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**THE UNIVERSITY OF THE PHILIPPINES
AT
LOS BANOS**

**A REVIEW OF CIRCUMSTANCES AFFECTING UPLB
TODAY AND SUGGESTIONS FOR SHAPING
ITS FUTURE**

**REPORT OF AN EXTERNAL REVIEW PANEL
SEPTEMBER 21, 1989**

**U. S. AGENCY FOR INTERNATIONAL DEVELOPMENT
OFFICE OF RURAL AND AGRICULTURE DEVELOPMENT
MANILA, PHILIPPINES**

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

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PREFACE

This report presents the results of a comprehensive, independent three-member panel review of the University of the Philippines at Los Banos (UPLB) from August to September 1989.

As a premier institute for agriculture in the Philippines, UPLB must respond to complex change and the compelling problems of the rural Philippine economy. Agricultural development for the 1990's and beyond will become more difficult and complex because:

- About 50 percent of Filipinos are under the poverty threshold;
- The country faces a delicate balance between rapid population growth and the ability to feed itself;
- Agricultural productivity has declined since 1980;
- Natural resources have been rapidly depleted;
- Research efforts focus largely on production with high inputs, more needs to be done to address post-harvest and marginal farmers on upland, rainfed or swampy lands with poor soils;
- For many, farming has become a part-time activity as off-farm opportunities generate more cash;
- The impact of agrarian reform will fundamentally change existing systems of rural life and production.

These realities present a Philippines that will be more crowded, hungry and will require more food, put more stress on natural resources and need more jobs. While agriculture continues to play a vital role in the slow recovery of the rural economy, a focus on primarily food production technology is no longer sufficient by itself. Production operates in an increasingly complex matrix of economic, social, political and cultural forces. Philippine agriculture of the 21st century needs UPLB graduates who can respond to these realities. They are needed as future leaders, rural and agricultural planners, decision makers, program managers, supervisors, subject matter specialists, etc. What are the changing requirements for these graduates? What reforms does UPLB need to institute to produce such graduates?

As part of a two-year internal review effort, UPLB requested USAID to provide three international, highly-respected consultants to undertake the panel review of UPLB. The views and interpretations expressed in this report are those of the panel and should not be attributed to USAID. I hope, however, dissemination of this report will guide key decisions on the future of UPLB, higher agricultural education in the Philippines and contribute to the evolving role of agricultural education.

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To help focus your review of the report, the executive summary highlights key recommendations. The main report consists of 35 pages of which Section 2.2 summarizes major issues, Section 3.0 focuses on the future of UPLB and 4.0 discusses the implications of suggested actions. Also sections B 1-3 will be of interest for readers who may want a broader familiarity with the role of strategic planning and universities as a center for social transformation.

Finally, the efforts of the panel members in producing an informative, very readable and well-documented analysis of UPLB deserve special mention.

Kenneth A. Prussner
Chief, Office of Rural and
Agricultural Development
U.S. Agency for International
Development, Manila

- C -

TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
	Table of Contents	
	Foreword	i
	Executive Summary	iii
1.0	UPLB's Past	1
2.0	UPLB'S Present	3
2.1	UPLB Reviews	3
2.2	Major Issues	4
2.2.1	Basic Mission and Comprehensiveness of UPLB	4
2.2.2	Lack of Orientation or Focus	7
2.2.3	Proliferation of Units, Curricula and Degree Programs	8
2.2.4	Lack of Budgetary Support for Operations and Maintenance	8
2.2.5	Adequacy of Personnel	9
2.2.6	Compensation of Faculty and REPS	10
2.2.7	Overall Budgetary Support	11
2.2.8	Faculty Morale	11
2.2.9	Lack of Rules or Standardized Procedures for Handling Contracts/Grants and Consulting Arrangements	12
2.2.10	Implications to UPLB of the Proliferation of Colleges of Agriculture, Forestry and Veterinary Medicine in the Philippines	12
2.2.11	Cooperation and Interdisciplinary Efforts Within the University	13
2.2.12	Other Issues	13

d

<u>Section</u>	<u>Title</u>	<u>Page</u>
3.0	UPLB's Future	14
3.1	Panel Commentaries Concerning Major Issues	14
3.1.1	The Basic Mission and Comprehensiveness of UPLB	14
3.1.2	Lack of Orientation or Focus	14
3.1.3	Proliferation of Units, Curricula and Degree Programs	15
3.1.4	Lack of Budgetary Support for Operations and Maintenance	15
3.1.5	Adequacy of Personnel	15
3.1.6	Compensation of Faculty and REPS	16
3.1.7	Overall Budgeting Support	16
3.1.8	Morale Among University Personnel	18
3.1.9	Lack of Rules or Standardized Procedures for Handling Contracts/Grants and Consulting Arrangements	18
3.1.10	Implications to UPLB of the Proliferation of Colleges of Agriculture, Forestry and Veterinary in the Philippines	19
3.1.11	Cooperation and Interdisciplinary Efforts Within the University	19
3.1.12	General Panel Commentary	19
3.2	Suggestions Concerning Major Areas of University Emphasis or Thrusts	23
3.2.1	Development-Focused Universities	23
3.2.2	Possible Areas of University-wide Emphasis	23
4.0	Implementation and Implications of Suggested Actions	32
4.1	Implementation	32
4.2	Implications	33
4.2.1	Donor Support	34

h

<u>Section</u>	<u>Title</u>	<u>Page</u>
5.0	Possible Linkages with Other Universities	35
ANNEXES		
A-0	The UPLB Environment -- Circumstances That Will Affect the University's Future	1
A-1.0	The External Environment	1
A-1.1	Philippine Agricultural and Rural Sector	2
A-1.1.1	Land Area	3
A-1.1.2	Agricultural Enterprises	4
A-1.1.3	Agricultural Production and Productivity	5
A-1.1.4	Agricultural Sector Performance	6
A-1.1.5	Agricultural Trade	7
A-1.1.6	Summary	8
A-1.2	Rural Poverty, Population Growth and Resource Degradation	8
A-1.2.1	Poverty	8
A-1.2.2	Population Trends	12
A-1.2.3	Natural Resource Degradation	13
A-1.3	Linkages of UPLB Units, Governmental Agencies and Programs	15
A-1.3.1	Types of Linkages	16
A-1.3.2	Principal Agencies Linked	16
A-1.3.3	Competitive Relationships	19
A-1.3.4	Employment Relationships	19
A-1.3.5	Informational and Other Services	20
A-1.3.6	Critique and Evaluative Relationships	23
A-1.4	The Philippine Agricultural Education Sector	24
A-1.4.1	Basic Education	25

