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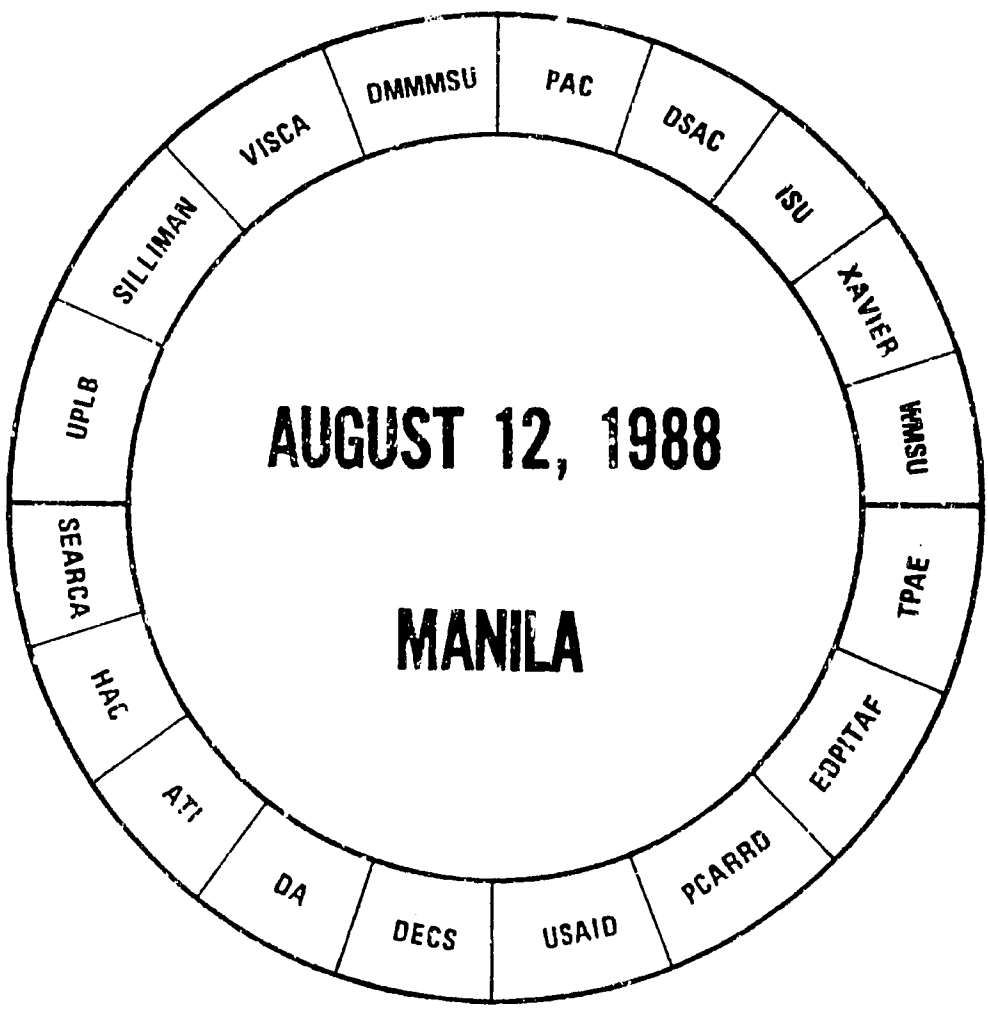
Seminar on Strategic Planning for Tertiary Agricultural Education in the Philippines



SEMINAR ON

STRATEGIC PLANNING FOR

TERTIARY AGRICULTURAL EDUCATION

12, August 1988
Manila

The views and interpretations expressed in this report are those of the seminar participants and should not be attributed to the U.S. Agency fo International Development

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FORWARD

In countries experiencing all stages of development agricultural colleges and universities are recognizing or becoming forced to respond to the various forces of circumstances in which they exist. Types of graduates, sources of funding, political forces, and interest groups are challenging them. Simultaneously, educational theories are changing. However, most notable is that universities and colleges generally have little experience in strategic management, nor do they often have the innate capacity to think in ways appropriate to dynamic and complex change.

Scientific reductionist theory and use of empirical analyses have been helping institutions of higher learning be successful at research and education. Yet the problems of adaptation to rapidly changing circumstances are proving to be ill-suited to the reductionist and empirical analyses of conventional scientific methodology.

Organization development is really an experiential process - experience and imagination are transformed into knowledge which is in turn converted into action plans and operationalized activities. Because of the inherent complexity involved, systemic methodologies are usually advocated.

In this seminar, the connections between experiential learning, systemic methodologies and organizational development were illustrated. Participants were exposed to such notions by presentation and also used them in small groups to explore issues pertinent to their own experiences. Results were gained through combining presentations with participation and reflection with action.

MAJOR RESULTS

* An introduction to, or increased awareness of experiential approach as a basis for change;
* An introduction to, or increased awareness of systemic methodologies for strategic planning;
* An opportunity to participate in a process which itself reveals the charateristics of systemic experiential learning.

PREFACE

Starting with an exploration of learning theories and systems theories, ten years back at Hawkesbury Agricultural College we began to examine curricula for a changing agriculture.

Learning theories helped us reconcile the age old debate between theory and practice by providing a third perspective. Thus, where theory-based education could be placed into a tradition of "learning for knowing" and practiced-based education, into "learning for doing", a third tradition, "learning for being" presented itself as a vehicle for the synthesis of all the traditions. Learning to know (scientia) is based on propositional knowledge. Learning to do (techne) is based on practical knowledge. Learning to be (prascis) is based on experiential knowledge. In this latter case, learning is conceived as the transformation of experience into knowledge as a basis for action.

The model of experiential learning envisages it as a constantly receiving cycle of two activities: finding out (about new situations and issues in the environment). "Finding out" is qualified for each individual by the values and beliefs he or she holds as well as the creativity brought to hear on the process of thinking. "Taking action" is qualified by both of these plus the individual's innovativeness in designing and implementing action plans. The values, knowledge and actions are systemic in that they all inter-relate with each other. The relationship between the learned and his or her environment is also systemic for the same reason.

As individuals "learn about" their environment as the basis for their adaptations so, too, it can be argued, do organizations. Organizations indeed can be conceptualized as systems comprising inter-relating individuals to achieve designated purposes. Faculties, colleges and universities can be envisioned as "learning systems" if (a) they exist in some form which enables them to be coherent and (b) they have mechanisms which allow them to monitor their environments, set purposes and "do things" which make them capable of adaptation as whole systems.

Strategic planning in this context, is that process or those processes, which enable and encourage learning systems to be adaptable: to co-evolve with their environments by both responding to change through innovations in their practices and structures, and by creating change. Thus, that lead as well as being led!

The process is systemic because it occurs not through individual acts on people (components) but through inter-actions between such components.

Strategic planning is oriented towrds desirable and feasible futures. It conceives dreams and visions, with concepts and action plans. It is a participative process of experiential learning where the organization "learns" through the sharing of the collective learning of the individuals who comprise it.

And the only way to become familiar with the process (a prascis) is to practice it: To dream and envision, and transform these into knowledge (plans) as a basis for actions (achieved through decisions).

Dr. Richard Bawden
Dean of Agriculture
Hawkesbury Agricultural College
Richmond, Australia

SEMINAR SUMMARY

Background

The concept of the seminar grew from two different but related initiatives. First, for the past three years the Agency for International Development (AID), Policy and Program Bureau/Center for Development Information and Education (PPC/CDIE), has been conducting a worldwide state-of-the-art study on agricultural higher education which:

- draws upon internationally renowned agricultural education experts;
- assesses the role of agricultural universities in relation to rapid change in the global economy and the world scientific community; and
- reflects a growing concern among leaders worldwide that universities need to make a more self-conscious effort in assuring that their mission and programs are adapting to the changing environment.

AID is sponsoring an international conference in Washington in October 1988 to address the conclusions of this worldwide study which three Filipino agricultural educators will attend.

The second initiative centers around the Government of the Philippines' proposed legislation, now under debate, to rationalize tertiary higher agricultural education. This rationalization is a fundemental step to meet the future role of contemporary agriculture in the Philippines.

Introduction

To capture the challenges and developments in agricultural education underway in the Philippines and as part of a global debate on the subject, USAID/Manila sponsored the one-day "Seminar on Strategic Planning for Tertiary Agricultural Education". The seminar included leaders at the level of Dean or President of agricultural colleges and universities in the Philippines, representing nine colleges in eight geographic regions. In addition, key central government officials in agriculture participated. There were three keynote speakers:

- Dr. Richard Bawden, Dean of Agriculture at Hawkesbury Agricultural College in Richmond, Australia;
- Dr. Ruperto Sangalang, President of Don Severino Agricultural College in Cavite; and
- Mr. Cesar Umali, Jr., Associate Director of the USAID-funded Accelerated Agricultural Production Project at the Department of Agriculture.

The seminar benefitted from PPC/CDIE's financial support of Dr. Bawden's travel to the Philippines. Dr. Bawden is internationally recognized for his leadership role at Hawkesbury Agricultural College which has developed agricultural curricula for a complex world. Dr. Bawden has had a key role in the worldwide AID study and is one of the principle designers of the Washington conference. At the same time, we were very fortunate to secure the eminent participation of Dr. Sangalang and Mr. Umali who are creative leaders in agricultural education and strategic planning in the Philippine context.

Even though this was a one-day seminar, participants benefitted from three strategic planning position papers that provided them an orientation to the methodologies and techniques that formed the basis of the seminar.

Context and Format

- The seminar was also conceived around some healthy skepticism: while we agreed that strategic planning is a critical need in university development, we recognized that strategy implementation in the Philippines is dictated by severe resource constraints.
- The aim of the seminar was to foster an appreciation of strategic planning as a tool, integrating the role of an agricultural college with its external environment.
- The morning session was devoted to the three keynote addresses. In the afternoon, the participants broke into three small groups to discuss the value of strategic planning as it pertained to their own colleges or experience. The day concluded with an informal presentation by group rapporteurs on what strategic planning had meant to them. Dr. Bawden provided the closing remarks.

Key Seminar Concepts

In the morning session, the three keynote speakers stressed a distinction between strategic thinking as a process and strategic planning as the outcome of that process. Before effective planning can occur, the speakers agreed that agricultural educators need to think more expansively about the challenges a rapidly changing environment present. Examples of such challenges included a world of increasing population, increasing inequality within such a population, and inexorable depletion of finite resources.

The speakers challenged the participants to think how they, as agricultural educators, could learn to strategically manage such change. Dr. Bawden underscored that farming is the art of managing change. The farmer is interested in the dynamic interaction between many systems: soil and water, credit, weather, the comparative costs of planting different crops and so on. Agricultural research, on the other hand, has tended to focus on a single commodity or component (as part of a "reductionist" approach to agriculture) and has not looked at agriculture systemically. In concluding the morning session, Dr. Bawden noted that "tertiary agricultural education needs to change to be able to address change."

Small Group Sessions

It was clear that the participants felt uncomfortable when the seminar turned to small group sessions in the afternoon. Since the morning had been devoted to more formal presentations on strategic planning, we had hoped that a small group format would present a more informal opportunity to discuss not only the abstract theory but what the real life practice of stategic planning meant for individual participants.

While it was meant as a time of shared exploration, there could be several reasons for the discomfiture of participants:

- There may have been insufficient time to both internalize and then discuss somewhat abstract strategic concepts.
- The process of how agricultural colleges should learn to manage change is not easy to discuss.
- It may well have represented a microcosm of the ongoing global debate on the role of agricultural education.

Since time was limited for small group discussions, we neither expected nor wanted formal small group outputs. In fact, a considerable amount of time was spent with the full group clarifying thoughts, questions and doubts about the role of the small groups. Participant interaction at that time was very valuable. We requested that each group designate a rapporteur to informally present later to the full group whatever the morning's presentation had meant to them. We encouraged the groups to reflect on whatever was of particular interest or concern to them. The keynote speakers acted as group facilitators.

Each group approached their task very differently. One prepared and presented a formal paradigm for stategic planning in the Philippine context. Another group shared the individual visions group participants had for strategic planning at their respective colleges. The final group presented a group consensus on what the notion of strategic planning had meant for them. Indeed, shared exploration took place. The informal presentations also triggered further questioning and open, valuable debate. All participants seemed to share a keen interest in learning more about strategic planning and regreted the short exposure the one-day seminar had given them.

Seminar Conclusions

The one-day seminar presented a rich (albeit brief) mosaic of ideas and discussion. No strategy or definitive conclusions emerged as a response to the challenge of strategic planning nor was one wanted. The seminar achieved the aims of exposure and exploration.

In concluding the seminar, Dr. Bawden noted that these are times of immense change in the Philippines. He was encouraged by the resolve of the participants for change, particularly as evidenced by congressional debate and action to rationalize agricultural education. In closing, Dr. Bawden quoted George Keller's reminder that organizations (in this context, agricultural colleges) "must live for the familiar today, yet also must be forever looking out for how to live in a very different tomorrow".

OPENING REMARKS

by
Kenneth A. Prussner[1]

Distinguished participants, it is my honor to welcome you today as recognized leaders and innovators in shaping the changing role of agricultural education in the Philippines. I would also like to take this opportunity to thank the Department of Education, Culture and Sports for coordinating and hosting this seminar. With your distinguished participation and that of our keynote speakers, we are here today to bring to bear the most advanced thinking about the role of agricultural universities in the current and future context of rapid change in the Philippines.

Together, we will explore the experiential process of strategic planning for agricultural education. Strategic planning relates agricultural colleges to their external environment. It presumes a key to success of Philippine agricultural colleges will be to develop a firm base in their respective regions, addressing the unique agricultural needs of those regions. It is my hope that we will have an opportunity today to learn more about and debate the appropriateness of strategic planning approaches for Philippine agricultural education.

We are very pleased to have with us today three imminently qualified keynote speakers who will present their unique perspectives on strategic planning for agricultural education. Dr. Richard Bawden is the Dean of Agriculture for Hawkesbury Agricultural College in Richmond, Australia.

