussions will give us new perspectives and improved ability to assist in the development of "a system of services to support agricultural development" suited to the conditions prevailing in our own countries. This traveling seminar and the panel discussion this afternoon are not designed to find the "best" way of organizing services which support agricultural development. Rather, our seminar and the panel and discussion this afternoon are designed to observe and discuss the different ways in which different countries are attempting to meet their problems. From this, each of us will learn and each of us will find something useful. What we learn from others can be of great help in guiding the direction of changes which are made in our institutions. Modification of our practices and our institutions to incorporate principles found useful elsewhere can often assist in securing better performance in our countries. However, great care must be exercised to insure that the gains are not overbalanced by losses and dislocations in other parts of our existing system.

I have given an abbreviated discussion of some of the problems facing us as we attempt to hasten agricultural development and of some of the factors involved in the building of an effective system of services to support agricultural development. As an aid to our observations and discussions, I have presented a series of "hypotheses" or "proposi-

tions" and have posed a series of questions under each.

For the remainder of the afternoon we will have an open discussion. May I suggest that it follow two general lines. First, select any of the hypotheses and give us evidence from your country which supports or refutes the hypothesis. Second, propose additional hypotheses which you believe will contribute to our observations and discussions.

APPENDIX D—Committee Reports

1. *Committee on Systems of Services to Support Agricultural Development*

The committee discussed Dr. I. L. Baldwin's paper, "Systems of Services to Support Agricultural Development," and agreed that he had effectively presented the need for a *system of services* as contrasted to emphasis on specific services. A questionnaire was prepared as a means to survey opinion on the different hypotheses. Twenty of the twenty-three participants from ten countries responded to the survey. In addition, three of the ten Seminar staff and observers completed the questionnaire.

The results of the opinion survey indicate that 80 percent or more of the respondents believed that 13 of Dr. Baldwin's hypotheses are valid.

In presenting the results, the committee wishes to emphasize that the opinions expressed herewith are no more than reflections of a few individuals. Their collective opinions do not render Dr. Baldwin's hypothesis more valid or less valid. Obviously, only time and experiences in each developing country will tell.

The committee feels that there is a need for research on systems of services to support agricultural development in the 1970's. Research efforts on this should pay dividends in the same way as the research on institution building is paying dividends.

The committee therefore recommends:

- A. That governments, universities and technical assistance agencies initiate research on systems of services to serve agricultural development and operation of such systems in institution building.
- B. That appropriate steps be taken to coordinate such research, and
- C. That the research results be made available to governments, universities and technical assistance agencies as soon as possible.
- D. That three of the institutions visited—Kasetsart University, Uttar Pradesh Agricultural University, and Punjab Agricultural University—be invited to make an assessment of the system of services supporting agricultural development in their respective areas. It is hoped that their rich experiences will serve a useful purpose for the other participating countries.

Committee Members:

Harjono Samangoen, Chairman	Fernando Bernardo
Sukhdev Singh	Netra Bahadura Bahnyat
K.A.P. Stevenson	F. W. Parker

2. *Committee on Linkages Among Agricultural Institutions*

Introduction:

In a developing country, all of the agricultural services must function together as a unified whole if agricultural development is to proceed smoothly. Development is dynamic, innovative and induces change. Due to the differences in stages of development of Asian countries, both in political organizations, economic systems, customs and traditions, no single strategy or plan for development fits all situations at a given time. It requires organizations to execute or direct required functions. This will also require effective linkages within the system.

The Agricultural College or University should become an integral part of the "system" for agricultural development. Experience has shown that rational grouping of functions places education, research and extension education at the University or College and regulatory and service functions with the Ministry of Agriculture.

Agricultural development requires the existence of a strong and excellent Agricultural University and an equally strong Ministry of Agriculture. Their enabling linkage should be continuous and permanent; it provides funding support and is the channel for modifications of authority to perform functions necessary to agricultural development.

Development is achieved by people. Excellence of leadership and staff with a philosophy of public service, of problem identification and problem solving are priority factors for a higher rate of development.