A

Section	Title	Page
A-1.4.2	Tertiary Education	26
A-1.4.3	Macro-Plan for Agricultural Education	27
A-1.5	Donor Activity in the Philippines	30
A-2.0	The Internal UPLB Environment	32
A-2.1	The Evaluation of UPLB and Its Major Academic Units	32
A-2.1.1	College of Agriculture	32
A-2.1.2	College of Forestry	32
A-2.1.3	College of Engineering and Agro-Industrial Technology	32
A-2.1.4	College of Arts and Sciences	32
A-2.1.5	College of Economics and Management	33
A-2.1.6	College of Veterinary Medicine	33
A-2.1.7	College of Human Ecology	33
A-2.1.8	Graduate School	34
A-2.1.9	Institutes and Centers	34
A-2.1.10	Summary of Academic Units and Programs	37
A-2.2	The Mission of UPLB	37
A-2.3	UPLB Organizational Structures	39
A-2.3.1	A Unit of the University of the Philippines	39
A-2.3.2	UPLB Administration	40
A-2.3.3	Colleges	41
A-2.3.4	Graduate School	44
A-2.3.5	University Council	44
A-2.4	Financial Resources	44
A-2.4.1	Internal Operating Budget	45
A-2.4.2	Funds from External Sources	52

Section	Title	Page
A-2.4.3	Funds from the UPLB Foundation	52
A-2.5	Research and Extension	57
A-2.5.1	Research and Extension Administration	57
A-2.5.2	Research	58
A-2.5.3	Extension	63
A-2.6	Faculty and Staff	66
A-2.6.1	Number of Faculty and Qualification	66
A-2.6.2	Faculty Evaluations	67
A-2.6.3	Faculty Compensation	69
A-2.6.4	Administrative Staff	69
A-2.7	Students and Graduates	70
A-2.7.1	Student Enrollment	70
A-2.7.2	Graduation Rates	70
A-2.7.3	Enrollment by Course	73
A-2.7.4	Original Recruitment of Students	73
A-2.7.5	Student Attitudes	75
A-2.7.6	Graduates	76
A-2.8	University Support Facilities and Organizations	76
A-2.8.1	UPLB Foundation	76
A-2.8.2	Alumni Association	77
A-2.8.3	Campus Planning Development and Maintenance Office	77
A-2.8.4	Library	79
A-2.8.5	Central Analytical Services Laboratory	79

h.

Section

Title

B-0	Special Papers by Panel Members
B-1.0	Strategic Planning for Universities As Critical Learning Systems
B-2.0	Development Focused Universities
B-3.0	Learning and Leadership for Social Transformation: UPLB -A System in Transition
C	Schedule for the USAID Review Panel
D	List of Materials

Foreword

Under the leadership of Chancellor Raul de Guzman, the University of the Philippines at Los Baños (UPLB) has been engaged in an extensive process of external and internal reviews in a continuing effort to improve itself, addressing major issues which may impair its progress. As a part of this process, the Chancellor requested USAID in Manila to provide the services, for several weeks, of a panel of foreign educators to assist in this endeavor.

Such a Panel was constituted, consisting of Dr. Richard Bawden, Dean of the Faculty of Agriculture and Rural Development of the University of Western Sydney, Hawkesbury, Australia; Dr. Edwin Price, Associate Dean of the College of Agriculture and Director of International Research and Development at Oregon State University, U.S.A.; and Dr. E. T. York, Jr. Distinguished Service Professor, University of Florida and Chancellor Emeritus of the State University System of Florida, U.S.A.

The Panel was requested to review the reports of other evaluation teams along with the development plans of UPLB and its component units; to discuss with various officials, inside and outside the University, what might be an appropriate role for UPLB; to inspect the physical facilities, and to give advice and recommendations on new directions for the University. Members of the Panel spent some 5 to 6 weeks in this endeavor, beginning around the middle of August, 1989.

The Panel is deeply appreciative of the splendid cooperation and assistance provided by the many individuals and groups with which it interacted. These included key administrators of the University, representative groups of students, faculty, REPS and administrative personnel, the President of the University of the Philippines, the President of the UPLB Alumni Association, officials of a number of key Government Departments in Manila, representatives of the private sector, USAID officials, and others.

Special recognition should be accorded Chancellor de Guzman for his gracious assistance and many courtesies and to Dr. Pedro Sandoval, former Dean of the College of Economics and Management, who served as a most effective Executive Director of the UPLB External Review Task Force, and whose efforts greatly expedited the Panel's work. The Panel is also indebted to Dr. Emmanuel D. Bello, Vice Chancellor for Planning and Development at UPLB and to Dr. Rodolfo Azanza, President of Catanduanes State College who served as members of Dr. Sandoval's Task Force, for their insight and input on many matters considered by the Panel. Finally, the Panel is indebted as well to Ms. Jane Nandy, Program Officer with USAID in Manila, for her helpful guidance and assistance in carrying out this mission.

The contributions of all these individuals and groups have been invaluable in assisting the Panel gain needed information and insights concerning the tasks it was asked to perform. The Panel hopes that its endeavor will contribute towards helping a university with an enviable record of past achievements to become an even better institution in the future.

The Review Panel

RICHARD BAWDEN

EDWIN PRICE

E. T. YORK, JR., Chairman

Executive Summary

Many would consider the University of the Philippines, Los Baños, to be one of the finest -- if not the premier -- institution of its kind in the developing world, indeed equal or superior to some in industrialized countries.

Under the leadership of Chancellor Raul P. de Guzman, the University has initiated a number of internal and external reviews in a continuing effort to further improve itself. The most comprehensive set of these reviews has involved the appointment of External Committees - made up of prominent leaders in Philippine higher education, government, agriculture, forestry, business and industry -- to examine the university and make recommendations for improvement. Following these efforts, a three-member Panel of foreign educators was asked to consider the reports of the review committees along with the development plans of the University; to discuss with various officials in and outside the University what might be an appropriate role for the institution; and to give advice concerning its future.

Annex A of this report includes a detailed consideration of UPLB's external and internal environments, involving many factors which will impact the University's future. Some are summarized below:

UPLB's External Environment

- The rate of population growth in the Philippines is one of the highest in the world. This translates into a rapidly growing demand for agricultural products for domestic use.
- Significant progress in improving the output of the agricultural sector has been made during the last quarter of a century. There is evidence, however, that the rate of agricultural sector growth has significantly slowed in recent years. Agricultural productivity is not high compared with other major countries in the region. The Nation continues to import basic food and feed commodities. Moreover, agricultural export earnings have fallen sharply in recent years.
- There are major problems of poverty in rural areas, calling for special efforts to improve the economic and social conditions of the rural poor.
- The rapid growth in population and high incidence of poverty in rural areas are contributing significantly to the exploitation and degradation of land and forest resources throughout the country. These circumstances, along with the extensive commercial exploitation of forest areas in recent years, has contributed to a major depletion of forest resources and a

significant loss of indigenous plant and animal species. There are also serious problems of soil erosion and invasion of economically worthless species of plants in the uplands -- along with flooding of lowlands, the siltation of waterways, the deterioration of aquatic resources, and other serious consequences.

- There are now many other colleges and universities throughout the Philippines which also offer programs in agriculture, forestry and veterinary medicine. The existence of these other institutions poses questions about the future role of UPLB.
- There are also many other organizations, public and private, which will interact with, or need to be served by, UPLB. Many of the key priorities and goals of the Philippine Government also have significant implications to UPLB as the National University with primary responsibility for agriculture, forestry and related natural resources.