Dr. Bawden has achieved international recognition for his contributions to rethinking the entire basis of agriculture education. He has written numerous articles on the topic and, through his leadership, has brought Hawkesbury Agricultural College to the leading edge of successful experimentations in strategic planning.

I had the personal pleasure to meet Dr. Ruperto Sangalang a few months back in the United States where he was undertaking post doctorate research on agricultural education studies at Ohio State. Dr. Sangalang is a renowned innovator whose leadership, vision and sense of mission as President of the Don Severino Agricultural College has contributed greatly to new Philippine initiatives for agricultural education.

I am happy to acknowledge that Mr. Cesar Umali is a former sterling member of my staff. He now skillfully applies his strategic planning skills to his Associate Directorship of the AID funded Accelerated Agricultural Production Project at the Department of Agriculture. Mr. Umali extends his talents to teaching strategic planning at the University of the Philippines, at Diliman, Quezon City.

Over the past three years I was fortunate to have been involved in an A.I.D. global study of agricultural education. Perhaps the most striking result of that study has been to reaffirm a global movement including my own country of the United States, for change in agricultural education.

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We welcome your participation today as a Philippine affirmation for change in agricultural education. Let me say from the start that I am here to learn from you. I fully appreciate that most of you here today operate agricultural institutions which suffer from severe resource constraints. Therefore, it is our hope that this one-day workshop will address the specific issues of trying to do meaningful strategic planning in the context of such resource constraints. I am sure this is an issue close to all of your hearts. As such, we do not support elaborate strategy exercises which may only result in disappointment if the products cannot be financed. We do support strategic planning as a critical need in agricultural education, while recognizing that severe resource constraints may dictate strategy implementation.

Let me take one minute here to comment on the A.I.D. global study of agricultural education that I metioned earlier. One conclusion is the genesis of this conference today: strategic planning is a critical need in higher agricultural education development. This conclusion evolved from studies covering Asia, Africa and Latin America, including such countries as India, Thailand, Indonesia, Brazil, Mexico, Dominican Republic, Nigeria, Morocco, Ethiopia, and Malawi. It takes a forward-looking view: how to prepare for the next century of agricultural education. It means looking beyond the technological view of rural and agricultural development to the institutional and policy constraints which seriously constrain agricultural growth. It means designing a dynamic role and mission for the university that addresses larger rural and agricultural development issues. Programmatically, it means innovating and adopting new approaches in curriculum and education methodology. Exercising leadership for enhanced university responsiveness will in turn require new methods and skills in the management of institutional change. All these reflect a growing concern among academic leaders worldwide that universities need to make a more self-conscious effort in assuring that their mission and programs are adapting and growing in relevance within a changing environment.

I am excited to know that the Philippines has taken a lead in pioneering new approaches to make agricultural education a more powerful and relevant tool of rural development. I am pleased that Dean Villareal could join us today. As Chairman of the Technical Panel for Agricultural Education, he has been a major intellectual leader behind the Macro Agricultural Education Plan. This plan has gone a long way in rationalizing and improving the agricultural education system in the Philippines. I am also glad to know that there is now a dynamic partnership among the agricultural colleges, ATI and PCARRD as well as the private sector. The partnership of these three natural constituencies will forge much stronger agricultural research, outreach and business programs.

We think this forum today directly supports the rationalization plan for tertiary agricultural education. The plan reexamines and redefines the basic mission of agricultural colleges in the Philippines, emphasizing the quality and relevance of agricultural education. Strategic planning provides a systemic framework for that reexamination and redefinition. I personally urge and welcome your active participation today. Thank you.

OPENING REMARKS

by
Ruben Villareal[1/]

Participants, guests, ladies and gentlemen, good morning.

It is always a welcome move on my part to be involved in seminars related to agriculture particularly in this one-day seminar on strategic planning not because we lack this kind of activity but because I regard this as a golden opportunity to share experiences and gain insights from colleagues for our intellectual nourishment.

As the Dean of the UP College of Agriculture, I find this seminar very timely and rewarding because early this year, the College of Agriculture of UP at Los Banos in its agenda for the 1990's has already painted a scenario for Philippine agriculture as a backdrop for the college's program directions and development. The agenda is a brief statement on the role of the college in agricultural and rural development and a proposal on how the college plans to undertake its mission.

One of the proposed agenda that we shall be undertaking is the reexamination of the content of the agricultural courses in the Bachelor of Science in Agriculture (BSA), Bachelor of Science in Development communication (BSDC), Bachelor of Science in Food Technology (BSFT), and Bachelor of Science in Agricultural Chemistry (BSAC) programs with the view of integrating these into farming systems type of courses, problem- and issue-oriented, instead of the current discipline-oriented courses. The agriculture issues type of courses in the curriculum should expose the student to the historical, the politico-economic aspect of agricultural problems; to farming systems under varying conditions; to management and business aspects; to the socio-cultural and communication problems; to the legal institutions in the rural setting; and to the technological requirements of a scientific training in agriculture. These efforts are very similar to what the Hawkesbury Agricultural College in New South Wales, Australia did in 1978 which gave a new thrust to tertiary agricultural education in that country. The challenge was to provide programmes of learning for farm managers and agricultural technologists appropriate to the complex issues of agriculture as a human activity.

Of course, talking of strategic planning for tertiary agriculture education in the Philippines, our experience are well documented and very productive through the collegial efforts of the Technical Panel for Agriculture Education (TPAE) of DECS. In 1979, the TPAE evolved the blue print for agriculture education development at the macro as well as in the micro levels. For your brief information, we have the Macro plan known as the National Agriculture Education System (NAES), which you are all aware of and

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the major concern of Senate Bill 429, now on its third reading in the Philippine Senate. At the micro educational planning level, our efforts have been in the development of the new ladderized Diploma in Agriculture Technology-Bachelor of Agriculture Technology (DAT-BAT) curricular program. The challenge of this program is to produce an agriculture technologist-entrepreneur type of manpower with the wholistic orientation of the agricultural systems in the country.

This type of academic exercise, we hope, shall help rekindle in us a challenge to our agricultural planners and educators in the country starting in this morning's seminar.

Before I close, however, I have an observation to make regarding the seminar topic for this morning. Based on the seminar papers distributed to us, my attention was directed to Kast and Rosenzweig's concept of management when it describes strategic planning's prime aim of relating the organization to the external environment. To me, this is a timely objective because in the Philippine context, our plans no matter how good, are hampered and derailed to a certain extent because of the influences to a large extent of the external environment such as the budgetary systems, the belief systems and the socio-economic systems prevailing in the country. We need to resolved theses problems if we want to move on.

Finally, I sincerely hope that this seminar shall bring about new challenges and insights in sustaining the laid out agriculture education in the country today.

Thank you and good day.

SYSTEMS THINKING AND PRACTICES IN THE EDUCATION OF AGRICULTURALISTS

by
Richard J. Bawden (et al.)1/
Keynote Speaker

SUMMARY

A systems approach has been taken to a review of agricultural education programmes and as the essential theme of restitant curricula at Hawkesbury Agricultural College in Australia. The systems thinking and practices which have guided, and been shaped by, the innovations are outlined, and the rationale and framework of the major programme are described. The subsequent emphasis has been placed on effective learning for agricultural managers and their technologist advisors. It is argued that problem solving and learning are essentially the same psychological processes and that taking a systems approach to investigating problem situations provides a more useful paradigm for learning about agriculture than reductionist, discipline-based approaches. Experiential learning and autonomy in learning are seen as consistent with this and are basic features of the programmes. A conceptual framework for problem solving that incorporates soft and hard systems and scientific reductionist methodologies has been developed. A contingency approach to situation improving is emerging as a less restrictive and more realistic alternative to a normative approach to problem solving.

INTRODUCTION

The role that agriculture has played in the socio-economic development of Australia in the two hundred years since European settlement occurred has been well chronicled (Williams, 1982). Formal education in agriculture has been available for almost half the time and has undoubtedly had a significant impact on the overall production and productivity of the rural sector (Swain & Bawden, 1981).

Yet there is an increasing sense of unease that much of this has been gained at the expense of permanent damage to fragile ecosystems: systems, which, before European settlement, had supported significant human populations for tens of thousands of years without cultivation or the presence of cloven-hooved ruminants (Flood, 1983). There is a fear that should contemporary practices continue, then their conflict with natural evolutionary forces might well result in continued and ultimately irreversible, deterioration of many of the land's resources. Yet the pressures brought on farmers to change their cultural practices to be less exploitative of natural resources have to be reconciled with the need to increase productivity to cope with increasing economic pressures.

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The confusion associated with these dynamics and disequilibra in agricultural systems is the essence of Dahlberg's (1979) contention that most intellectual maps of agriculture fail to perceive it as 'the basic interface between people and their environments'. It has been argued that Australian educational institutions have been remiss in not developing learning environments and curricula which reflect this perspective (Bawden & Swain, 1981). It was these perceived mismatches between educational programmes and the dynamics of agriculture in Australia that led, in 1978, to a new thrust in tertiary agricultural education in that country.

A structural reorganization within Hawkesbury Agricultural College in New South Wales gave its School of Agriculture an opportunity to redesign its curricula. The challenge was to provide programmes of learning for farm managers and agricultural technologists appropriate to the complex issues of agriculture as a human activity.

The relevance of a systems approach to the process of curriculum review and as the essential theme of resultant curricula proved pervasive. The fundamental concepts of Spedding (1975, 1979) and Cox & Atkin (1979) on agricultural systems, the analytical approaches to farm systems analysis (Dent and Anderson, 1971), developments in agricultural systems research (Dillon, 1976) and in systems thinking and practices (Checkland, 1976), were all potent catalysts to the Hawkesbury systems thrust. Learning models appropriate to the approach have drawn heavily on the experimental concepts of Kolb and his colleagues (Kolb et al, 1979), on autonomy in learning as outlined by Burgess (1977) and Boud (1981), on problem-based learning in medicine (Maddison, 1982) and on the problem-solving systems methodology developed by Checkland (1981a) and his colleagues. Finally, the ideas of Chaudhri (1969) and of organizational systems theorists Kast & Rosenzweig (1981) have provided models for learning about agricultural management as well as for structural developments of the School of Agriculture itself.

This paper outlines the systems thinking and practices which have guided and been shaped by the innovation in the Hawkesbury educational system with its emphasis on effective learning for agricultural managers and their technologist advisers.

Essentially, the re-orientation and innovations at Hawkesbury are based on:

(1) Studies of systems and subsystems involved in agriculture and <u>not</u> of separate subjects or disciplines.

(2) Systems and contingency problem-solving approaches to learning and <u>not</u> reductionist science and pedagogical once.

(3) Learner-centred and <u>not</u> teacher-centred teaching strategies.

(4) Organizational flexibility in the School and <u>not</u> adherence to discipline-based Departments.

(5) The School as a learning centre subsystem integrated into the national agricultural system <u>not</u> as a discrete and restrictive post-secondary institution.

Two basic contentions are that all things are not knowable and that the whole is indeed greater than the sum of its parts. A further belief is that studying the problems of agriculture should start with the whole situation before its reduction to constituent components.

The logic of the approach follows the sequence:

> Managers and the technologist advisors of the agricultural service industries are concerned not with scientific questions of the nature 'what is?' but with questions of the order 'what is to be done?'. They have to be able to identify situations that need improving and solve associated problems. Logic dictates that their education should be about helping them become more effective at taking such actions.
>
> Problems in agriculture are almost always concerned with things which are interacting with other things. Furthermore, these things and the way in which they interact are under the influence of changeable environmental conditions and profound evolutionary forces.

It is convenient to think of these interrelationships as 'systems of interactions'. This is associated with the fact that totally different situations have the same general characteristics of boundaries, inputs, outputs, transformation processes, measures of performance and an environment.

In spite of these common characteristics, however, systems can be divided into two major types (Ackoff, 1973; Checkland, 1981a):

(1) Those that have clear goals and/or predictable outcomes (purposive or 'hard' system).

(2) Those where goals may be unrecognizable and outcomes ambiguous and uncertain (purposeful or 'soft' system).

The various methodologies and techniques used for solving problems in agricultural systems will therefore be contingent upon the nature of the system(s) involved.

To build an operational conceptual framework it has been necessary to develop:

(1) A model of agriculture consistent with Dahlberg's (1979) perception of it as 'the basic interface between peolpe and their environments'.

(2) An approach to problem-solving that allows for the complexity and lack of definition ot real world problems.

(3) A concept of the teaching/learning process that will enable the educational aims to be achieved.

(1) A MODEL OF AGRICULTURE AS A HUMAN ACTIVITY SYSTEM

Figure 1 is a diagramatic representation of farming systems as a human activity system. it reflects the perception of agriculture which underlies the Hawkesbury programmes.

Farming systems are key ones in the heirarchy of systems which represent agriculture, but not the only ones. Management is common to all and the innovating-allocating operating model of Chaudhri (1969) serves a useful purpose. Kast & Rosenzweig (1981) envisage the management of an organizational system as comprising three interrelated subsystems or levels of goal-directed activity:

(a) At the operation level the primary task is carrying out stated objectives effectively and efficiently. Objectives tend to be 'optimizing' and problem-solving techniques have a basic computational focus. Operations are relatively insulated from changes in the systems development and hence comparatively stable and fixed.

(b) The strategic and innovation level is concerned with relating the organization with the environment, developing strategic plans and providing adjusting mechanisms to cope with changes. Objectives tend to be 'satisficing' and problem solving had a judgemental focus. The strategic level is relatively open to the systems environment and innovations are responses to its dynamic and variable nature.

(c) At the allocating and co-ordinating level the primary concern is integration of the internal operations and allocation of resources in a way that is consistent with overall strategies.

The smaller the organization, and this pertains especially to the family farm, the more likely it is that only one or a few people will perform all of the three functions. As organizations grow the functions are differentiated - as in an educational system, for instance.

Agricultural education tends to focus on the aspect of managing that reflects a background of the policy-makers, often without recognition of it as an aspect of managing. Agricultural scientists tend to focus on operations: farm management economists on allocation; macroeconomists on the strategic level. It is rare to find an operational conceptual framework for educational policy which encompasses all three. A systems paradigm and an understanding of the function of technology may be prerequisites.