In view of these relationships, the committee suggests the following basic guiding principles and primary considerations for efficient and effective linkages among various organizations serving agriculture:

A. Grouping of functions to serve agricultural development. Although strong and effective linkage can and often must be developed across administrative lines it is difficult. It is usually desirable to develop administrative organizations conforming to the groupings suggested below. Strong linkages must be based on mutual respect for the significance of the different functions and they must be designed to be mutually beneficial.

1) General Agricultural Services

This includes national policies on political, social, economic and fiscal affairs.

2) Specific Agricultural Services

a. Structure of research, education and extension education

The structure of the university or college should translate into actions the basic philosophy of serving agriculture through the integration of these activities. Research and extension are universally regarded as state responsibilities dependent on public support, but private industry should assume more responsibilities for them as agricultural development proceeds. Public institutions, however, must retain the responsibility and strength to establish standards.

b. Regulatory and service function

This includes agricultural statistics and market information services; quality control of farm inputs and agricultural products; and quarantine and protective services. These functions provide an opportunity for advantageous use of staff and require considerable joint planning. Statistics, inspections, laboratory and legal services often are engaged in a variety of different activities. Services of this type are almost entirely the responsibility of the government including land reform, cooperatives and agricultural corporations.

c. Infrastructure service

This includes agricultural credit, supply of farm inputs and distribution of agricultural products. In practically all countries, these functions are performed partly by the government and partly by cooperatives and partly by the private sector.

B. Vertical integration

The national government and the university play important roles in each agricultural service. Linkages within any function of research, education and extension should be developed and maintained between the government and the private sector.

In the Asian region, there is a great need to develop linkages in some of the agricultural services. Some good examples were found in agricultural education and research.

C. International linkages

This covers cooperation between the institutions and countries represented and future extension of this cooperation to institutions and countries in Asia not represented on this occasion. It also covers developing and strengthening links with countries outside Asia on a bilateral basis, with regional and international organizations (governments) and with non-governmental technical/scientific organizations. Given the above groupings for effective linkages among institutions and countries, this committee suggests that each university establishes as appropriate (1) an Office of International Cooperation to carry out and coordinate international functions concerning financial and technical cooperation to and from other countries, regional and international organizations.

It is further suggested (2) that an Asian Association of Agricultural Universities and Colleges be established as a permanent institution by this august body in session to coordinate inter-Asian activities on research, extension, and education.

Committee Members:

Domingo Panganiban, Chairman	N. K. Anant Rao
S. Vodjdani	Rashdan bin Haji Baba
Edward Nicholson	Ervin Peterson
I. L. Baldwin	

3. *Committee on Technical Assistance in Institutional Development*

Technical assistance in institutional development must be considered from the following standpoints:

- A. Funding agency
- B. Donor's operating agency
- C. Recipient institution
- D. Coordinating or administrative agency of the recipient country

Unless a mechanism could be devised to harmonize these diverse standpoints, technical assistance programs cannot possibly be effective or productive.

Prior to the development of any technical assistance program, major consideration should be given to the following points:

- A. Evaluation of the needs and problems of the recipient institution which can best be done through dialogues between the donor agency and recipient institution.
- B. Presentation of the agreed findings of the evaluation mentioned above to the donor agency and the coordinating agency.

Unless the recipient institution, which is the one most directly concerned, is consulted no technical assistance program can be effective or productive. No two institutions are alike and no standardized formula for technical assistance can yield results expected of it.

General:

The committee was unanimous that before any technical assistance is considered in future, an evaluation of the institution's problems, needs and capabilities should be done preferably by a team in which the donor agency, the recipient institution and at least one representative of an Asian country, other than the country where the recipient institution is located, are represented.

A proper evaluation of every institution's problems, needs and capabilities are as important as an understanding of the principles and philosophy of institution building. Towards the latter end, each institution in the Asian countries should take follow-up action by organizing seminars in order to carry to all concerned the message of institution building as discussed and developed in this first Seminar.