Major Issues Relating to UPLB's Internal Environment

The Review Committees and our Panel have identified a number of important issues within the institution which could significantly affect the University's future. Some are summarized below:

- There is an active debate within the University and outside concerning the appropriate mission of the University. Some believe the institution should become more comprehensive in its scope; others think it should continue to have, primarily, an orientation toward agriculture, forestry, and rural areas. Some suggest that the move towards a more comprehensive university has weakened the University's ability to carry out its traditional role of serving agriculture, forestry and related areas.
- Closely associated with this issue is the question of whether the University should concentrate, primarily, on the generation of agricultural production technology or whether it should expand its scope to deal with broader problems of rural development, including the economic and social problems of rural areas.
- The evolution towards a more comprehensive university has already made significant progress. Today, seventeen years after its designation as a University, UPLB has more students majoring in the College of Arts and Sciences than in agriculture. In fact the Colleges of Agriculture, Forestry and Veterinary Medicine, account for less than half of all students.

- There is a widespread feeling that the University lacks a central focus or major sense of direction, especially in research and extension. Many attribute this to the fact that UPLB has to rely so heavily on external sources of funding for research and extension -- with these funding sources being more interested in their own agendas, than the interests or priorities of the University.
- In recent years there has been not only a significant expansion in numbers of colleges but also a proliferation of other organizational units as well -- including institutes and centers with related curricula and courses. Some believe that such proliferation has contributed to greater fragmentation and complicated the task of achieving desirable interdisciplinary involvement of faculty.
- There is widespread evidence that funding for operations and maintenance is extremely deficient. Many colleges report that some 95% of their budgets are committed to personnel, leaving few operating funds to support programs. Salaries for faculty and REPS (research and extension personnel) are low, contributing to low morale and the loss of good personnel.
- While the overall University budget has almost doubled in nominal terms since 1980, the University has only about two-thirds the level of budgetary resources today, in real terms, as it had at the beginning of this decade.
- By most university standards UPLB has a very low ratio of students to faculty (an average of one faculty member for each 7.2 students). In the first semester of the 1988-89 academic year, there were about 800 faculty members responsible for teaching approximately 800 courses. This translates, on the average, into 25 percent of a full teaching load. Moreover many courses have very low enrollments. (More than one quarter of all courses offered last year had 1 to 5 students; some 43% had 10 or less students.) Both these circumstances result in high instructional costs, especially for personnel.
- There are some academic programs which appear to be inordinantly expensive. These involves, for, example, situations where enrollments have declined significantly without apparent adjustments in personnel. There is little evidence that low priority programs are terminated or significant adjustments are made in resources allocated to support them. Moreover, there are a number of functions within the University which should be self-sustaining, financially, but which are significantly subsidized by appropriated funds.

Panel Commentary/Recommendations

UPLB's future will be influenced greatly by circumstances relating to both its internal and external environments -- as well as how it addresses some of the major problems or issues set forth in this report. Following are Panel commentaries concerning these issues and how the University might address them:

- The Panel suggests that the sort of evolution by UPLB into a more comprehensive institution has been almost inevitable since its designation as a University. It would appear that such an evolution is essentially irreversible and that little could be gained by further debating the issue. Any further broadening of the University's scope, however, might concentrate on those disciplines and programs that would complement the University's effort to serve its traditional agricultural and rural clientele.
- The Panel believes there can be significant positive aspects of such an evolution to a more comprehensive institution. Strong programs in the humanities and the social, physical and biological sciences should contribute to strong programs in agriculture, forestry, and related areas. The potential danger from such a move arises if there is a failure to secure the additional funding needed to implement these additional programs -- the result being a dilution of resources and a weakening of programs in the more traditional applied areas.
- There are obviously major problems in the agricultural and rural sectors of the nation. Given the importance of these sectors to the economic and social fabric of the Nation, the Philippines can ill-afford a weakening of programs to serve those areas. Consequently efforts to broaden the scope of the University should involve additional funding to fully accommodate the cost of expanded efforts. Moreover, there is need for "catch-up" funding to more adequately cover the expansion which has already occurred.
- The Panel fully recognizes the need for UPLB to continue efforts to develop the technology to make the agricultural sector more productive and efficient. However, many of the serious social, economic and environmental problems of rural areas will not be solved through agricultural production technology alone. Therefore, the University should give increasing attention and priority to efforts directed towards those broader problems.
- The Panel concurs with many of the concerns expressed about the proliferation of institutes, centers, curricula, and degree programs. However, this, in itself, may not be harmful unless it represents a waste of resources or impairs the ability of

the University to accomplish its mission (many insist that it is having both consequences).

- It would appear that the University may have significantly more faculty in place than is necessary to serve the instructional needs of the institution. Some might suggest that such excess faculty should pose no problem -- those not needed in teaching could direct their efforts to research and extension. However such a shift is generally not feasible because of the severe shortage of operating funds to support research and extension activities.
- These circumstances suggest the need for the University to consider how it might more productively use its faculty resources. An obvious possibility would be to make an all-out effort to generate needed funds --from external donors, if necessary - to enable faculty not required in teaching to concentrate on high priority research and extension programs of importance to the university and the Nation. If that cannot be done, however, serious consideration should be given to reducing numbers of personnel to be more consistent with teaching requirements, using the resources thus generated to enhance salaries and support funding so that the remaining faculty might be more productive and effective.
- The Panel also believe there are significant opportunities to adjust and reallocate resource now used for programs of low productivity and/or priority, as well as to rationalize the need to subsidize, with appropriated funds certain activities which should be largely self-sustaining, financially.
- The Panel shares the widely-held view concerning the need for more sharply focused goals, objectives, and areas of program emphasis especially in research and extension. We believe the development of such more sharply focused areas of emphasis could be the first, and, perhaps, most important step toward addressing some of the serious issues or problems confronting the university.
- The Panel suggests that the University give careful consideration to the development of one or more major areas of program emphasis which could involve much of the total institution. We suggest three possible areas for consideration:
 - 1) To engage in a process of helping to strengthen other Philippine colleges of agriculture, forestry and veterinary medicine -- not only in these three subject matter areas but also in the supporting basic sciences.
 - 2) To develop a major initiative around the concept of

achieving sustainable agricultural development. This would have a major productivity dimension related to meeting growing needs of the Nation. It would also have an environmental and natural resources dimension related to conserving, protecting and restoring the natural resource base on which agriculture depends -- so that the needs of people can be met, both now and into the future.

3) To engage in a major effort to assist in the implementation of the Nation's agrarian reform program, providing the policy analysis and guidance as well as the technological assistance to make the program effective and successful.

All three of these major areas of emphasis would relate to significant national problems and needs and would, in fact, be strongly supportive of President Aquino's commitment to Rural Development.