(2) APPROACHES TO PROBLEM SOLVING

The intellectual framework for approaches to problem solving is built on four generalized models of ways agricultural problems are, or might be. approached. All four are incorporated and selection is seen as a matter of judgement contingent on the situation. The models are seen as representing a heirarchy of approaches to problems of increasing complexity and lack of definition. The four approaches are:

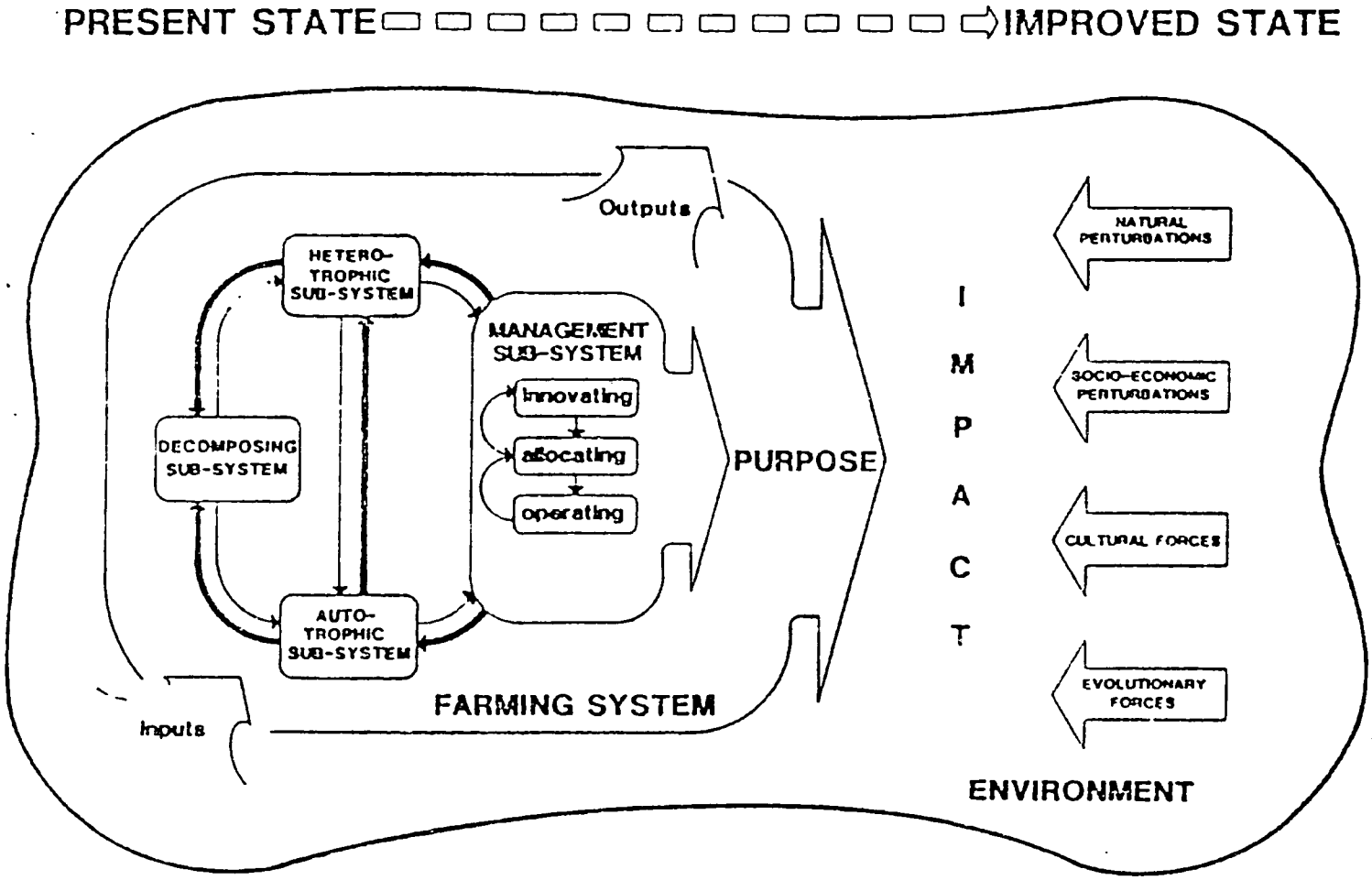


Fig. 1. A model of farming as a human activity system.

(A) A reductionist scientific approach.

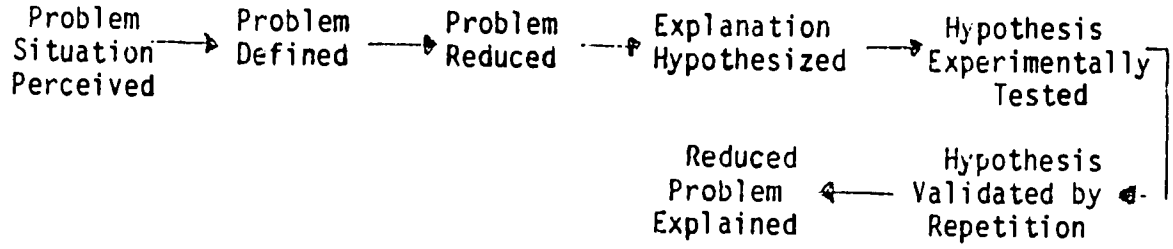
(B) A reductionist technological approach.

(C) A hard systems approach.

(D) A soft systems approach.

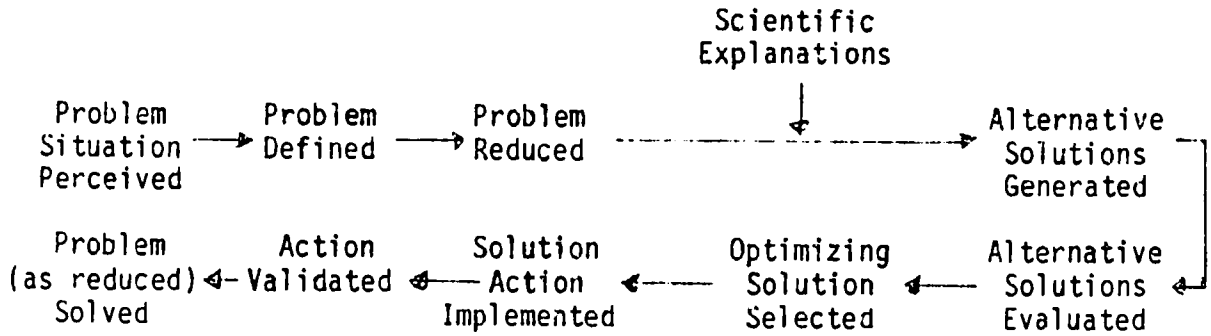
The choice of one or the other is influenced by the objectives to be achieved, the context of the problem and the abilities (often related to the education received) of the problem solver. These differences can be illustrated as sequences of key events in each process.

(A) The reductionist scientific approach



This approach relies on reducing the problem to some testable proportions, experimentally testing the resultant hypothesis through some sort of objective quantification and by the reduction of as many variables as possible, deducing an ultimate output in the form of a 'this is why' statement.

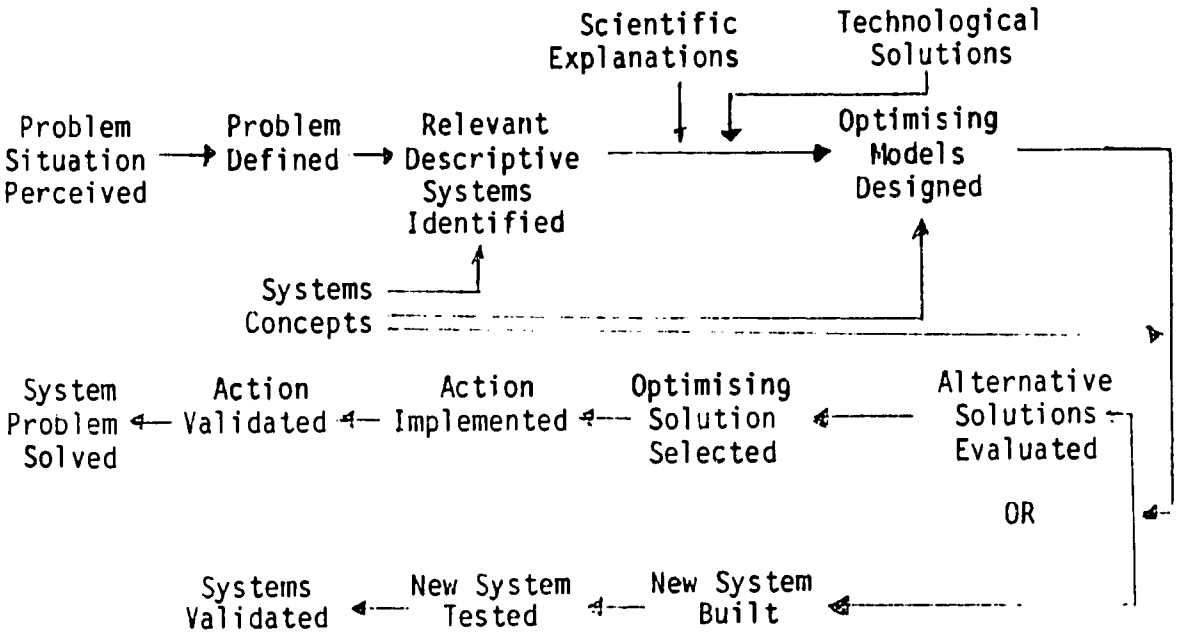
(B) The reductionist technological approach



This reductionist technological approach is common in applied research typical of agricultural science (in fact, agricultural technology) where the focus is on 'what is to be done?' and not 'what is?': why is it so?'. Furthermore, and as a direct result of its use in the applied research context, it is both the basis for most technical advisory services and, as refined by financial data, farm management services in Australia. Of course, the methodologies used, as well as the parameters measured to seek technical optimising solutions, will differ from those used for economic ones but the essential process of quantification remains the same. This approach, whilst certainly having some major benefits in icreasing agricultural productivity, has caused many compartmentalized efforts. It is only recently that technologists of different discipline have started to work together in multidisciplinary teams to provide less-reduced solutions.

There is a big step to be taken, however, between aggregations of multi-disciplinary approaches to problem solving and holistic or systems approaches.

(C) The hard systems approach



The crucial third step in this sequence is not the reduction of the problem as before, but its statement in the context of a descriptive system. This system is them modelled. This a fundamental conceptual step to take in the transition from reductionism to systems thinking. The systems model will include a recognizable boundary, inputs, outputs, essential transformation and some paramenters of performance. Subsystems and their interactions will be identified and mathematical relationships sought. Once the model has been constructed - a simulation of the real world, often built using data generated by the reductionists - it can be used to:

(i) Predict outcomes of various alternative strategies and thus act as an optimising model for the system in either physical or economic terms (systems analysis).

(ii) Permit a whole new system to be built or 'engineered' which will solve the problem in a more fundamental sense (systems engineering).

(iii) Highlight key factors of environmental influences and interactivities in the behaviour of the system as well as indicate where dificiencies in the current scientific knowledge may lie (systems research).

Systems analysis has gained a number of adherents over the past few years and many models have been developed to calculate optimising strategies for such functions as rotating grazing (Morley, 1968; Noy-Meir, 1976), irrigation water application (Cull et al., 1981), fertilization rates (Bowden & Benneth, 1974, Helyar & Godden, 1977), and pest management programmes (Teng et al., 1978). The engineering of new agricultural systems is far less

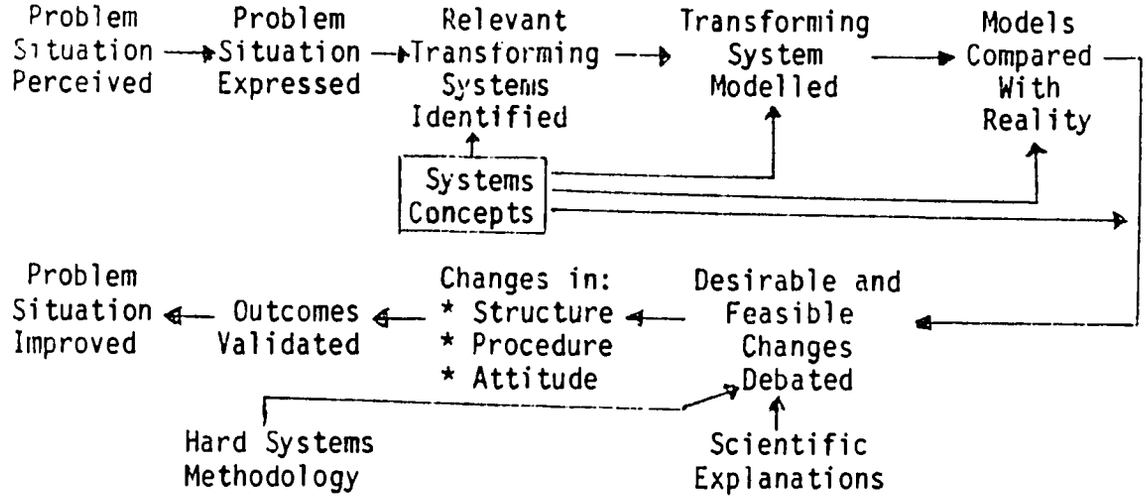
commonly practised, probably due to the difficulty in defining all of the variables involved in purposeful activities. The approach to the design of cropping systems developed at the International Rice Research Institute (Zandstra, 1977) is a clear attempt at engineering systems, although, as with any innovation, there are certainly difficulties associated with the real adoption of such computationally designed farming systems.

It would seem that systems research, the third activity referred to above, is a stated objective of most systems modellers (Dillon 1976), although evidence is scarce as to its actual role in determining research priorities.