Committee Members:

K. C. Naik, Chairman	K.A.P. Stevenson
Jannes Hutasoit	Ervin Peterson
Pavin Punsri	Don Kimmel
J. A. Rigney	

4. *Committee on Goals, Responsibilities, Functions, and Organization for Agricultural Education—University and Schools*

Philosophy, Goals and Functions:

Agricultural universities and colleges should be service oriented institutions primarily committed to the development and teaching of a wide range of applied sciences and technologies needed to build

up the rural economy. The primary emphasis should be on teaching and research directly and immediately related to the solution of the social and economic problems of the rural society they seek to serve. They should not only teach undergraduate and post-graduate courses for degrees but also give specialized technical training to young and adult farmers and homemakers who are not candidates for degrees; and this will require vocational, adult and continuing education programs. They should be concerned with all aspects of increasing, disseminating and applying knowledge related to agriculture including basic and applied research and training of agricultural teachers for colleges and schools.

Agricultural universities and colleges should have the three functions of teaching, research and extension education. They should practice the philosophy of service and dedication through effective integration of these functions at all levels. Practical utility, rather than intellectual aristocracy, must be the test of institutional integrity. These institutions should justify their existence on the basis of scientific knowledge they can gain, the services they render to the people and the social welfare they promote by bringing the force of science and technology to bear on the problems of rural areas.

Essential features:

In order to successfully carry out the functions of good teaching, research and service, agricultural universities/colleges should have the following essential features:

- A. A legal base in the form of an Act conferring adequate powers to the university with particular reference to the jurisdiction of the university for teaching, research and extension education functions.
- B. Adequate and liberal financial support from the Government.
- C. Organizational and operational autonomy.
- D. *Unified* administration, *complementarity* of colleges and departments and *integration* of programs of education, research and extension at all levels.
- E. Flexibility of educational system coupled with continuous internal evaluation.
- F. Responsiveness to the needs of the society in general and agricultural production in particular as evidenced by problem oriented research programs and quick communication of new knowledge and techniques to students in the classrooms, extension workers, the primary producers and processors, etc.
- G. Promotion of vocational, young and adult farmers' education and training as well as improvement of school education through teacher training programs.

Organization:

To accomplish the broad mission outlined above, the organization of a university complex should consist of such constituent colleges as Agriculture, Veterinary Medicine and Animal Sciences, Home Science, Agricultural Engineering and Technology, and Basic Sciences, and Humanities. Ideally most of these colleges should be located at the

main campus of the university. As far as possible the postgraduate departments of the university should be developed in a consolidated manner on the main campus of the university in the interests of maintaining high standards of education and research through interdepartmental complementarity. All colleges and the research stations falling within the jurisdiction of the university should be constituent units responsible to only one single administration.

In addition to the Board of Management, the university should have other university authorities set up, such as Academic Council, Board of Studies or Faculties including postgraduate studies. To assist in framing policies and arriving at decisions, there should be councils or committees dealing with administration, finance, appointments, research, extension, student and staff welfare, library, sports, student counseling, campus planning, staff housing, etc.

The top administration and key officers of the university, such as Vice-Chancellor, Deans, Directors, Registrar, etc., should initiate and promote democratic and progressive measures leading to decentralization of authority, promotion of mutual respect, integrity and trust and confidence. Liberal delegation of powers and authority accompanied by periodic assessment of achievements and performance are characteristics of a good organization. It should also ensure as wide a participation of the faculty in policy-making of the university as possible.

In the interest of efficient functioning the lines of communication should be clear-cut. The organizational set up should be such that there is no misunderstanding regarding the authority of the officer to whom an inquiry, request, or grievance is to be addressed.

The colleges are academic units which constitute the university. The departments are the basic units of the colleges and in turn of the university organization. Related departments are accommodated in a college so that interaction among them is facilitated. The main elements of resident instruction, such as admission requirements, quality of courses of study offered, total course load prescribed for degree programs, standards of teaching, evaluation methods, practical training and supplementary reading requirements, in addition to classroom teaching are also best tackled at the college level.