- The Panel believes that the University should move promptly to identify appropriate areas for broad, university-wide emphasis - such as those we have suggested. It should then carefully formulate plans for committing the University to such efforts and be in a position to present such plans or proposals to appropriate agencies of Government and/or selected external donor for funding. One attractive feature of such proposals could be the fact that the programs could be implemented by using many personnel already in place who are not fully needed in the teaching program but who lack operational support funding to carry on active programs in research and/or extension.
- As the University develops and implements such program thrusts or areas of emphasis, there is need, at the same time, to address some of the problems of inefficient use of resources within the University, as discussed herein.
- The Panel suggests there should be excellent opportunities to generate significant donor support for major program thrusts or areas of emphasis such as those suggested. Many segments of the international donor community appear strongly committed to assisting the Philippines, and well conceived programs at UPLB should command significant interest and support.
- The Panel suggests that there is an opportunity and need for UPLB to develop collaborative linkages with two or more good universities in industrialized countries. In the past, a very productive relationship with Cornell University in the United States contributed much to the development of UPLB into the good university it is today. But UPLB, today, is a much more mature institution with different needs in terms of such a collaborative relationship. Instead of institution "building" efforts such as those with Cornell, there is need today for

institution "enrichment" efforts to make a good university still better. We suggest several dimensions to such a collaborative program of enrichment in the body of the report.

Finally, UPLB is obviously an institution with a proud, proven, and productive past. It has the potential for an even more productive and significant future if ways can be found to deal with some of its current problems. This, in turn, should enable the University to address some critical issues of importance to the Nation and its future.

1.0 UPLB's Past

The University of the Philippines, Los Baños (UPLB) began as a College of Agriculture in 1909 with 12 students and four faculty. In 1910 a Department of Forestry was created, and four years later the department became a school. In 1949 the school was elevated to college status. For more than six decades of its existence the institution was, thus, oriented primarily toward these two areas, agriculture and forestry.

In 1972, by Presidential Decree, the institution of two colleges, was designated as an autonomous university within the University of the Philippines System. Almost immediately the University began to expand into a more comprehensive institution. In the last 17 years, four new colleges have been created, primarily by expanding and broadening programs that were centered in the two colleges. A seventh college was added to the campus by transferring the program in Veterinary Medicine to Los Baños from the UP-Diliman Campus. In addition to the seven colleges, many other institutes and centers were added, especially after the institution gained University status. Details of this expansion are provided in Section A-2.1 of the Annexes.

Especially in recent years, there has been a significant expansion of graduate programs -- many to the Ph.D. level. The extent to which the University has evolved into a more comprehensive institution is reflected in the fact that there are more students majoring in disciplines within the College of Arts and Sciences than within the College of Agriculture. However, it should be noted that a great majority of the programs throughout the University still have a primary orientation towards agriculture, forestry and related areas.

Over the years, enrollments have continued to grow from the original 12 students to over 6,000 today. As the university have grown in reputation and prestige, it has attracted students not only from the Philippines but from many other parts of the world, as well. While most of the foreign students in earlier years came from South-East Asia, there are some 35 countries represented in the student body today.

While the original mission of the institution was primarily that of education and training, UPLB has evolved into a university with a much broader mission, involving research and extension responsibilities as well. Indeed, in recent years it is estimated that UPLB is responsible for at least one-half or more of all the agriculturally-related research in the Nation. This research has contributed very significantly to improving the Philippine agricultural sector, making it more productive and efficient. The University has also given increasing attention to the economic and social problems of rural people. Moreover, its evolution to a more comprehensive institution has enabled the University to give

increasing attention to programs in the humanities and the more basic social, biological and physical sciences.

These and other circumstances lead many to consider UPLB to be one of the finest -- if not the premier -- institution of its kind in the developing world, indeed equal or superior to some in industrialized countries.

Unquestionably, UPLB has had a productive past -- and can be justly proud of what it has accomplished. The purpose of this Review Panel's work, however, is not to evaluate the past but rather to examine some of the current circumstances that will affect the University's future and to offer suggestions which maybe enable UPLB to have a more productive and meaningful future.

2.0 UPLB's - Present

2.1 UPLB Reviews

The current status of UPLB in terms of its organization, mission, major functions, personnel, students, budgets, facilities, support functions, etc. is treated in Annex A-2 and need not be summarized further here. In any effort to evaluate the current status of UPLB, however, it should be recognized that there have been extensive reviews of the University, both internal and external, in recent years. A treatment of one such review by the World Bank along with review processes, generally, is found in Annex B-3. Most of the UPLB reviews have grown out of the continuing desire of the University to improve itself and to address issues which may hamper its progress.

The current Chancellor, Dr. Raul P. de Guzman, upon assuming his office in 1986, initiated a number of internal and external reviews. These have included, for example, an internal assessment of the "State of Property Management at UPLB." Other efforts involve a Commission to study the "State of the Humanities" in the University. Still another Task Force is examining the "Erosion of Academic Values."

The most comprehensive set of reviews initiated by the Chancellor, however, has involved the appointment of external committees -- made up of prominent leaders in Philippine higher education, government, agriculture, business and industry -- to review and provide recommendations concerning the major units of the University (colleges, institutes, and centers). Additionally, one committee has been asked to examine the university as a whole, addressing issues of university-wide significance.

The objectives of the evaluation by the external committee were:

- To evaluate the programs of the units in terms of their relevance and effectiveness.
- To pinpoint strengths and weaknesses in the programs and organization and management of the unit.
- To identify additional programs/activities that may be offered and those to be discontinued.
- To evaluate the development plan for the unit.

Following the efforts of the external committees, a three-member panel of foreign educators was asked to review the reports of the evaluation committees along with the development plans of the University and its component units; to discuss with various officials, inside and outside the University, what might be an appropriate role for UPLB; to inspect the physical facilities; and

to give advice and recommendations concerning the future of the University.

This document represents the report of the external panel -- henceforth referred to as the "Panel". The external review committees of Filipino leaders will be referred to herein as "Committees." The reports of the review Committees along with the observations of the Panel and information presented in Annex A-2.0 have provided the Panel the basis for its assessment of the current status of UPLB.

The Committees made many observations and addressed a wide range of issues relating to individual units of the University. The Panel has not attempted to examine in detail many of these issues of less-than-university-wide significance. Instead the Panel has focused its attention on some of the major issues of significance to the entire institution -- issues which, we believe, could significantly affect the University's future.

2.2 Major Issues

2.2.1 Basic Mission and Comprehensiveness of UPLB

There is an active and continuing debate within the University and outside concerning the appropriate mission of the University. A brief historical perspective might be helpful in assessing this debate.

The primary mission of the institution during the first six decades of its existence clearly appears to have been that of helping serve the agricultural, forestry and rural development needs of the nation through quality programs of instruction, research and extension.

Presidential Order 58 in 1972, transformed the institution of two colleges into an autonomous university within the UP System. Immediately a College of Arts and Sciences was created, followed, over the next decade, by the creation of three other colleges -- Economics and Management, Engineering and Agro-Industrial Technology, and Human Ecology. All four of these colleges evolved from core programs in the College of Agriculture. These new colleges developed additional degree programs and areas of emphasis -- in both applied and more basic sciences. Additionally, the College of Veterinary Medicine was moved to the UPLB Campus from Diliman.