It is not uncommon for any of these studies to commence with the modelling of a system rather than the recognition of a particular problem situation. All of these systems activities are based on the premise that quantifiable objectives or purposes can be clearly set for the task to be elucidated. All are being used with increasing frequency in agricultural situations, especially at the operations and allocations level of activity. The key to the essentially numerical nature of this approach is the computer and the main technique used is simulation modelling.

These approaches are less useful when the goals or purposes of a system are vague and non-quantifiable, like those involving organizational strategies, human values or the exercise of political power. Under these circumstances a fourth approach is needed.

(D) The soft systems approach



This methodology, developed over the past few years by Peter Checkland and his colleagues at Lancaster University (Checkland, 1981a) is a potentially great significance in dealing with the multitude of unstructured problems that characterise human activity.

Naughton (1981) gives an overview of this methodology in which he states that it is based on the assumption that a real-life 'mess' might contain hundreds of problems and that the idea of problem solution for the situation as a whole is a 'Utopian dream'. the analysis phase is therefore conceived of not as an attempt to arrive at some objective understanding of the problem, but as a phase during which different perceptions of the situation as a whole

may be represented and communicated. The analyst is expected to help people in the situation make meaningful improvements rather than simply presenting them with a list of recommendations for action. This means the analyst himself is an actor in the problem situation.

The methodology is a systems one because of the centrality of the concept of a relevant system within it. Once the analyst has focused on those aspects of the situation he wants to explore further he is required to imagine a systemic way of making it better or perceiving it in a different light as a relevant system. This system is then developed through the rigorous application of systems thinking to defining it and building a conceptual model of it. The comparison of the model with the real-world situation, and the insights this provides, are the basis of a debate about desirable and feasible change among the people involved.

Checkland (1981b) maintains that hard systems problems are a special case of soft ones in which a clear statement of purpose enables optimizing systems to be developed.

The methodology has been found to be a very useful one in the learning by tackling real-world problems context of the Hawkesbury programmes. It is consistent with the view of agriculture as an interaction between social and natural systems and the innovations/strategy-allocating/coordinating-operating concept of managing agricultural systems. It stresses the need for the creative, perceptive and intuitive mode of thinking which characterizes the artist as well as the logical, linear and sequential thinking often thought of as the province of the scientist (Samples, 1976; Vickers, 1981). It also calls for skills in human relations. It is clearly a technological methodology in that its primary goal is effective action, the facilitation of beneficial change in problem situations, rather than understanding for understanding's sake.

The intellectual map of agricultural systems and problem-solving methodology that has been developed incorporates all four approaches. Selection of an approriate approach is a matter of judgement and is contingent on the particular situation. Thus the feature of the 'Hawkesbury map' is the heirarchy of approaches to problems of increasing complexity and lack of definition.

(3) LEARNING ABOUT AGRICULTURAL SYSTEMS

The emphasis on the management and technological aspects of agricultural systems, including farming ones, reflects a view of them as human activity systems. The three managerial subsystems referred to can be identified in all agricultural systems, be they farms, extension services, educational institutions, credit organizations, marketing boards or research stations. They therefore provide an entry point to any problem situation where the concern is 'what is happening here? Why the sense of unease?' This is as true for the farm manager as it is for those technologists who are available to help him improve his situation.

Problems start with the situation of perceived mismatches being experienced. David Kolb and his colleagues suggest that effective problem solving proceeds from the first step as a cyclical process involving three more steps of (i) observation and reflection, (ii) conceptualization and

generalization; and (iii) action to validate (Kolb et al., 1979). This process is illustrated in Figure 2 below.

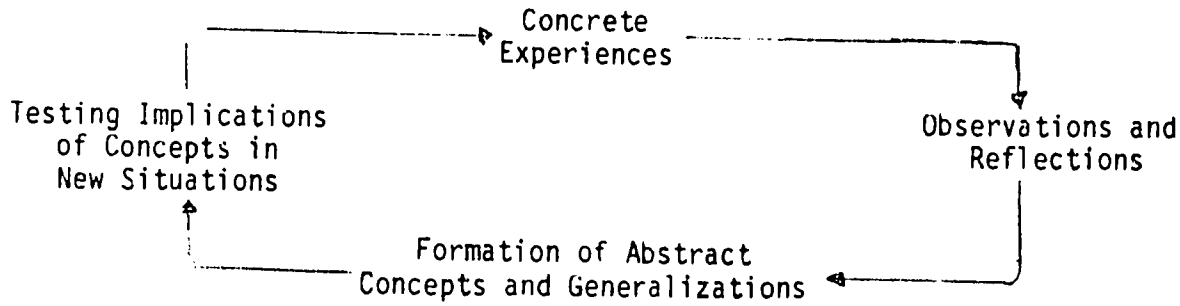


Fig. 2. A model of the problem-s lving/learning process

These authors have concluded that this process is identical to the way people naturally learn about anything and thus effective learning contains the same identifiable steps. This view of learning has been termed experiential learning as it relates to the close relationship between the learner and the realities being studied (Keeton & Tate, 1978). Since problem solving often has a negative and restrictive connotation, 'situation improving' might be a much more acceptable concept. It is certainly more consistent with the principle of action learning.

The experiential, or action learning approach, dictates a number of characteristics which learning environments must reflect (Bawden, 1983):

(1) Learning is a lifelong process and the extent to which it is practised is the responsibility of each individual learner.

(2) The design of relevant curricula should recognize that individual learners:

(i) should be encouraged to assume as much responsibility as possible for identifying and fulfilling their own learning methods;

(ii) have different learning needs and goals from others who are entering the same career pathway;

(iii) differ in the manner in which they improve their own learning abilities of acquiring knowledge and skills and developing attitudes and beliefs;

(iv) differ in the rate at which they learn, not only between individuals but for the same individual on different occasions;

(v) learn more effectively when fulfilling self-set objectives rather than objectives by other.

(3) Learning outcomes are more easily achieved and capable of assessment when initial objectives are clearly stated and the context to which they refer defined.

(4) Learning is more effective when the learners are actively involved in learning experiences rather than being passive listeners to facts being taught or skills demonstrated to them.

(5) As learners assume increasing responsibility for their own learning this should be accompanied by increasing responsibility for self assessment.

This view of the learner, or situation improver, as someone actively thinking and doing things about life situation being experienced, closely reflects the educational phiposophies of such writers as Rogers (1969), Tough (1971), Freire (1972), Illich (1973), Knowles (1975) and Burgess (1977). The inference from these works is that learning is a contonuously recurring process through like for which the learner assumes responsibility and control

THE CONCEPTUAL FRAMEWORK IN PRACTICE

Putting this conceptual framework into practice has led to major changes of this School's programmes and the organizational context in which they are offered.

The innovations-allocations operations model has been used as a guide for the reorganization of the School. A form of matrix management is emerging in place of the previous hierarchical and departmentally based structure. In the new structure:

(a) Strategic planning and the identification of related developmental issues occurs through consultation with School staff, a feature of which is a weekly Open Forum

(b) Allocation of resources and integration of internal activities of the School is done by a School Co-ordination Group, made up of programme co-ordinators and resource managers;

(c) Operations are carried out be general staff teams, with one of the team designated as a co-ordinator. Resources are provided as learning packages by staff grouped in more traditional subject-centered groupings.

The underlying assumption is that organizational structure needs to be open and flexible to accommodate rapid and unpredicted change in the needs of the learners as well as in the suprasystem of government funding policies.

The Bachelor of Applied Science (Agriculture) programme illustrates how these concepts are put into practice. The programme is divided into three phases: the first and third are each of the semester duration, whilst the second is a one semester off-College phase. To graduate, students must demonstrate that they have acquired knowledge, skills and attitudes across a competency matrix of independent learning, communication and systems agriculture.

The matrix reflects the essential holism of the Hawkesbury educational environment.

The major aim of Phase I of the programme is to introduce students to systems concepts and to the Hawkesbury view of agricultural systems (Fig. 1). This is done by presenting the concepts and providing experiences to enable students to validate views of reality. These experiences include a detailed study of the College integrated dairy farm at the levels of operations, allocations, and strategic planning, an evaluation of the allocation and strategic planning of other farming systems drawn from the College estate or nearby areas, and resource allocation within simulated farming systems.

At all times the overall learning experiences are presented in a problem-solving framework, with resource packages being available to enable students to effectively analyze situations, to reflect on this analysis, draw out conceptual models and then to validate these models. The resource packages may be presented as traditional lectures, laboratory practicals and demonstrations, or as study guides, audio-visual packages, computer programs and other innovative educational strategies. Assessment is based on the student being able to demonstrate an ability to identify problems or issues from the farming system and its major subsystems, and being able to follow through the learning cycle to propose possible validated improvements to these problems and issues.

Considerable emphasis is placed on the process of learning. Students are encouraged to accept increasing responsibility for the organisation of their own learning, with academic staff facilitating this transfer of dependency from teacher to learner. The role of the teacher in this context has been outlined by Burgess (1977), and involves the achievement of a balance between support and confrontation. The academic attempts to encourage increasing self-confidence in the student, access to learning resources and frequent feedback on the learner's development. Much of the learning occurs in small group situations. The group process provides both an opportunity for learning to be shared and an experience base for studies of social systems, using the people-in-systems model of Egan & Cowan (1979) and the characteristics of the development of small groups as described by Bormann and Bormann (1976).

Parallels are drawn between the psychological process involved in problem solving by individuals and groups, and effective learning through reference to the learning cycle of Kolb et al. (1979). The learning progress of students is monitored using the device of the portfolio (Bawden & McKinnon, 1980). In this students monitor their development against the course competency matrix in the affective, conative and intellectual domains.

In the second phase of the programme students are placed in commercial farming systems, mainly in the State of New South Wales, but increasingly beyond. The essential thrust of this experience is for each student to carry out a systems analysis of the farming system using the Hawkesbury model as a reference. During this phase, contact with academic staff is deliberately maintained at a low level to encourage learning autonomy. Academic staff normally only visit the farm twice and all other contact is by mail to the student's facilitator. The learning strategy of this phase is a contract for learning negotiated between the student, the host farmer and the facilitator. Once again reference is drawn to the competency matrix and students are expected to continue to develop abilities across the matrix.

There are two major aims in the third and final phase of the programme. The first is to provide opportunities for reflection and deeper investigation of the real-world experience just completed. Students are expected to present a detailed representation of their learning attainments from the previous phase, as well as how they have subsequently fulfilled learning needs identified at that time. The organization and fulfilment of each individual's learning is primarily the responsibility of the learner in this phase of the programme.

The second major aim of the phase is fashioned around the development of a career competency model and the implementation of learning strategies to achieve such competency. The competency model is developed in association with an appropriate employing group, recent graduate employees, academic staff and the student. The model is based on the premise of employability in an agriculturally based career upon graduation. These careers might be as broad as the management of extensive farming systems, or as narrow as relatively specialist advisory technologists. After a minimum of seven semesters' enrolment, students may apply to graduate, basing their applications on their fulfilment of the programme competency matrix and their own career competency matrix. Such achievement is validated by a panel of academic staff and external programme advisors drawn from the agricultural community.

A number of associate diploma programmes (2 years) and a graduate diploma programme have been developed to extend these principles to different groups of learners. In addition, a Mazsters in Agricultural Systems has been designed and awaits government approval for its accreditation.

FUTURE DEVELOPMENTS

The conceptual framework described has evolved since 1978. The process has accelerated during 1983 in response to the first group of Phase II students being placed in a problem-solving role in commercial farming systems. Staff have been under increasing pressure to conceptualize system thinking and practices, and desirable and feasible learning environments. They have also been expected to be much more involved in the management of the School itself as an educational system adjusting to continued environmental change.

The result has been a change in the pattern of systems thinking and practice, which can be described as:

(1) Away from a normative approach to defining problems in which a definition of the system being studied is the starting point:
to a contingency approach to problem-solving in which a comprehensive but relatively unstructured analysis leads to the definition and design of systems to improve the situation.

(2) Away from a relatively static within-system focus which places emphasis on the structure of the system and problems associated with allocation and operations:
to a dynamic focus that aims at highlighting opportunities for improvement by looking for matches and mismatches between resources, activities and changing circumstances.

(3) Away from social and personal factors being seen as a constraint to improved agricultural practice:
to an appreciation that social values and the goals and attitudes of the people involved are key elements to improving a situation:

(4) Away from the concept of best solution to the key problem:
to a concept of problems as multi-dimensional sets of circumstances for which there is no 'one best way' solution.

(5) Away from a past and present time orientation:
to a future orientation.

(6) Away from the emphasis on structure:
to emphasis on process as an aid to creativity in the design of relevant systems.

The Kolbian learning cycle suggests that the next major development should be action to validate this pattern of concepts and generalizations. In practice this is likely to involve the School:

(1) outreaching into the farming community through external offering of credit and non-credit courses;

(2) increasing emphasis on real-world problem situation improvement as the focus for learning projects;

(3) developing the College estate into purposeful farming systems that are integrated and thus better able to respond to social and ecological forces;

(4) continuing to adjust and adapt the way current programmes are organized and managed;

(5) adapting the organizational structure and process of the School and College to the requirements of the new programmes;

(6) participating in the development of educational programmes with a similar orientation in Australia and overseas;

(7) broadening the educational environments beyond agricultural systems to incorporate issues of rural development.

CONCLUSION

This paper suggests that adopting a systems perspective to problem situations provides a more useful framework fro representing the real world than the reductionist, discipline-based one. It further submits that problem solving and learning are essentially the same psychological process and the experiential cycle proposed by Kolb et al (1979) provides an appropriate model for designing learning situations for agricultural managers and technologist advisers.

Technology relates to the taking of effective action and, as such, management is technology. However, there are certain abilities technologist advisers to farm managers need to acquire that deserve special emphasis in their education. Both vocations can be seen to involve three heirarchial levels or subsystems of human activities in operations, allocations and innovations. Each of these in turn presents differing needs for human abilities.

Many of the problems of management of agricultural systems, especially at the level of strategic planning and innovational adjustments to changing circumstances, are less than precise, and their solution is more akin to 'improving situations' than to 'solving problems'. The methodologies associated with what have been termed soft systems have been found to have particular attraction to improving such messy, complex situations. Here the outcomes are not optimizing solutions but constructive actions for change.