In the development and organization of postgraduate education, emphasis should be given not on expansion but on the improvement of quality of education in most cases.

Postgraduate education is not a mere extension of undergraduate education. Inter-disciplinary approach, inculcation of the value of purposeful research, training in modern research methodology, independence in thinking and approach and development of analytical outlook and capacity to draw logical inferences are some of the specific features of postgraduate education. In order to meet these objectives, certain pre-requisites have to be provided such as a competent faculty, adequate research equipment and special library facilities. It is advisable to concentrate postgraduate programs on the main campus of a university, inasmuch as a number of supporting disciplines are necessary to develop a strong postgraduate program. There is also need to

develop only such of the postgraduate programs as are warranted by the actual needs of a region and which are complementary to the postgraduate facilities already available at other sister institutions.

There should be a well-developed experiment station of sufficient size to permit high quality field research in support of postgraduate programs for both student and faculty research. In addition to the main research station, there should be manageable number of substations strategically located to cover the major agro-climatic regions within the area of jurisdiction of a university.

Vocational Education:

Inasmuch as worthwhile programs of vocational education need strong backstopping by a competent and dynamic faculty of the kind available at the agricultural universities/colleges, there could be no better agency than the agricultural university to guide the development and execution of these programs in a meaningful manner. Vocational education programs should be considered complementary to programs of higher agricultural education and as far as possible, should be the concern of institutions responsible for higher education.

Agricultural Education at School Stage:

The group was of the view that introduction of agricultural education at school stage would mean (a) introduction of *work experience* with strong scientific and technological bias in general primary and secondary schools and (b) provision of vocational agricultural courses of varying duration for those who wish to pursue vocational education. While the problem of out-of-school youth could largely be tackled through programs such as 4-H clubs, youth clubs, supervised home farms, etc. organization of Agricultural Polytechnics after Higher Secondary stage would appear very necessary in most developing countries. In the opinion of the group, programs of vocational education in agriculture can best be developed by agricultural university/colleges on a continuing basis. Universities can also help materially by preparing suitable books and teaching materials for schools in subjects related to agriculture.

Training of school teachers in agriculture should also be the responsibility of agricultural university/college in the region. In addition these institutions should also provide technical assistance in the organization and execution of school agriculture programs including in-service training and summer institutes for upgrading and updating the school faculties.

Committee Members:

O. P. Gautam, Chairman	Yuen-liang Ku
Suraphol Sanguansri	Harjono Samangoen
Netra Bahadura Bahnyat	Ephraim Hixson

5. *Committee on Agricultural Extension and Public Service*

Introduction:

This committee supports the doctrine of extension in broad service

to rural life. Modern agriculture is not just concerned with increasing production, but with marketing, transportation, and processing, as well as learning to live in a better socio-economic and political world. Therefore, the goals stated below are designed to support the doctrine of a standard of living, status, and prestige of rural people which is at least as high as that of others, and national self-sufficiency in food production.

Goals:

- To increase efficiency of farmers in our several countries so that they produce higher yields with greater profits, and at the same time reduce the costs of high quality nutritious food to consumers.
- To organize farmers into groups or associations in order to strengthen the power which they can exercise in competitive societies.
- To encourage government agricultural price policy which will support continued use of technological innovations by rural people.
- To keep in touch with the practical problems of agriculture, and to see that these are made known to those responsible for agricultural research and agricultural education at all levels.

Responsibilities:

- To communicate new knowledge of various sorts to those who till the soil, those who supply their inputs, and those through whom they market their outputs, and to see to it that the response of these groups to the new knowledge is fed back to those who conduct agricultural research and agricultural education.
- To assist rural people in their management, problem solving, and decision making.
- To encourage a spirit of self-help and modernization among rural people.
- To influence agricultural policy makers and the public and private enterprises to provide farm supplies of a better quality and lower price; including equipment, feed, seed, fertilizer, pesticides, credit, etc.
- To coordinate the different levels of rural extension activities in order to increase total efficiency and effectiveness.
- Where necessary and appropriate, to stimulate seed centers, distribute standard seeds, standard breeds, standard feed, and in other ways participate in the efficient supply of quality inputs to agricultural production.
- To demonstrate modern farm management.