Presidential Order 58 spells out the importance of agricultural and rural development "as a foundation for industrialization and social and economic progress." It also emphasizes the importance of land reform as a "prerequisite to the development of a strong and viable economy." It then recognized the need to "establish an agricultural center that will effectively mobilize and totally,

realistically, and directly apply its academic and technical expertise and physical resources" to address these needs and "help achieve the purposes of the New Society."

The 1986 Annual Report of the University includes the following statement concerning the University's future:

"The long-term goal of UPLB is to become a truly comprehensive university with institutional identity derived from two mainstreams. As the first autonomous unit of the UP System, it draws historical strength from agriculture, forestry and related sciences. As a part of the UP System, it upholds the University's commitment to excellence and shares its mandate to relate its functions to the needs and aspirations of the Filipino people.

"In pursuit of this goal, the UPLB continues to develop its teaching, research and public service functions in line with the following objectives:

- "1. To provide leadership in resident instruction, research and professional training in agriculture, forestry and related field; as well as in the liberal arts, the basic and applied sciences.
- "2. To enhance its critical influence on national development policies in the economic, political, social and cultural aspects of Philippine life, and
- "3. To continue striving to be the premier Asian educational institution in agriculture, forestry, rural development and in the liberal arts and the basic sciences."

The above statement clearly emphasizes a major responsibility for the University in the "liberal arts and the basic sciences" as well as in agriculture and forestry.

The plan of the National Agricultural Education System (NAES) calls for UPLB to be at the apex/core of Philippine institutions of higher agricultural education. NAES suggest that as the National Agricultural University, UPLB should be "the lead university offering graduate and model undergraduate agriculture and allied programs, in conducting basic and applied research, and as the link to the international academic and research community." (Agricultural Technology Education Project Primer).

When inquiries were made internally concerning the University's future mission, the general sentiment expressed was that UPLB should continue to have, primarily, an agricultural and rural development orientation. Many, however, suggested that it should eventually evolve into a more comprehensive institution.

There is considerable evidence that there has already been a significant evolution in this direction. The College of Arts and Sciences now has the largest number of student majors of any College

- including the second largest number of graduate students. The College of Agriculture has less than one-third of all student majors (30%), and less than one-half of all students (47%) are majoring in Agriculture, Forestry and Veterinary Medicine.

Some within the University community as well as outside expressed concern over how the evolution toward a more comprehensive university may have already weakened programs in agriculture and related areas. For example, one department in the College of Agriculture is reported to have lost programs and personnel from 6 of its primary areas as new colleges, institutes or centers were created. This process was referred to by one senior administrator as an "emasculatation" of important departments in agriculture -- and a general "fragmentation" of efforts.

An external observer, familiar with higher education programs in the Region, expressed the view that in both the Philippines and some other Asian countries, the move of agricultural universities toward a more comprehensive institution had resulted in a weakening of the programs in agriculture. Some have suggested that this has happened at UPLB. For example, as enrollments in Chemistry increased, the enrollment in Agricultural Chemistry declined. The Review Committee for the College of Engineering and Agro-Industrial Technology expressed concern that the introduction of a degree program in Chemical Engineering had drawn students away from Agricultural Engineering, resulting in a significant decline in enrollment in the latter curriculum.

A number of observers, both in and outside the University, expressed the view that the university did not have the influence or "clout" on matters relating to agriculture within the Philippines as it did 10-15 years ago. For example, the influence of the university with the Department of Agriculture is considered to be much weaker today than it once was.

On the other side of the issue is the belief by some that the ability to offer strong programs in agriculture and related areas has been enhanced by the development of stronger programs in the basic sciences. For example the impressive BIOTECH program, which is conducting excellent research on agriculturally related issues, apparently grew out of a strong program within the Institutes of Chemistry and Biological Sciences in the College of Arts and Sciences.

It was not possible to determine the extent to which the addition of new programs in the liberal arts and the more basic natural sciences have been funded with additional resources or whether they have, in large measure, been accommodated by resources that otherwise would have been available to agriculture and related areas. Some suggest, however, that the latter situation may, often, have prevailed.

2.2.2 Lack of Orientation or Focus

One major issue, frequently mentioned by administrators, faculty, REPS, and even students, is what many perceive to be a lack of orientation or focus of university programs -- especially in research and extension. This issue is also addressed by several of the review Committees. Following are some of the specific comments:

- "Research endeavors are highly fragmented...Research thrusts are not planned by UPLB...No one is setting direction for research and extension." - "There is little central guidance, so there is a great proliferation of efforts."
- "The University's program (in research and extension) is determined by the source of funding. Faculty members work in programs and on subjects for which external funding is available." - "There is no sense of direction for UPLB."
- "Others are setting the University's agenda. With more core (internal) funding, we could be more strategic in our work"
- "The extension and research programs of the individual units have become the extension and research programs of the University."
- "We greatly need a unified, university-wide strategy."

Various statements are found in university literature concerning the University's mission (see preceding section). A recent document relating to development assistance for UPLB stresses the University's role in "National Development" and indicates many ways in which the University is contributing to such development. The document also sets forth "program thrusts" for UPLB for the 5 year period, 1988-1992. The research thrusts set forth in this report were 1) sustainable productivity, 2) energy, 3) appropriate processing industries, 4) environmental management, 5) technology assessment and policy studies, 6) equitable socio-economic systems, and 7) Philippine culture and social change.

Apparently within the last year, the priority areas for research have been modified to include 1) Reforestation and Agroforestry, 2) Coconut, 3) Environmental Management, 4) Conservation and management of native stocks of plants and animals, and 5) Sugarcane. (UPLB Annual Report)

The UPLB development assistance document referred to above indicates that for the next five years, the University's extension programs should concentrate on the following areas: 1) internal staff capability, 2) development communications and support, 3) appropriate technology utilization and adaptation, 4) business

management and economic support, 5) training and manpower capability development, 6) organization and institutional capability development, 7) family and community living support, and 8) physical facilities and implementation development.

One of the senior deans expressed the need for the university to have a strong developmental orientation, including a more sharply focused research and extension effort in the area of issues relating to the environment and natural resources.

2.2.3 Proliferation of Units, Curricula and Degree Programs.

The Committees, as well as many individuals interviewed by the Panel, stressed the proliferation of organizational units, curricula and degree programs. This has involved moves in many areas of the university to transform departments into institutes. In other cases, institutes or centers with research and extension functions have been carved out of academic departments. There is a common belief that institutes can generate more internal and external financial support than departments. Moreover institute status apparently carries with it more autonomy than that enjoyed by departments.

A senior administrator was highly critical of the proliferation of institutes, referring to this as a "mess" and indicating that the university was getting more and more fragmented as a result of it. Several suggested that such fragmentation was contributing to greater difficulty in organizing interdisciplinary efforts in research.