There are situations, however, particularly at the allocative and operative levels of activities, where optimizing solutions can be generated. Systems methodologies appropriate to the resolution of such problems are also a desirable competency for managers of all types of agricultural systems. Computer literacy will be an increasingly important skill in this context as quantitative modelling continues to gain credence as a tool in allocative decision making. It is also a fundamental ability for accessing information fields.

Agricultural systems lie at the interface of natural systems and the purposeful activities of people. The pressures for change are enormous and are associated with those as profound as cultural forces and natural evolutionary forces. Spontaneous perturbations in both physical and financial environmental elements also provide impetus for innovative adjustments.

The importance of the interactions between members of the family on the management of the family farm and the value systems which surrounds them cannot be over-emphasized. This dynamic provides a crucial context for understanding the interactions of any particular farming system with ancillary agricultural systems such as those concerned with marketing, education, advisory work and research.

The essence of agriculture is a complex interactiveness whilst its dynamics frequently result in situations which could be improved both feasibly and desirably. A systems approach helps the manager and his advisory technologists cope with these complex, and often messy situations. Experiential learning methodologies provide appropriate ways for learning how to develop 'situation-improving' abilities, and implicit in such methodologies is the development of the autonomy of the individual learner.

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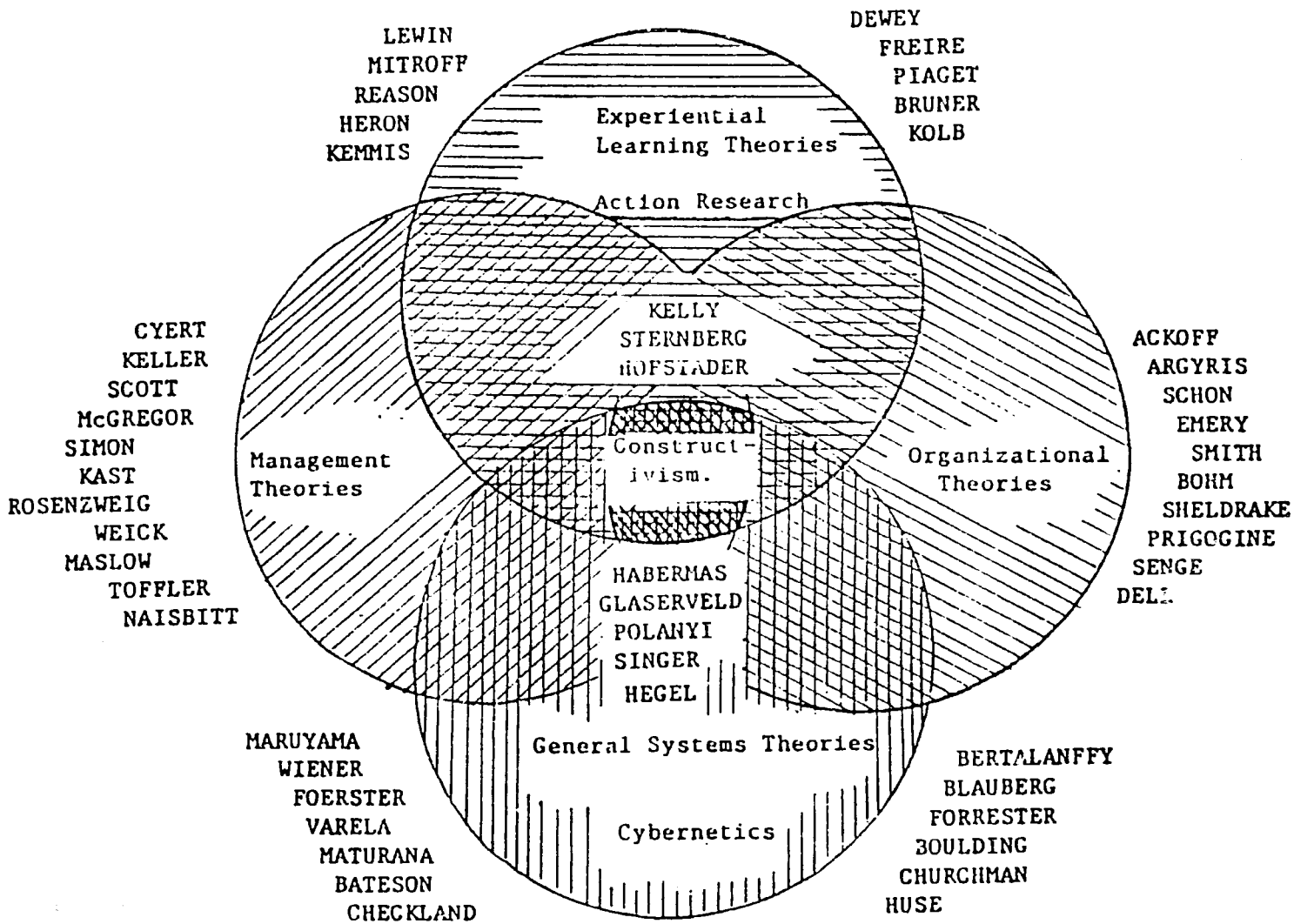
STRATEGIC PLANNING : THEORIES-IN-USE.



RATIONALIZING TERTIARY AGRICULTURAL EDUCATION: SOME RECENT DEVELOPMENTS

by
Ruperto S. Sangalang[1/]
Keynote Speaker

The Philippine higher education system is beset by numerous problems. Proliferation of state schools was noted as early as 1958. The 1972 study of the Higher Education Research Council cited problems as lack of coordination, proliferation of courses, duplication of programs, inadequate educational planning and lack of concerted efforts to attain national goals. The Presidential Committee to study higher education in 1975 and the 1980 Higher Education and Labour Market Report of the International Institute for Educational Planning pointed similar concerns.

The problems in agricultural education are as complex as those of the state higher education system. Two hundred seventy one (271) agricultural institutions including some 30 state colleges and universities were offering courses in agriculture and related fields in 1982. This may be positively viewed as an effective way of providing higher education for those in the countryside and is, therefore, an acceptable strategy in developing the rural areas. Limited resources to support numerous institutions, however, has led to low quality instruction in these schools whose graduates tend to be poorly trained and ill-prepared for further employment (World Bank, 1977). According to the British Council Report for the Asian Development Bank (1984), the existing agricultural education system is composed of numerous schools "whose quality varies from the excessively well-endowed to the diploma mills who lack the resources to offer course of any value". These institutions are deficient in teacher training, curriculum development and research and are suffering from serious fund shortages. The report further noted that the system does not have an effective control or direction. Moreover, it expressed concern about the management of the system, the enrolment decline in the agricultural education programs, and proper enforcement of regulations by Department of Education, Culture and Sports to improve quality of the system (Ables, 1988).

Supply and Demand of High Level Manpower in Agriculture. "The Philippine high level agricultural manpower supply and demand situation has shown a gross imbalance characterized by a 'runaway' supply of young, inexperienced and highly mobile graduates" (Mancebo et al, 1985). Only considering replacement needs, it was estimated that the labor market was only capable of absorbing 9.4 percent of the 56,629 graduates of agriculture between 1979 and 1986. At the BS level, graduates of home economics, home technology or agricultural homemaking had the best employment record from 1972 to 1983 followed by agricultural education, agricultural extension and development communication. During the same period effective supply exceeded demand by 57 percent for graduates of the MS or the PhD.

1/President, Don Severino Agricultural College, Indang, Cavite

RATIONALIZING THE SYSTEM - THE NAES MODEL

To provide "some rationalization of the system of higher education in agriculture and related sciences", a macro plan for agricultural education was submitted by the Technical Panel for Agricultural Education (TPAE) to the DECS in 1984. The plan proposed the establishment of the National Agriculture Education System (NAES) and the subsequent adoption of a "flagship approach" involving the designation of one National Agricultural University; three Zonal Agricultural Universities; one Regional Agricultural College for each of the thirteen administrative regions; and one technical institute of agriculture per province from among the existing agricultural institutions. The specific functions for each category of schools are:

A. National Agricultural University (NAU) - offer graduate and model undergraduate programs; conduct basic and applied researches in agriculture, forestry, veterinary medicine and other related sciences; link with the international academic and research community for the development of and training for appropriate technology.

B. Zonal Agricultural Universities (ZAUs) - advanced knowledge in particular fields or disciplines through priority research needed in their respective major geographical regions; develop technologies for the regions they represent through linkages with the NAU, with the regional colleges within their jurisdiction, and, to a certain extent, with some international centers in agriculture. offer mainly undergraguate programs; and gradually develop graduate programs (especially of the master's level) in selected areas of competence and need.

C. Regional Agricultural College (RAC) - shall be chosen from among the strong existing public and private colleges and universities offering agriculture and/or related fields which can exercise effective leadership in their respective administrative region; act as Regional Adaptive Technology Centers to verify and disseminate technologies from the NAU and ZAUs for regional adaptation; develop technologies for the region to be shared with the Provincial Technical Institute of Agriculture; offer only undergraduate program, and in some exceptional cases, needed post-undergraduate and master's programs to hasten the agricultural development of the region; may offer short-term technical courses in higher education.

D. Provincial Technical Institutes of Agriculture (PTIAs) - will be selected from among the existing public and private schools and colleges in the province not identified as a RAC based on strategic location and current leadership potential and capability; may be established as part of an existing college or university, public or private, in a province; offer post-secondary non-degree programs; inexceptional cases, may offer the transfer and ladder-type practical oriented curricular degree programs to train craftsmen and technicians; receive technologies from the RACS and ZAUs and transfer these into technoguides or productive learning packages and activities; act as testing/pilot centers in the development of appropriate provincial specific technologies in collaboration with the Philippine Council for

Agriculture and Forestry Research and Development (PCARRD) and the Technology and Livelihood Resource Center; may serve as provincial training center for extension; and may conduct training in agricultural arts and non-formal education for elementary and secondary teachers in cooperation with the ZAUs and RACs.

Autonomous institutions included in the National Agriculture Education System shall be governed by their own charters. Private institutions shall be governed by their own Board of Trustees. The PTIAs shall be given charters and shall be governed by Board of Trustees with the Provincial Governor as Chairman and the PTIA Director as Vice-Chairman.

The NAU, ZAUs, and RACs shall be fully supported by the national government through annual budgetary appropriations. Funds for the PTIAs shall be provided jointly by the national and the provincial governments on a one to one matching basis. Private institutions included in the system, while mainly relying on their funds, may be given government grants, loans and other incentives to further develop their capabilities.

Even with the macroplan in operation, it is estimated that an average of 1,705 graduates per year become surplus manpower between 1979 and 1986. During the same period, about 37,229 technician graduates of the provincial technical institutes would have little assurance of finding any employment.

DECS has authorized the establishment and maintenance of the National Agriculture Education System through a department order dated September 21, 1987.

RATIONALIZING THE SYSTEM: THE PROGRAM-ORIENTED APPROACH

In contrast to the structure oriented NAES as proposed under the macroplan, a small group of educators presented a program-based approach to rationalize state colleges and universities (SCUs) during the First National Planning conference held at CLSU in 1985. While the system in mind were the SCUs, the agricultural educators in the group thought of its applicability in the case of agricultural institutions. The proponent pointed out that under the structure-oriented approach rationalization is institution-based; the centers of excellence refer to established institutions and vice-versa; resource allocation tend to favor "lead" institutions; the lead institutions will tend to stay permanent; and that credibility tend to be brought about by institutional reputation. Program-oriented rationalization, on the other hand, focuses on programs, the centers of excellence refer to program excellence and vice-versa; resource allocation tend to favor programs rather than institutional development; "lead" program assumes leadership role in the flagship only for as long as needs are continuously met; and credibility is gained by accreditation standards. The proponents argued that the approachis more dynamic, more cooperative, more challenging, more practical, more realistic, and therefore, more rational compared to the structure orientation.

RATIONALIZING THE SYSTEM: PAGES and SENATE BILL No. 429

NAES proponents drafted a bill adopting the macroplan for the signature of the President of the Philippines before Congress convened. With the plan failing NAES proponents decided to work it out with Congress when it assumed legislative functions last year. Senate Bill No. 429, "An Act Rationalizing Agricultural Education in the Country by Establishing a System of State Colleges and Universities, Providing for Mechanisms of Implementation, and for Other Purposes" reportedly passed second reading before the Senate adjourned on June 10.

The bill proposes a Philippine Agricultural Education System (PAGES) composed of the national university (NU), the regional colleges or universities (RCU) and the provincial colleges, univerisities, institutes or schools (PCU) which shall be "established out of existing public agricultural institutes, colleges and universities, provided that no new institution shall be established to implement the concept". At most, two regional colleges or universities will be allowed per region, and only one college or university will be allowed per province. The NU shall serve as the RCU in the region where it is located and the RCU shall serve as the PCU in the same province where it is located. However, "the NU and RCU may not serve as a PCU if an agricultural college, school or institute is already in operation in the same province".

The following are the guidelines for each category of schools:

1. The National University shall concentrate on the post-graduate programs and curricular models in the tertiary level; conduct basic and applied researches; assist RCUs and PCUs in developing and improving their programs and services; link up with national and international agencies; and share its expertise and facilities with the government and the private sector in matters of policy recommendations, program planning, evaluation, and staff training.

2. The Regional Colleges/Universities shall concentrate on Bachelor of Science degrees and some post-graduate and model technology courses; conduct adaptive researches needed in the region with some applied and verification projects; assist PCUs in strengthening their institutional capabilities; and link up with and assist government regional offices in planning and evaluating their programs in training their staff for agricultural activities.

3. The Provincial Colleges, Universities, Institutes or Schools shall concentrate on technology and technical courses designed for farming and extension work with reasonable involvement in Bachelor of Science degrees and non-degree post secondary courses in agriculture; conduct pilot researches and verification trials to demonstrate advances in agricultural technology and transfer the same to technicians and farmers through field days; offer short courses and training programs; assist provincial and municipal agriculturists in planning and evaluating their programs and training their technicians; and assist agricultural high schools in the province to propagate improved and appropriate agricultural technologies.