Functions:

- To keep in touch with research workers and communicate research results quickly, utilizing such help as school teachers or others may provide.
- To mobilize knowledge and other resources from both government and private sources and make them available to rural people.
- To maintain a staff of subject matter specialists and other extension workers which is continually retrained and brought up-to-date in both agricultural technology and the methods and techniques of extension education.

-To help extension field staff to develop programs which will help solve the problems of rural life.

-To inform the agricultural university of the needs in pre-service training programs and curricula in extension.

-To provide for frequent and effective communication with research personnel.

-To cooperate and collaborate wherever possible with programs of community development.

-To effectively utilize all communication methods at their disposal, ranging from demonstrations and field days to printed materials, and broadcasting.

-To develop strong and effective linkages with other government bodies at various levels who are working with rural people.

-To collaborate where appropriate with agencies carrying out pest control programs, and where necessary, to carry out such programs.

Organization:

-To support the development of effective linkages between units responsible for education, research and extension, so that the entire agricultural system may function with maximum efficiency.

-Agricultural extension and public service should be organized under the same administration with agricultural research, or other provision should be made for maximum closeness of relationship. At the ministerial level there should be a permanent coordinating body to build up linkages with other organizations as may be appropriate, both governmental and non-governmental.

Committee Members:

In Hwan Kim, Chairman
Hyun Koo Pyo, Vice Chairman
R. P. Utojo
George Axinn

Thumnong Singalavanich
K.P.A. Menon
Mien Nan Sung

6. *Committee on Agricultural Research*

Philosophy:

It is strongly recommended that the rationale behind the development of an agricultural research system, both on a national and regional basis, be anchored in the concepts of *relevance, excellence, and cooperation.*

Goals:

Consequently, it is suggested that emphasis be placed in the attainment of the following goals:

-To provide the dynamic pool of technical information needed to backstop agricultural education and extension.

-To identify country research priorities which should be integrated with national agricultural programs.

-To relate research activities to the solution of the problems that impede agricultural progress.

-To determine agricultural problems which should be given priority attention on a regional basis.

-To foster the 'Team and multi-disciplinary approach' to agricultural research, thus insuring that all relevant technological, economic, and social aspects are dealt with.

-To stress quality and efficiency in the conduct of agricultural research in order to maximize the benefits from and stretch the use of the research investment.

-To develop a 'feedback mechanism' of bringing field problems to the attention of agricultural researchers.

-To establish and maintain intimate linkages in agricultural research activities in the region.

-To develop regional centers of excellence in various production fields in appropriate colleges/universities.

Strategy:

It is strongly recommended that major consideration be given to the following points:

-Establish within each country, a national coordinating body for agricultural research and education (to include representation from education, extension and private sectors).

-Make an inventory of existing agricultural research manpower in terms of (a) number of personnel and man-years devoted to research; (b) breakdown according to disciplines; (c) academic preparation; and (d) research performance.

-Determine agricultural research manpower gaps existing in the region and develop a systematic plan for closing these gaps within the next decade.

-Develop a mechanism for continuing professional growth and exchange of research personnel (i.e. through postdoctoral programs, research fellowships, and sabbatical leave arrangements). Consideration should be given for establishing an international funding scheme for this purpose.

-Make an inventory of existing research facilities in the region to determine gaps in major subject matter areas needed for agricultural development.

-Develop to optimum capacity some regional centers of excellence in a given production field in appropriate colleges/universities in the region (i.e. centers of excellence on corn and sorghum, mangoes, cattle and carabos, root crops, etc.)

-Conduct continuing studies on methods of improving research planning and administration (in terms of priority development, screening of proposals, evaluation, and personnel recruitment and development).

-Develop the means for the generation of additional research funds from government agencies, the private sector, and foundations (on both a national and regional basis).