A number of the Committees referred to the proliferation of curricula and degree programs, many of which have small enrollments. In several instances it was suggested that there should be a consolidation of such programs to achieve greater efficiency as well as to have a critical mass of students. For example, the Committee reviewing the the College of Engineering and Agro-Industrial Technology commented that "the organization of the College is too big. . . some of the departments should be combined" -- The Committee went on to recommend the merger of the Departments of Agricultural Machinery Engineering and Technology, Agricultural Process Engineering and Technology and Land and Water Resource Engineering and Technology into a single Department of Agricultural Engineering.

2.2.4 Lack of Budgetary Support for Operations and Maintenance

The most critical budgetary problem emphasized by the colleges and other operating units was the severe shortage of funds for operations and maintenance. The 1989 University operating budget indicates that 27 percent of its funds are allocated to Maintenance and Other Operating Expenses. However, many of the colleges, indicate that only 4-6 percent of their operating budget is available for this purpose -- the remainder being committed to

salaries and other personnel costs. This difference is apparently due to the fact that many of the operational expenses such as electricity and water are paid from the central university account. It should be noted, however, that the operations and maintenance funds available to central administration are also apparently inadequate. For example, we were told that with the funds available for building maintenance it would take 200 years to get all of the university buildings painted. There is obvious evidence that many buildings need such maintenance attention.

Many of the colleges and other units indicate that they must rely on external grants and contracts to supply most of their essential operating funds. One dean indicated that he had to rely on outside sources for as much as 90% of his maintenance and operating funds. It is apparent, therefore, that such external funds, primarily to support research or extension activities, are substantially subsidizing teaching operations in the university.

2.2.5 Adequacy of Personnel

It would appear that there may be more-than-adequate personnel to carry out the basic teaching functions of the University. A high level administrator commented that "many teaching loads are below minimum levels." A number of the Committees also observed that teaching loads in many units were light and recommended that minimum teaching load standards be observed. Several review Committees also observed that the number of administrative personnel seemed higher than what could be easily rationalized.

Many units appear to have a large number of faculty and administrative personnel in relation to their teaching loads. In fact, university wide, there is an average of one faculty member for each 7.2 students. Many individual units (colleges and departments) have ratios even lower. By any measure these figures represent unusually low student-faculty ratios. This translates into relatively high costs of instruction.

The Committee reviewing one unit with few student and large number of personnel suggested a need to modify the present situation "either with hard decisions on terminations and layoffs, or with relative easier alternatives such as re-tooling, changes of assignment, integration into the faculty and other moves. "

Another related issue is the low student registration in many courses. University-wide, over one fourth (26%) of all courses taken in the 1st semester, 1989, had 5 students or less; 43% of all courses had 10 or less students. In one college, Forestry, 38% of all courses offered had 5 or less students; 63% had 10 or less students. These circumstances also translate into high instructional costs -- especially for personnel.

Although the argument was made that with light teaching loads, faculty can devote more time to research and extension. In the absence of external sources of funding, however, the critical

shortage of operating funds seriously limits such activities by faculty.

2.2.6 Compensation of Faculty and REPS

The reviews by both the Committee and our Panel identified two significant salary problems: 1) the generally low level of faculty salaries and, 2) the even lower salary levels for REPS with comparable qualifications.

The faculty salary problem is reflected in several ways. There are few senior faculty. Many have moved on to more lucrative positions either in this country or abroad. Many others appear to be waiting for the appropriate opportunity to leave -- some continuing only until their obligatory period of service is completed. The problem is also reflected in the efforts by many to do outside consulting or to secure grants or contract funding to augment incomes.

Several have observed that the teaching program suffers because faculty find it necessary to augment university salaries from sources of external funding. The basic university salary is assured, irrespective of what is done in teaching. Therefore great effort is expended to secure grants, contracts or consultancies to augment university salaries. The review Committee for the College of Agriculture highlighted the issue as follows: The salary paid by the university for teaching "is more like a retainer" -- with faculty striving to get honoraria from activities other than teaching. "Thus faculty get more reward by doing research and extension and nothing more by doing instruction."

One dean commented that "faculty find they have to go out and get supplementary salary to live above the poverty level." Another high level administrator said: "The University is becoming a gas station -- where faculty come in and wait until they get a research contract."

The compensation problem for REPS is of a different dimension. We were told that 10 years ago salaries for REPS were higher than for faculty with equivalent qualifications. However, in recent years, the Government has authorized several salary adjustments for faculty that did not apply to REPS. This has resulted in a significant disparity between the two groups. The problem is compounded by the fact that faculty receive honoraria for their involvement in research and extension, while REPS receive no comparable honoraria when they teach.

There is a move currently underway either to give REPS, with appropriate qualifications, faculty rank and corresponding salaries, or to adjust REPS salaries upward to equal those of faculty with equal rank. The director of one of the large research institutes on campus which employs large numbers of REPS expressed concern over the slow pace with which the process of adjusting salaries was occurring, indicating he was fearful that before it is accomplished

he will have lost many of his better personnel to higher paying positions elsewhere.

2.2.7 Overall Budgetary Support

There are obvious major financial problems and needs within the University. There are strong indications, however, that the resources allocated to personnel (especially for teaching) are very high in relation to the teaching work-load involved. This is reflected in the very low ratio of students to faculty and the very large number of courses with very low enrollment.

The review Committee for the College of Agriculture made the following observations: "The Committee concluded that the College Five Year Plan is "ambitious for the resources required but quite conservative with respect to the academic programs that must be accomplished." The Committee concluded that the resources of the College are "quite ample ...and deficiencies in some sectors (i.e. operational funds) is more of an imbalance in resource allocation rather than a major deficiency in the total resources."

The overall financial problem has been seriously exacerbated by a failure of budgetary support to keep pace with inflation and costs of operating. For example in the nine-year period from 1980-1989, operating budgets almost doubled in nominal terms. With inflation, however, funding levels actually decreased by about one-third in real terms. This, along with a significant increase in enrollment during this period means that there is substantially less financial support per student, in real terms, today than a decade ago.

2.2..8 Faculty Morale

Many of the circumstances considered herein are, understandably, contributing to poor faculty morale. One high level administrator in the university put it this way: "When we come back from graduate study we quickly fall into a malaise."

Salaries are low, described by some as "poverty level"; promotions are very slow; and operational support funds are so deficient that faculty have essentially no resources for research or extension activities unless outside support can be generated. In some areas of the university, facilities and equipment are poor and many feel that the university lacks a coherent sense of mission or direction to motivate them. As one administrator put it, "Everyone seems to be doing his own thing, with little sense of overall direction for the institution." Some feel that the university has lost some of the influence and prestige it once commanded in the country. All of these circumstances seem to contribute to low morale and a lack of a sense of excitement and challenge among some personnel.

At the same time, it is obvious that there are many very able, highly motivated and dedicated personnel throughout the university

who are enthusiastic about their work and strongly committed to the mission of the University, despite the problem it faces.