A consultative council which shall be composed of the Vice-President/ Vice-Chancellor for Academic Affairs of the institution as Ex-officio Chairman, a private professional from each of the areas of study offered by the institution, and the highest ranked elective student leader from the same areas of study shall review and assess the education, training, and manpower needs of the community for agricultural and rural development; review and evaluate the research and extension activities of the institution; and recommend alternative educational, training, research and extension programs needed by the community. The Institute of Development Education in Agriculture (IDEA) Council shall provide the overall policy guidance and coordination for PAGES. An ad-hoc Executive Task Force shall select PAGES member institutions following specific guidelines and procedures. Relevance and effectiveness of curricula, quality and adequacy of faculty, financial viability, and support services capability were suggested as minimum criteria.

WHICH IS MORE RATIONAL? - THE CURRENT CONTROVERSY

The proponents of the program-based approach lost out to the NAES concept early in the game. No second planning conference was organized by the SCUs in 1986 nor in 1987. As indicated earlier, the NAES model received the imprimatur of the DECS in 1987 and was subsequently elevated to Congress where Senate Bill No. 429 was approved on second reading before the Senate adjourned two months ago. Unless amendments are introduced in the bill before the third reading, the bill as passed earlier will become the Senate version of a rationalized agriculture education system in the Philippines.

A prominent agricultural educator has argued that Senate Bill No. 429 should not become a law. According to him, critics have charged that "the bill is gravely defective and has not received proper debate due to lack ofpublicity". If approved, it will lead to (1) fragmentation instead of coordination of the agricultural education system: (2) further proliferation of state colleges due to the inclusion of non-chartered public schools in the PAGES; (3) additional financial burden on the part of the government; and (4) the phase-out of other schools not included in the system. Mentioned also was a "sinister design" to keep the country agricultural and the lack of foresight on the part of the planners in transforming rural schools into "technological institutions which could contribute more to the industrialization process" (Ables, 1988). Amendments proposed to make the bill more rational include (1) the inclusion of private institutions in the network; (2) emphasis on qualification based on standards for both private and public schools before being included in the system; (3) conformity with the NAES model which include the agriculture education, agricultural engineering. veterinary, forestry and fisheries education sub-systems; (4) creation of the Agriculture Education Development Council (AEDEC) which will be an autonomous decision-making body attached to the DECS; (5) providing a reasonable mechanism for the replacement of TPAE by the AEDEC and the transfer of all equipment, qualified personnel and projects of the former to the latter; (6) the use of savings, earnings and other funds from external sources to provide incentives for professorial chairs, awards to deserving teachers and employees, fellowships and the like; (7) providing incentives, privileges and benefits for private colleges or universities that may be included in the system; (8) providing incentives for graduates of agriculture in the form of loans and other tax incentives so that

they may engage in agribusiness projects; (9) authorizing non-chartered DECS colleges that may be included in the system to adopt the structure of chartered colleges; and (10) authorizing the Secretary of DECS to designate and/or change the status of potential institutions into PTIAs or PIFTs upon endorsement by the AEDEC.

Funding of the proposed system has also been mired in controversy. A loan agreement worth $15 million has been signed between the Philippine Government and the Asian Development Bank on April 21, 1988 to support a number of agricultural institutions offering the Bachelor of Technology degree program instead of the research oriented BS or BSA curricula. A manifesto, purportedly prepared and supported by some constituents of the UPLB community and the UP system, argues that: (1) the project is not technically nor substantially sound; (2) the project was made without due consultation or wide participation among the faculty and departments to be involved; and (3) instead of adding to the debt burden, the amount intended for the project could have been taken out of the national budget for the next six years.

OTHER ISSUES IN IMPROVING AGRICULTURAL EDUCATION

No matter what form the rationalized macrosystem takes, the following aspects ought to be considered in attempting to improve the agricultural education system:

1. Definition of graduates

   Many fail to realize that a very important cause of unemployment among agriculture graduates is the failure of schools to tailor their programs to job market opportunities. School heads who recognize this need often base strategies on limited information and therefore unreliable. Within the context of current realities, preparation for self-employment should be given more emphasis. The lack of understanding of the proper mix of courses in the humanities, social sciences, natural sciences, the major and minor fields, and theoretical and experiential/practical exposure of students often result to graduates with more than enough units taken in various courses but ill-prepared to assume responsibilities in the job market, if any can be found.

2. Equal access to quality education

   The proliferation of agricultural colleges and universities has partly been caused by well-meant attempts to provide low-cost education to the people in the rural areas. Unfortunately, the situation got out of hand, initially due to lack of prior planning and subsequently, because of the reluctance of the government to act decisively on the matter. That many of our universities and colleges of the people have become the universities of the elite might have in fact abetted this trend.

   A number of schools has implemented a system of socialized education to provide educational opportunities to children of poor families, at a cost that is lower than what is required of those coming

from better-off families. To promote access, more funds are also being allocated to scholarship and grants-in-aid programs for deserving students. Schools that will be included in the PAGES/NAES should consider this system, especially the agricultural state colleges and universities where government subsidy run up to 90 to 95 percent of the total budget. The additional income may either be used to further decrease tuition fees for others, support scholarships, or fund much needed projects.

3. Financing agricultural education

The public agricultural education system has become over dependent on the government for support. Thus other means of realizing income were often left untapped. Tuition and other fees, donations and gifts, and farm projects should be good sources of additional revenues for agricultural institutions.

With very few exceptions, farms of agricultural colleges and universities are poor versions of private farms being tilled and managed by people with much less education compared to faculty members of agricultural institutions. A familiar excuse is that the farms are being maintained for "instructional purposes". Poorly managed and unprofitable farms do not convey the kind of education needed by students of agriculture and serve to alienate farmers from agricultural schools.

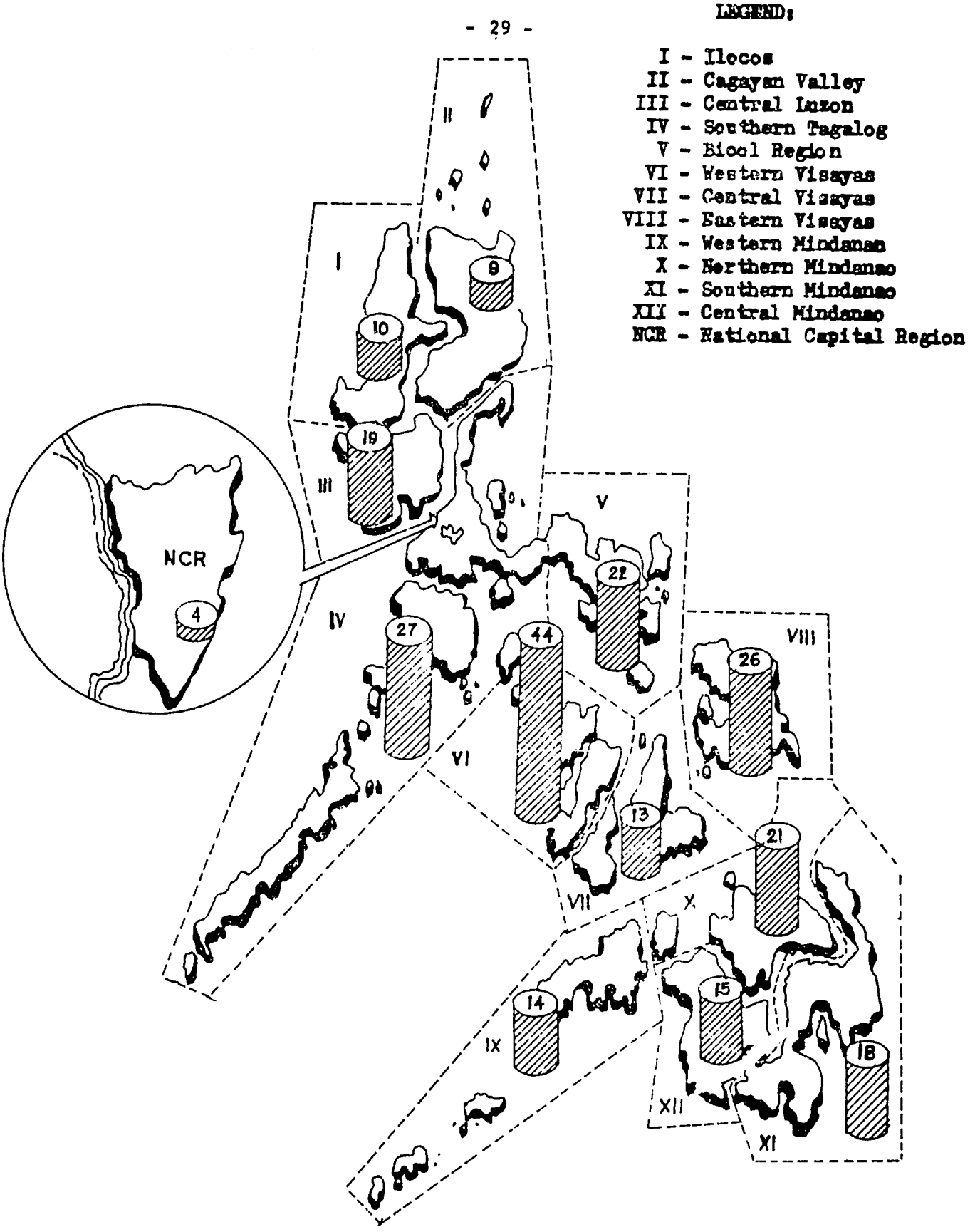
4. Agricultural colleges and universities are not the only dispensers of agricultural education to the rural clientele. The Departments of Agriculture, Agrarian Reform, Science and Technology and a number of others also work with farmers directly or indirectly and are possible useful partners in improving agricultural education in the Philippines. However, lack of coordination has plagued implementation of government programs. Rural development experts and government officials have often advocated closer working relationships among various government units but this has been slow in becoming a reality.

A good example was set lately by the Agricultural Training Institute of the Department of Agriculture (DA) which has initiated memoranda of agreements with key agricultural colleges and universities for the training of department personnel. The Bureau of Agricultural Research is also planning to enter into similar ties with selected institutions to establish and support joint research centers or projects. If understanding can be reached at the top levels of the different departments performing related functions, the problem of linkages and coordination can be minimized drastically, if not entirely eliminated.

5. Image of agriculture

Many agricultural institutions have forgotten the art and the science in agriculture. The perception left is that agriculture as a field of study is farming. Farming is easily learned even without formal education.

Since farming is hard work and often as practiced, not very profitable, agriculture has suffered from low dignity and poor image in comparison with other professions. This poor image of agriculture confounded by the poor market for agriculture graduates led to a decline in agriculture enrolment as compared to the other disciplines. Revising the thrust of the curricula to emphasize science and business is suggested.



Geographical distribution of schools (Total No. = 242) offering agriculture programs by region, Philippines, 1987-1988.

Comparison between effective supply and demand of high level agricultural manpower by curricular programs, 1973-1982

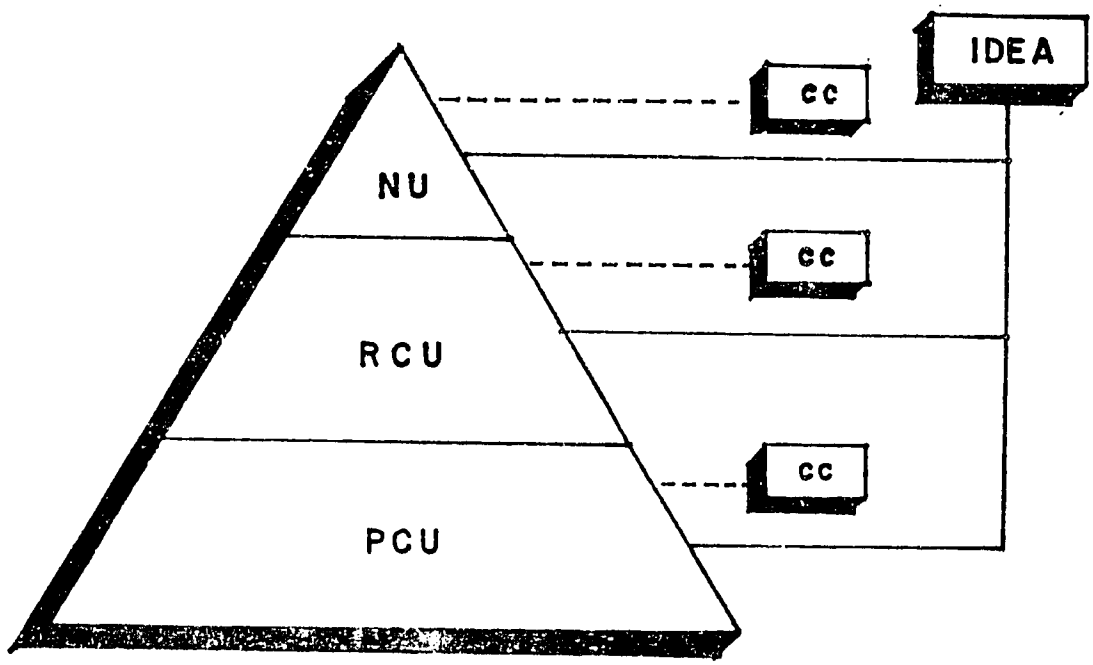
Curricular Program	Effective Supply	Effective Demand	Difference (Surplus)	Percent Difference	Yearly Surplus
BS Level					
Agriculture/Agricultural Technology	12,827	4,123	8,704	67.9	870
Ag. Education/Ag. Ext./Dev. Comm.	2,302	1,244	1,058	46.0	106
Ag. Economics/ Agribusiness	1,304	247	1,057	81.1	106
Ag. Engineering	1,566	351	1,215	77.6	122
Food Science	421	114	307	72.9	31
HE/HT/Ag. Homemaking	673	513	160	23.8	16
Forestry	1,190	120	1,070	89.9	107
D V M	658	136	522	79.3	52
Sub-Total	20,941	6,848	14,903	67.3	1,409
Yearly Average	2,094	685	1,409		
MS/PhD Level					
Agriculture	728	420	308	42.3	31
Ag./Education/Ag. Ext./Dev. Comm./ HE/HT/MATEA	240	55	185	77.1	18
Ag. Economics/ Agribusiness	89	28	61	68.5	6
Ag. Engineering	44	15	29	65.9	3
Food Science	39	9	30	76.9	3
Forestry	112	15	97	86.6	10
Sub-Total	1,252	542	710	56.7	71
Yearly Average	125	54	71		
TOTAL	22,193	7,390	14,803	66.7	1,480
Yearly Average	2,219	739	1,480		