-Initiate a system of documentation of research activities and published results and provide for an exchange of this information among countries within the region. Where the research publications are in the national language, it would be advisable to prepare English summaries in a standard format. This could lead to the establishment, in the near future, of a regional clearing house and documentation center for agricultural research.

-Hold an Asian Agricultural Research Conference regularly every two years for research and extension administrators and invited speakers to exchange information on current research activities and evaluate and up-date research priorities. The regional secretariat would organize this conference drawing logistical and financial support from individual countries and international agencies.

-Provide for regular linkage conferences (once a year on national level) among research and extension workers to serve as a 'feedback mechanism' for research problems.

-Hold periodic regional linkage conferences among administrators of agricultural institutions and invited source persons for the purpose of relating research programs with programs for agricultural education and extension.

Committee Members:

Joseph Madamba, Chairman
Sukhdev Singh
K. Kanungo
Yuen-liang Ku

Pavin Punsri
Sjahrial Wahab
Edward Nicholson

7. Committee on Follow-up to the Asian Agricultural College and University Seminar

Participants in the Asian Agricultural College and University Seminar are unanimous in the view that some mechanism should be created to provide, on a continuing basis, for the valuable exchange of experience initiated with the Seminar. It was suggested that this mechanism might possibly take the form of an Association of Asian Agricultural Colleges and Universities which could have as its purposes:

-To promote the development of the member institutions as a contribution to agricultural and rural development and, the enhanced welfare of rural people.

-To promote the interchange of information between members.

-To foster cooperation in research, resident instruction and public service activities.

-To promote linkages and cooperation with regional and world wide agencies engaged in related and supporting activities.

Activities which might be undertaken in working toward achievement of objectives could include:

-Publication of a newsletter.

-Organization of meetings of general or specialized subject matter character.

-Development of a regional center for exchange of documents like those relating to curricular research and similar activities, and translation service.

-Preparation of projects of regional interest or value.

-Assessment of progress of member institutions.

-Exchange of senior faculty members.

-Exchange of postgraduate students.

To ensure that the momentum generated by the Seminar was not lost, it was decided that further activities should be initiated immediately on informal basis. One possibility that was discussed was the formation of an informal interim Secretariat for the Association of Asian Agricultural Colleges and Universities at Kasetsart University, Bangkok, Thailand with Dr. M. C. Chakrabandhu serving as Chairman, Dr. K. C. Naik as Vice-Chairman, and Dr. Fernando Bernardo as Secretary. Each institution participating in the Seminar was requested to designate a liaison officer with whom the Secretary could maintain contact.

A committee was established to work out details of a proposal for a permanent association. M. C. Chakrabandhu, Rector, Kasetsart University, Thailand was selected as Chairman, Dr. K. C. Naik, Vice-Chancellor, Mysore University of Agricultural Sciences, Bangalore, India, as Vice-Chairman and designated the following as members of the Committee:

Dr. Jannes H. Hutasoit, Acting Rector, Institute Pertanian Bogor, Indonesia.

Dr. Hyun Koo, Pyo, Dean, College of Agriculture, Seoul National University, Suwan.

Dr. Fernando Bernardo, Director of Graduate School and Professor of Agronomy, University of The Philippines, Los Banos.

The Committee has as consultants:

Dr. Frank W. Parker, AID/Washington/USA

Dr. Ralph W. Cummings, North Carolina State University/U.S.A.

Dr. D. C. Kimmel, Food and Agriculture Organization of U.N./Rome

The Committee was charged with preparing a detailed plan for the proposed association covering such matters as: name of the Association; qualifications for membership (full and associate); financing; objectives; working methods; officers; site; frequency of meetings and draft statutes. In carrying out its work, the Committee was requested to consider the role FAO might play, particularly in the light of the recommendation of the most recent FAO Regional Conference for Asia and the Far East to the effect that FAO should take the initiative in

establishing a regional organization of agricultural colleges, universities and research institutions. Work of the Committee would be carried out through exchange of correspondence and the detailed plan for the association would be submitted by April 1, 1971 to founding member institutions through their liaison officers who would in turn inform their governments.