2.2.9 Lack of Rules or Standardized Procedures for Handling Contracts/Grants and Consulting Arrangement

Throughout the University there is evidence of a lack of rules or standardized procedures for handling grants/contracts and consultancy arrangements. It should be noted, however, that improvements in this area seem to be occurring. The University is encouraging all units to process contracts and grants, either through the Foundation or through regular University channels. However, many apparently fail to do so. A senior University administrator referred to "many private arrangements for contractual research that central administration doesn't know about -- perhaps amounting to 15 to 20 percent of the total effort." The Chairman of the University-wide Review Committee indicated that apparently, there was a large amount of "under the table" grants or contracts with individual faculty or units "to avoid the university bureaucracy."

Additionally, many faculty do private consulting, presumably on their "own", non-university, time. Such consulting is considered as a "practice of the profession" and is not discouraged by University Administration, provided it doesn't interfere with campus responsibilities. However, many appear to believe the privilege is being seriously abused by some faculty and staff. A prominent member of the review Committee for the University, at large, indicated that excessive consulting is "ruining the University".

2.2.10 Implications to UPLB of the Proliferation of Colleges of Agriculture, Forestry and Veterinary Medicine in the Philippines.

In recent years, there has been a great proliferation of Colleges of Agriculture, Forestry and Veterinary Medicine (see ANNEX material). One observer indicated that the Philippines had more higher education programs in forestry than any other country in the world. The same could possibly be said about agricultural colleges.

There is obviously not a need for all these programs, and the proposed NAES Program, if implemented, could be a significant step towards rationalizing this situation. However, even if the NAES plan is implemented, there will continue to be many colleges of Agriculture, Forestry and Veterinary Medicine, throughout the country. UPLB recognizes an opportunity, if not an obligation, to work with these other institutions in efforts to strengthen them. Several of the review Committees recognized this opportunity and encouraged action by the University in meeting this need. Some units of the University are already active in this area. For example there is a cooperative program between UPLB and DMMSU to strengthen the latter institution's program in agro-forestry.

The development and expansion of these other agricultural colleges, raises questions about the future mission, in agriculture, of UPLB -- other than in helping to strengthen their sister institutions. A specific role for UPLB is spelled out in the NAES plan indicating an emphasis on graduate education and "model" undergraduate program along with a basic and applied research role. The Director of PCARRD also suggested that UPLB should have a "leadership" role in areas of basic research. None of the Review Committees commented specifically on the appropriateness of the NAES proposal.

The review Committee for the College of Agriculture, however, suggested that as these other colleges are strengthened, the UPLB College of Agriculture should slowly phase out undergraduate programs being offered by the other colleges, focusing its efforts on "new and better alternatives."

2.2.11. Cooperation and Interdisciplinary Efforts within the University.

Several of the review Committees addressed the need for greater collaboration and interdisciplinary effort within the University. A dean along with several faculty and REPS commented on the difficulty in achieving significant interdisciplinary cooperation in research. A senior administrative official said it was "very difficult to develop a university-wide research initiative." Apparently, this a significant problem within the University.

2.2.12 Other Issues

Annex B-3 provides a more general treatment of issues facing the University and how such issues will impact UPLB's future. This, along with the material in Annex B-2, suggests that many agriculturally-oriented universities like UPLB have difficulty in shifting their emphasis from a primary concern with agricultural production technology to some of the broader economic and social concern of society -- especially the problems of rural people.

3.0 UPLB's Future

UPLB's future will be influenced greatly by circumstances relating to both its internal and external environments as discussed in the University's future will also be significantly affected by how it addresses some of the major problems or issues identified in the review processes and discussed in the preceding section.

Following are some Panel commentaries about these issues and some suggestions concerning how the University might deal with them.

3.1 Panel Commentaries Concerning Major Issues

3.1.1 The Basic Mission and Comprehensiveness of UPLB

We believe the sort of evolution by UPLB into a more comprehensive university has been almost inevitable since the achievement of "university" status. It would appear that such an evolution is essentially irreversible and that little could be gained by debating the merits of the move. We recognize there can be some significant positive aspects of such an evolution. Stronger programs in the humanities and the basic social, physical and biological sciences could and should contribute to stronger programs in agriculture, forestry and related areas. The potential danger from such a move arises if there is a failure to secure the additional funding needed to implement such new programs -- with the result being a further dilution of resources and weakening of programs in the more traditional applied areas.

These are obviously major problems in the agricultural and rural sectors of the nation, including the degradation of many of the resources on which agriculture and forestry depends, as well as serious economic and social problems in the rural sector. Given these circumstances and the importance of these sectors to the economic and social life of the nation, the Philippines can ill-afford a weakening of programs to serve those areas within the nation's premier institution concerned with agriculture and rural development. Consequently, further efforts to broaden the scope of the university should involve additional funding to fully accommodate the cost of expanded efforts. Moreover, there is a need for "catch-up" funding to more adequately cover the expansion that has already occurred.

3.1.2. Lack of Orientation or Focus

The Panel shares the widely-expressed views within the university of the need for more sharply focused goals or objectives -- especially in research and extension. These goals could likely be more clearly defined if the University's mission were more clearly defined and articulated. We believe the development of such

more sharply focused areas of emphasis could be the first and, perhaps, most important step towards addressing some of the serious issues or problems confronting the University. (discussed in Section 2.0 of this report.)

3.1.3 Proliferation of Units, Curricula and Degree Programs

The Panel concurs with many of the concerns expressed about the apparent proliferation of institutes, centers curricula and degree programs. However, the division of the University into many units may not, in itself, be harmful unless it represents a waste of resources or impairs the capability of the University in accomplishing its mission (such as effectively carrying out interdisciplinary work). Nevertheless, it is unfortunate that the University finds it necessary to alter its organizational structure merely to attract better funding -- especially when this results in the sort of fragmentation of effort that may be damaging to on-going programs. Other approaches should be explored for developing attractive funding proposals that do not require the alteration of basic organic units of the University. Other approaches are commonly used in many universities.

Moreover, given the low enrollments and apparent lack of interest in the degree of specialization reflected by some of the curricula, the University should consider the desirability of eliminating or consolidating such programs in a number of areas -- as some review Committees have suggested. In fact, a careful study of these issues, university-wide, appears to be appropriate.

3.1.4 Lack of Budgetary Support for Operations and Maintenance

The severe shortage of maintenance and operating funds available through the university budget is obviously a critical problem. If the problem cannot be resolved through increased appropriations, the university should consider internal reallocation of resources to address that problem. Such possibilities are discussed in subsequent sections of this report.

3.1.5 Adequacy of Personnel

The Panel concurs with observations by several of the review committees and others concerning the relatively low faculty teaching loads in many parts of the university -- as well as the relatively high ratio of administrative personnel to faculty in some units. These circumstances would appear to offer the University an opportunity 1) to expand its research and extension responsibilities to more completely utilize available personnel, or 2) to reduce numbers to levels consistent with teaching loads -- thus, freeing resources to address other critical needs in the University. Either approach should contribute to greater faculty productivity.