Estimated supply and demand for agricultural technicians and their annual replacement needs, Philippines, SY 1979 - 80 to SY 1986 - 87

School Year (1)	Estimated supply based on Macro Plan (2)	Employed agricultural Technicians Annually (3)	Annual Replacement (4)	Estimated Surplus (5)
1979 - 80	2,845	1,052	87	2,758
1980 - 81	3,443	1,431	379	3,064
1981 - 82	4,041	2,748	1,317	2,724
1982 - 83	4,639	2,257	491	5,130
1983 - 84	5,237	2,502	245	4,992
1984 - 85	5,835	2,748	246	5,589
1985 - 86	6,432	2,994	246	6,186
1986 - 87	7,030	3,240	246	6,784
AVERAGE	4,938	2,372	284	4,653

Estimated supply and demand for agriculture manpower and their annual replacement needs, Philippines, SY 1979-80 to SY 1986-87

School Year	SUPPLY		DEMAND		Estimated Surplus based on	
	Estimated available supply based on		Employed Agriculturist Annually	Annual replacement needs		
	Studies	Macro Plan			Column 2	Column 3
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1979-80	5,937	1,386	19,152	594	5,343	792
1980-81	6,617	1,592	19,765	613	6,004	979
1981-82	5,160	1,831	20,397	632	4,528	1,198
1982-83	6,751	2,102	21,049	652	6,099	1,451
1983-84	7,267	2,417	21,722	673	6,594	1,744
1984-85	7,784	2,777	22,417	695	7,089	2,082
1985-86	8,298	3,190	23,134	717	7,581	2,473
1986-87	8,815	3,664	23,874	740	8,075	2,924
AVERAGE	7,079	2,370	21,439	664	6,414	1,705



The PAGES Model

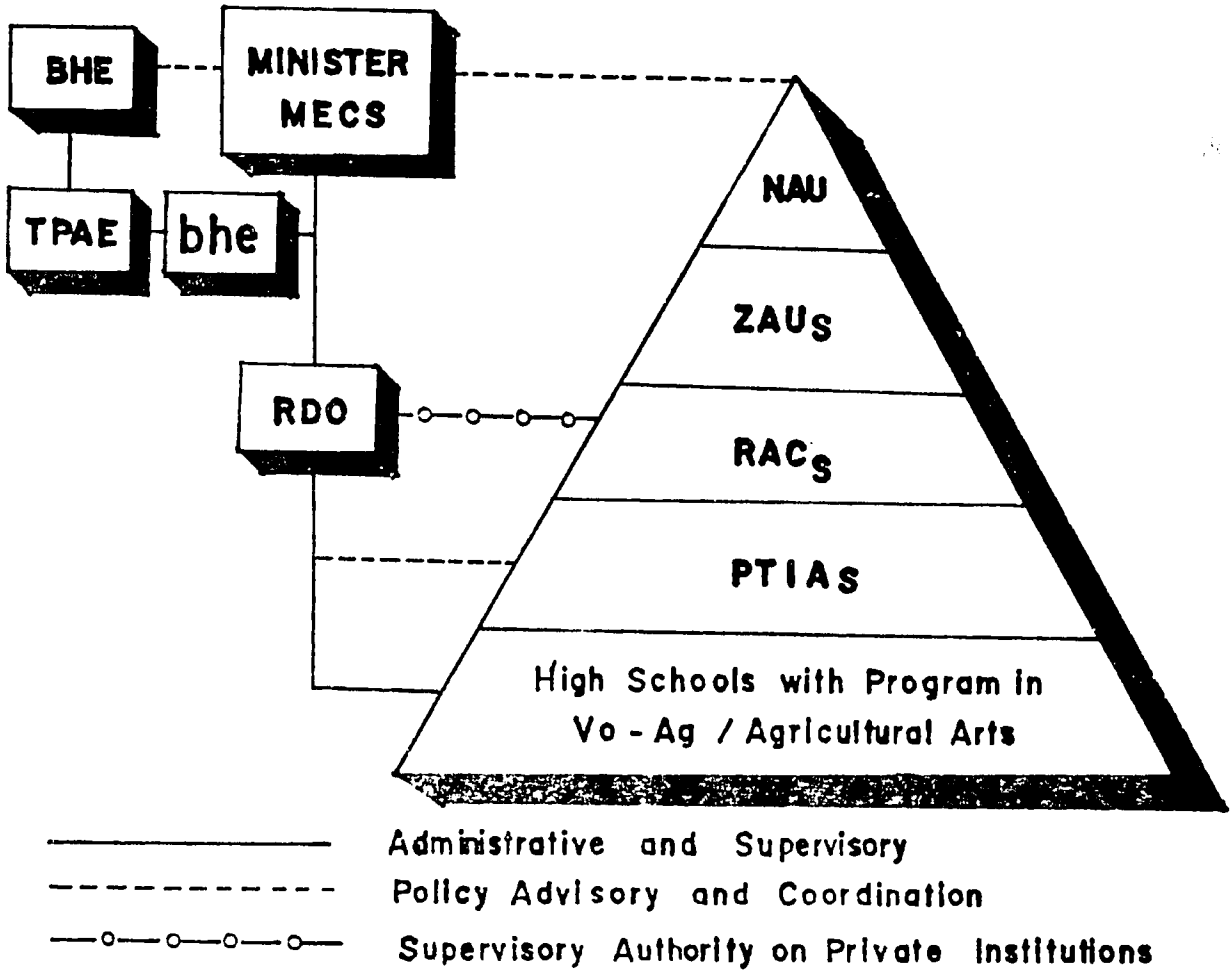
NU - National University

RCU - Regional College or University

PCU - Provincial College, University, Institute or School

CC - Consultative Council

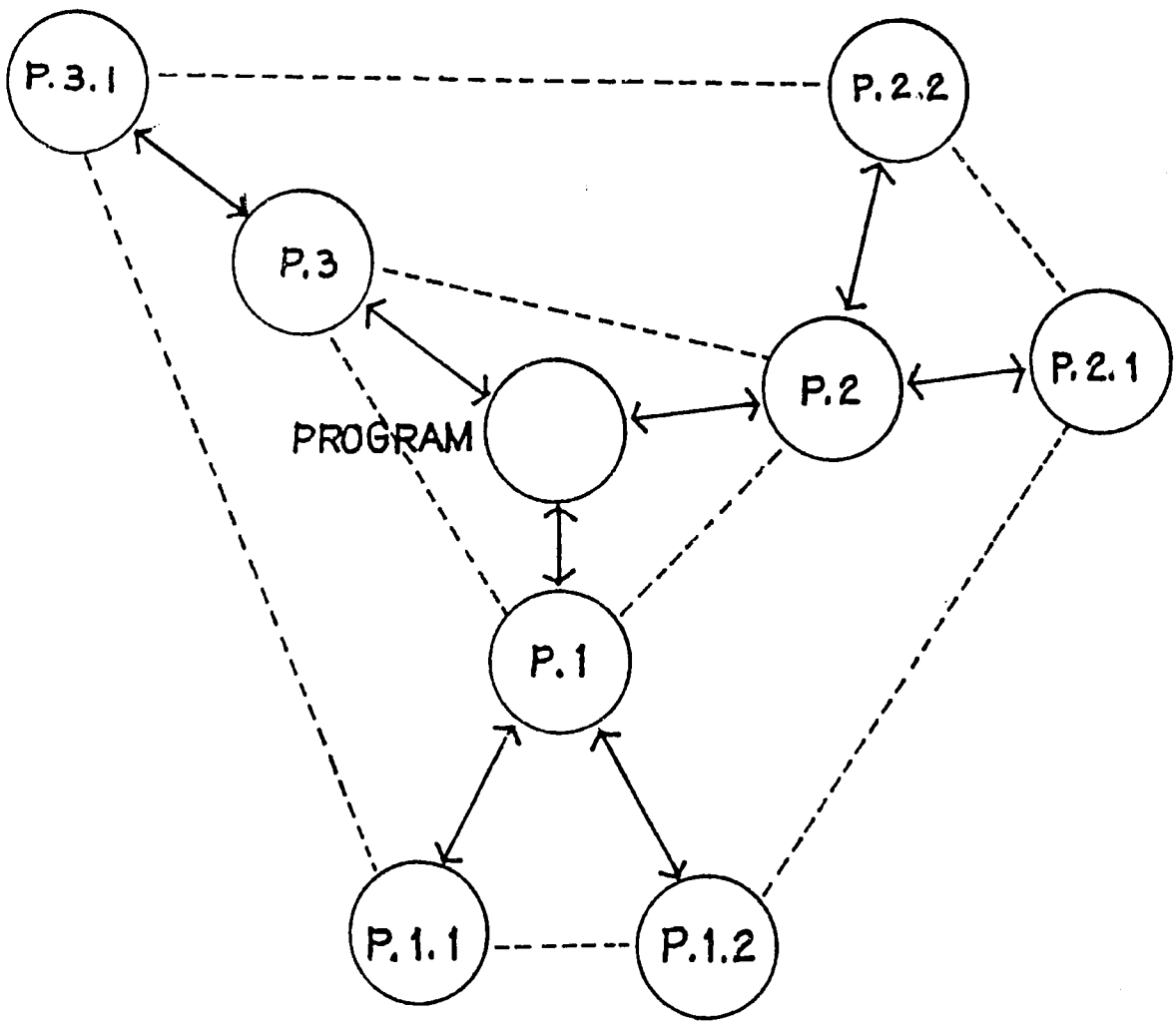
IDEA - Institute of Development Education in Agriculture



Governance Relationship in the National Agricultural Education System

LEGEND:

BHE - Board of Higher Education
MECS - Ministry of Education, Culture and Sports
bhe - Bureau of Higher Education
TPAE - Technical Panel for Agricultural Education
RDO - Regional Director's Office
NAU - National Agricultural University
ZAUs - Zonal Agricultural Universities
RACs - Regional Agricultural Colleges
PTIAs- Provincial Technical Institutes of Agriculture



PROGRAM ORIENTED APPROACH

THE GSP PLANNING APPROACH and AGRICULTURAL EDUCATION PLANNING

by
Cesar B. Umali, Jr.1/
Keynote Speaker

Bridging Planning Theory and Practices

Conceptually, there are two types of planners: (1) the abstract, "ivory tower" theoreticians, particularly those based in the university; and (2) the pragmatic practitioners in government agencies especially those based in the regions and provinces. I can be classified as either type, being a lecturer at the U.P. Diliman (Graduate) School of Urban and Regional Planning, while at the same time performing line functions as Associate Director of the USAID-funded Accelerated Agricultural Production Project under the Department of Agriculture. Thus, I can see myself as being situated in-between the theoriticians and the pragmatists in the field of planning. I fully regocnize the need for a comprehensive, systemic approach to planning; yet I am also fully sensitive to the very practical considerations constraining comprehensive and systemic planning. It is in this perspective that this paper is presented.

A Learning Framework

Theoretically, there are two archetypes of planning approaches: (1) the "rational-comprehensive" (R-C) approach, and (2) the "disjointed-incremental" (D-I) approach. These approaches can be compared and contrasted based on a number of elements, as shown in the table below:

	ELEMENTS	R-C APPROACH	D-I APPROACH
*	Planner's knowledge	Perfect	Minimal
*	Data/Information	Massive	Minimum
*	Scope ("Action Space")	Total System	Very Narrow
*	Resources	Abundant	Extremely Scarce
*	Analytical Techniques	Complex	Primitive
*	Alternatives Considered	All Possible	Few
*	Implementation	Assumed Away	Flexible

The R-C Approach is commonly nicknamed "conventional planning". It is a "high-tech", "total systems" approach involving massive data and information, employing sophisticated statistical and other modeling techniques, and requiring abundant fianancial and natural resources to work with. Because every minute detail is included in the plan, implementation is practically "assumed away".

1/Associate Project Director, USAID-funded Accelerated Agricultural Production Project, Department of Agriculture

On the other hand, the D-I Approach is often referred to as "isolated planning". It is project- or activity-focused and therefore involves minimum data and information, employs nothing more than "primitive" or basic analytical techniques, and requires only very little financial and natural resources. In contrast to the R-C Approach, implementation is flexible and requires very careful attention to details. Again in contrast to the R-C Approach, only a few alternative courses of action or situations are considered under the D-I Approach.

A Middleground

Through the years, planners have been seeking and studying a middleground between the R-C and D-I Approaches. As noted in the introductory section of this paper, there is a recognition of the need for a comprehensive and systematic approach to planning. At the same time, however, there are very practical considerations constraining comprehensive and systematic planning. This brings to mind the "paradox of planning" which states that where planning is not necessary (i.e., in the More Developed Countries), it is quite feasible because of the high level of available resources and technology. Where planning is absolutely necessary, however (i.e., in the Less Developed Countries), it is not feasible because of severe resources and technological constraints.

One such middleground between the R-C and D-I Approaches is the "GSP Approach" discussed below:

The GSP Approach

This approach, as developed by Mr. Avrom Bendavid, consists of three stages: (1) formulation of "Guidelines"; (2) identification of "Strategy(ies)" to bring about the changes specified in the guidelines; and (3) designing and implementing "Projects" or activities in line with the Strategy(ies).

Guidelines. These provide the general directions on which basis we are to proceed. The directions are neither detailed nor quantified. At this initial stage of the GSP Approach, all we are answering is the question "Whereto?". Of course, the Guidelines are based on some degree of systematic study.