It is recommended that the first meeting of the Interim Association of Asian Agricultural Colleges and Universities be held in The Philippines in April, 1972.

Committee Members:

M. C. Chakrabandhu, Chairman	Janes Hutasoit
K. C. Naik	Hyun Koo, Pyo
Don Kimmel	K.A.P. Stevenson
Fernando Bernardo	F. W. Parker

8. Resolutions Committee

The participants wish to offer the following comments and observations regarding the Seminar:

The Seminar has been one of the most successful ones with a well organized staff and program, thereby accomplishing in full the objectives for which the Seminar was conceived.

We all share the view that as we disperse to our respective countries we are richly endowed with novel ideas, priceless experiences, new found friends and associates.

We are all agreed that during our visits to various university campuses, research stations, demonstration farms, and in the several discussion sessions we were strongly convinced of the importance of closer integration of the functions of research, education and extension as propounded by distinguished panel speakers.

The participants also appreciate the topics which were assigned to the different committees for discussion and recommendations, which have been thoroughly reviewed in this plenary session.

It is for these reasons that our final resolutions are as follows:

A. We, the delegates to the Asian Seminar of Agricultural Colleges/Universities, resolve to extend our deepest recognition to the dedicated and sincere efforts by the Seminar staff—particularly Dr. R. W. Cummings of North Carolina State University and Prince Chakrabandhu of Kasetsart University, Thailand for their genial initiative in organizing such a fruitful Seminar.

To Mr. J. A. Rigney of North Carolina State University for his splendid presentation on technical assistance in institutional development and fostering strong ties among the participants.

To Dr. Ira L. Baldwin of the University of Wisconsin, Dr. George Axinn of Michigan State University and Mr. K.A.P. Stevenson of UNDP/Malaysia for their fine presentations and their sound guidance to the participants for better understanding of their respective subject matters and the keynote address.

B. We wish to express our utmost gratitude to the international organizations represented by Dr. Frank W. Parker of US/AID Washington for his gigantic contribution to Asian Agricultural Universities in making the Seminar possible.

To Dr. Ervin Peterson of the same organization for his brilliant ideas and outstanding remarks during the Seminar.

To Dr. Pollock of US/AID India and Dr. Robert Fowler of US/AID Thailand for generous assistance and accommodations, and:

To Dr. Don Kimmel, FAO/Rome and Dr. Edward Nicholson, UNDP-UNESCO/India for their untiring interests in the Seminar.

C. We are greatly thankful to the Royal Government of Thailand for its hospitality and fine accommodation which has been generously provided by Kasetsart University and to countless others, whose names and offices may not appear or be mentioned here, we extend our gratitude.

D. We are deeply grateful to the Federal Government of India for its hospitality and its demonstrative capabilities in agricultural development as exemplified by India Agricultural Research Institute (IARI), U.P. Agricultural University at Pantnagar and Punjab Agricultural University, at Ludhiana.

We extend particularly our appreciation to Prince M. C. Chakrabandhu, Rector of Kasetsart University; Dr. B. P. Pal, Director General, Indian Council of Agricultural Research; Dr. M. S. Swaninathan, Director, IARI; Mr. D. P. Singh, Vice-Chancellor, U. P. Agricultural University at Pantnagar and Dr. M. S. Randhawa, Vice-Chancellor of Punjab Agricultural University at Ludhiana for their pioneering spirit in institution building for agricultural development in the area.

E. Finally, we extend our sincere gratitude to our respective governments for giving us this opportunity to participate in this Seminar of Asian Agricultural Universities and Colleges.

And to all officials, administrative personnel and farmers as well as many others whose names and activities it is not possible to mention here individually we extend our sincerest thanks and deepest gratitude.

Committee Members:

S. Vodjdani, Chairman
Mien-Nan Sung

K.P.A. Menon
Rashdan bin Haji Baba