In the USAID planning context, the Guidelines would be based on the "Project Description" attached to each Project Agreement between the USAID and the Host Country Government. The Guidelines may also be embodied in the "Mission" of the State College or University (SCU). I had been fortunate to have been involved in the USAID-funded Agricultural Education Outreach Project (AEOP). One of the Guidelines under that Project was: "Bring the SCU closer to the community".

Strategies. The second stage of the GSP Approach is to identify and select the most efficient and cost-effective way(s) to bring about the change(s) or situation indicated in the Guidelines. At this point, we are concerned with the question "How?". This requires a high level of innovativeness and imagination on our part. To give an example of a Strategy, I will again refer to the AEOP. An admirable and innovative strategy employed to "bring the SCU closer to the community" was to support joint student-farmer livelihood and other projects on the farmer's field.

Projects. In this third and last stage of the GSP Approach, we are now interested in designing and implementing specific projects or activities "on the ground" in line with the strategy(ies) we had earlier selected. We are now addressing a very practical series of questions: "What?" "Where?" and "When?. Finally, we have brought our plan(s) down to the level of reality.

A Major Issue

Before leaving the discussion of planning approaches, I would like to briefly dwell on another facet of a persistently nagging issue on planning which all of us face. This issue can be defined as "Activity/Art-ist Planning vs. System/Science-ist Planning".

Certainly, all of us would like to follow a "systems approach" to planning. Whenever the term "systems approach" is mentioned, however, many people are simply overwhelmed. They find serious difficulty determining the relevant "action space" or "boundary". Thus we see overlapping or duplicating action spaces. Many times, we define an action space which is too big that we simply cannot handle it. I have worked with some very bright planners who suffer from what in the social sciences is known as "paralysis by analysis". They are overwhelmed by the systems approach and thus are engaged in perpetual planning with minimal implementation of plans.

As a consequence, there are a few "art-ists" who abhor planning entirely. These people would rather "plan" small, discrete activities with little or no regard for "systems". In other words, they would rather pursue the "isolated planning" approach earlier mentioned. Obviously, a "middleground" is a practical necessity.

The GSP Approach and USAID

Even after a project is finalized and a Project Agreement is signed, a lot of planning effort is required. As above mentioned, all that the Project Description provides are the "Guidelines: under the GSP Approach. Implementors are faced with the responsibility of operationalizing such broad Guidelines. In this regard, USAID normally requires implementing agencies of the Host Country Government to prepare "Implementation Plans" or "Workplans" which will describe both "Strategies" and "Projects" or "Activities". The Implementation Plan helps us realize the following desirable features of our project/activities: (a) focus, (b) coherence, (c) consistency, and (d) completeness. The Implementation Plan is multi-year but usually includes a more detailed annual plan which is updated as necessary. Thus, we see that USAID is totally averse to the isolated planning approach.

A planning tool which I have found to be very useful in preparing implementation plan is USAID's "logical framework". It helps us achieve the aforementioned four desirable features of our project/activities. Unfortunately, however, we cannot discuss the logframe in detail in this seminar.

A final point to consider will be monitoring and evaluation. Just as we had identified two archetypes of planning approaches, we can refer to "conventional monitoring and evaluation" and a "new type".

Under the conventional type, evaluation is pre-determined at specific points in the life of the project. Thus, we gear our monitoring system accordingly. Usually, evaluation is conducted by people not directly involved in project implementation.

Under the new type of monitoring and evaluation, we make use of "built-in" evaluation mechanism, otherwise known as "self-evaluation mechanism". Such mechanisms allow us to undertake "continual evaluation exercises" or evaluate as and whether we deem an evaluation is needed. As already suggested, evaluation is usually done "internally" by the same people who are directly involved in implementation. External evaluation are done infrequently, usually only at the end of the project.

A Range of Typical "Systems" Questions

* Is my college (am I part of) a learning system?
* What is its fundamental purpose (vision)?
* How is that interpreted into functional transformation?
* How is the performance of such transformations assessed?
* How is the coherence of the system maintained?
* What "culture" characterizes (prevails within) the system?
* What is its structure organization?
* What are the major sub-systems:
* How do they inter-relate?
* What are the major information and matter flows?
* What are the major mechanisms of regulation?
* How does the system monitors its environment?
* What are the major mechanisms of adaptation?
* What are the major mechanisims of adoptation?
* How is their performance assessed?
* What are the prevailing environmental characteristics?
* How do they influence the system?
* How does the system influence them?
* How does this system interacts with other systems?
* Of what other system(s) is this a sub-system?
* How is the overall purpose of the system decided?
* Who are the main beneficiaries from its activities?
* Who owns the system?
* How effective is the process of co-evolution?
* How could the situation be improved?

A Suggested List of Strategic Planning Questions

Mission

How can the mission of the university be defined in order to encourage a more proactive and adaptive leadership role in supporting the full potential of agricultural growth as a major source of income and employment generation throughout the national economy?

To what extent will the mission of the agricultural university or college need to be expanded in order that its research and education programs can encompass policy and institutional variables which constrain or support agriculture as an engine of employment and income generation?

Strategy

To what extent will education and research programs need to be adapted or fundamentally reconceptualized in order to incorporate a broader emphasis on the systemic interactions which link agricultural change with increased attention to employment, income and natural resource management issues?

What are the range of strategies which can be adopted by a university in assuring that the knowledge and manpower it generates has a more direct and continuing impact on social and institutional change in the rural sector and on attendant public and private sector institutions which function as important change agents in this process?

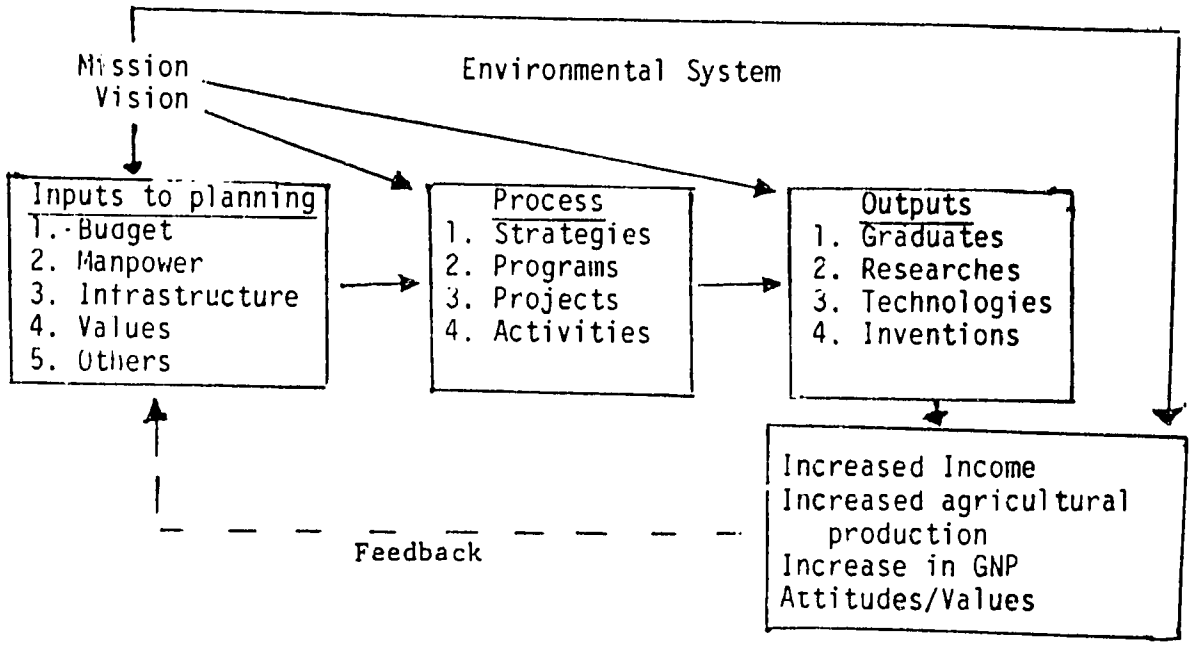
Structure

What kinds of linkages and structures with the environment need to be put in place by the university in order to assure a process of continuing innovation in enhancing the relevance of research and education programs for those external constituencies deemed most critical to rural development?

What are the range of internal structures, beyond and above more conventional discipline and commodity-based departmental structures and programs, which could serve to enhance faculty and student competencies in assessing and addressing priority problem areas in the rural sector?

GROUP I OUTPUTS

I. Conceptual Model of Agricultural Education Planning



II. ISSUES affecting Agricultural Education in the Philippines

1. Selection of Students
2. Occupational preferences (agr. vs. industry; white vs. blue)
3. Relevance and availability of programs
4. Relevance of programs to availbale resources
5. Lack of political will to develop agriculture
6. Peace and Order
7. Incentives

GROUP MEMBERS:

1. Dr. Bienvenido Agpaoa, President, DMMMSU
2. Mr. Roy Kempis, Director of Planning, PAC
3. Dr. Santos Aragones, Consultant
4. .Mr. Clemencio Bascar, Dean of Extension, WMSU - RAPPORTEUR
5. Mr. Benjamin Cortez, Rural Youth Dev't. Specialist, ATI
6. Mr. Floro Dalapag, Asst. Professor, Xavier University
7. Mr. Edgar Ricamonte, Technical Advisor, EDPITAF
8. Mr. Cesar Umali, Jr., KEYNOTE SPEAKER - MODERATOR

GROUP II OUTPUTS

I. Discussion on:

a. Planning approaches
b. Individual members' dream in relation to strategic planning for tertiary education
c. Factors affecting preparation and implementation of plans:
   - social values
   - policy
   - budget
   - culture
   - politicians
   - etc. (evaluation)

II. Consensus:

Individual members have their own biases in their own dreams in relation to the topics of our present seminar which is due to the fact that they are representing their own separate institution.

GROUP MEMBERS:

1. Dr. Mariano Balauag, Vice President, ISU
2. Dr. Virgilio Libunao, Director of SRDC, DMMMSU - RAPPORTEUR
3. Dr. Beatriz del Rosario, Director of Planning, PCARRD
4. Dr. Federico Flores, Director of ATI, VISCA
5. Dr. Nilo Rosas, Director, Bureau of Higher Education, DECS
6. Mr. Teodoro Garcia, Director of Higher Education, DSAC
7. Mr. Teofilo Montemayor, Project Manager, AEOP/PMO-DECS
8. Dr. Ruperto Sangalang, President, DSAC, KEYNOTE SPEAKER - MODERATOR

GROUP III OUTPUTS

ISSUES:

1. Change versus innovation and development
2. Strategic planning versus mandate and other constraints
3. Strategic planning versus pragmatism, bottom's up planning and macro-micro planning
4. Strategic planning vis-a-vis consultative planning
5. Mission, goals, objectives in relation to strategic planning
6. Relation of strategic planning and ideological framework of the university
7. Strategic planning versus strong data base system
8. Experience versus experiential learning

GROUP MEMBERS:

1. Dr. Ramon Simbulan, President, PAC - RAPPORTEUR-MODERATOR
2. Dr. Sotero Lasap, Vice President, DSAC
3. Mr. Domingo Paguirigan, Director of Planning, ISU
4. Mrs. Sofia de Guzman, Senior Economic Researcher, BHE-DECS
5. Dr. Federico Villamayor, Jr., Asst. Director for ODREX, VISCA
6. Dr. Manuel Bonifacio, Consultant, ATI
7. Dr. Samuel Mancebo, Executive Secretary, TPAE
8. Mr. Christopher Ablan, Dean of Agriculture, Silliman U.

SEMINAR ON
STRATEGIC PLANNING FOR TERTIARY AGRICULTURAL EDUCATION

AUGUST 12, 1988

Osias Hall, Department of Education, Culture & Sports
Palacio del Gobernador, Intramuros, Manila

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	2.	Dr. Virgilio Libunao Director, Sericulture Research Development Center Don Mariano Marcos Memorial State University Bacnotan, La Union
II	3.	Dr. Mariano Balauag Vice President Isabela State University, Echague, Isabela
	4.	Mr. Domingo Paguirigan Director for Planning Isabela State University, Echague, Isabela
III	5.	Dr. Ramon L. Simbulan President Pampanga Agricultural College, Magalang, Pampanga
	6.	Mr. Roy Kempis Director, Planning and Development Office Pampanga Agricultural College, Magalang, Pampanga
IV	7.	Dr. Ruperto Sangalang (KEYNOTE SPEAKER) President, Don Severino Agricultural College Indang, Cavite
	8.	Dr. Sotero Lasap Vice-President & Director, Planning and Development Office Don Severino Agricultural College, Indang, Cavite
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SEMINAR ON
STRATEGIC PLANNING FOR TERTIARY AGRICULTURAL EDUCATION
AUGUST 12, 1988

8:00 - 8:30 Arrival of Participants

8:30 - 8:45 Inaugural Session

1) Opening Welcome
Dr. Nilo Rosas, Director, Bureau of Higher Education
Department of Education, Culture & Sports

1) Opening Remarks
Mr. Kenneth A. Prussner, Chief
Office of Rural and Agricultural Development
U.S. Agency for International Development

3) Opening Remarks
Dr. Ruben Villareal, Dean of Agriculture
University of the Philippines at Los Banos &
Chairman, Technical Panel for Agricultural Education

8:45 - 9:45 Keynote Address - Participant Interaction
Dr. Richard Bawden, Dean of Agriculture
Hawkesbury Agricultural College
Richmond, Australia

9:45 - 10:00 Coffee Break

10:00 - 11:00 Keynote Address - Participant Interaction
Dr. Ruperto S. Sangalang
President, Don Severino Agricultural College

11:00 - 12:00 Keynote Address - Participant Interaction
Mr. Cesar Umali, Jr., Associate Director
USAID-funded Accelerated Agricultural Production Project
Department of Agriculture

12:00 - 1:00 Lunch

1:00 - 3:00 Small Group Session

3:00 - 3:15 Coffee Break

3:15 - 4:15 Presentation/Discussion of Small Group Outputs

4:15 - 5:15 Closing Session

Summary of Seminar Proceedings
Dr. Richard Bawden