Moreover, the relatively large number of courses which enroll few students raises many questions about the proliferation of curricula, programs and courses beyond what might be readily justified. This suggests the need for a careful examination of these circumstances, leading, perhaps, to a reduction in course offerings and a reallocation of faculty resources to other more productive purposes.

3.1.6 Compensation of Faculty and REPS

It would appear that the basic faculty salary levels are low and strongly merit enhancement. Moreover, the disparity between the compensation for faculty and REPS with equivalent qualifications is difficult to rationalize and should be corrected.

The Panel recognizes the difficulty the university faces in securing resources through government appropriations to raise salaries to levels that would be in excess of norms in comparable universities in the country. In view of this, special efforts might be made through internal adjustments to free funds for this and other critical needs.

We have already referred to apparent opportunities to reassign faculty to other responsibilities or to reduce personnel expenditures in programs that appear to be overstaffed in terms to teaching requirements. There should be similar opportunities in programs which have a large number of courses with very small enrollments of students.

In few, if any, of the external reviews have there been suggestions that programs be terminated. However, we believe this is a matter that warrants further consideration throughout the university. It would seem appropriate for the university to consider carefully the potential for eliminating low priority programs. This should contribute significantly to making remaining programs more productive and effective.

3.1.7 Overall Budgeting Support

Although the Panel does not have the basis for concluding that overall resources for the university are ample (as one review Committee did), there is strong evidence that the university would be well served to consider how its total resources could be more effectively allocated and used. We have already addressed the critical shortage of maintenance and operation funds. Let us now examine in greater detail the situation with regard to personnel.

The current situation could be put in general perspective with these statistics: In the first semester, 1989, there were about 800 faculty members in the University, responsible for teaching slightly more than 800 courses or sections. There were perhaps fewer courses offered in the second term. That translates into about one

course per faculty member, per term, or 25 percent of a full time teaching load -- assuming 3 hour courses. This suggests opportunities to make some significant adjustments in resource use.

Even further adjustments in terms of faculty time could undoubtedly result from efforts to eliminate or consolidate teaching programs with extremely low productivity and questionable need. Moreover the proposed conversion of REPS to faculty status could also contribute to the ability of the university to meet current teaching responsibilities with a smaller percentage of total faculty numbers.

One indication of this potential is found in the following statistics: There are currently some 450 REPS in the university. If half that number -- or 225 -- were converted to faculty status, as is contemplated, and each taught just one course per term, this, alone, could accommodate more than one-eighth of the University's current teaching load.

These circumstances suggest some possible ways of making more effective use of available resources. If faculty, carried on an average, a half time teaching load (6 hours), with the balance devoted to research and extension, 50 per cent of current numbers of faculty, could theoretically, handle the total teaching requirements.

In addressing this situation, one option might be for the one-half of the faculty (on the average) not involved in teaching, to shift their attention to high priority research and extension programs in the University -- assuming, that operational funds were available to support such efforts.

A second, but less desirable option, could be considered if additional resources were not available to support major research and extension thrusts. This option would involve reducing faculty numbers to approximately one half of current levels, with the remaining faculty carrying, on an average, a 50 percent teaching load. Thus, the faculty could devote one half of their time and effort to research and teaching. The funds saved through such personnel reductions could be used to augment operational funds and faculty salaries. Such a move, if necessary could, unquestionably, make better use of currently available resources within the university and should increase the productivity and effectiveness of the remaining personnel.

This all means that without even considering the possible contribution of REPS to the teaching program, the total teaching responsibilities of the University could be accommodated with one half of the current faculty having, on an average, half-time teaching loads. All of this then translates into three-fourths of current faculty time being available to concentrate on research and extension missions of the University. In a subsequent section, we address what some of these research and extension thrusts might be.

We fully realize the difficulty in making the kinds of adjustments which would be involved in the second option -- especially in the short term. We use such an analysis, however, to illustrate the current low average teaching loads of the faculty and the potential to shift resources from support of teaching faculty to other uses.

Adjustments associated with the second option would likely have to be made over a long period, accommodated largely through faculty attrition. However, given the critical shortage of operational funds and the need to upgrade salaries, more immediate consideration might be given to reducing personnel in less critical areas of low productivity -- especially with non-tenured faculty -- if the first option could not be implemented. Moreover, if the university were to commit itself to such an adjustment, it could begin, immediately, to effect such a transition as numbers are reduced. This would permit a reallocation of such savings, as they occur, to meet other needs in the university, especially to improve faculty salaries and operational expense funding.

Given the circumstances concerning teaching loads, it may be desirable to reconsider the teaching responsibilities of high-level administrative staff, such as dean and vice-chancellors. It would appear that many of such personnel could usefully devote all of their time to administrative responsibilities.

Some might contend that relatively low student-faculty ratio might be justified at UPLB, given the fact that personnel costs in the Philippines is relatively low in relation to capital costs (buildings, computers automobiles, equipment, books, supplies etc.). Certainly the relationships of these two categories of costs are significantly different in the Philippines than in the U. S., for example. The key issue is which approach is best for this institution in carrying out its mission, given the various alternative uses of the resources involved.

3.1.8 Morale Among University Personnel

The Panel fully understand the concerns, such as those discussed herein, which are contributing to poor morale of the faculty and others in the University (low salary, lack of operational support funding, lack of a coherent sense of mission or direction for the institution, etc.). We believe, however, that many of these problems can be effectively addressed with appropriate action. Such action, as discussed herein, merits careful attention.

3.1.9 Lack of Rules or Standardized Procedures for Handling Contracts/Grants and Consulting Arrangements.

It should be recognized that contractual support for research/extension/training activities offer potential advantages and disadvantages to both individuals and the University. The Panel

believes, however, the University's rules and regulations regarding the handling of grants and contracts involving University staff and facilities are appropriate and that they should be strictly adhered to. It would also appear highly desirable for the University to develop specific policies regarding consultancy activities including the need for seeking approval for such consulting, the conditions under which consulting is permissible, and requirements for reporting on such activities. The objective should not be to discourage consulting but to inform the university about what is being done and to guard against abuses of the privilege.

3.1.10 Implications to UPLB of the Proliferations of Colleges of Agriculture, Forestry and Veterinary Medicine in the Philippines.

We applaud the apparent interest and commitment by UPLB to help strengthen other higher education programs in agriculture, forestry and veterinary medicine within the Philippines. We are also encouraged by the efforts nationally, to rationalize the current system of post secondary education in agriculture and related fields. Hopefully, the elimination of significant numbers of these programs could free resources to further strengthen those that remain, including UPLB.

We believe the NAES proposal suggests a reasonable role for UPLB -- although the implications for developing "model undergraduate programs" are not clear. A mission of basic and applied research also seems appropriate, leaving the more site-specific adaptive research as a primary responsibility for the regional and provincial institutions.

3.1.11 Cooperations and Interdisciplinary Effort Within the University

Many of today's complex problems which might be addressed by the University require the contributions and efforts of many disciplines. The difficulty in achieving such collaboration may be due, in large measure, to the shortage of university funding for research. Individual faculty members seem inclined to seek support for programs in their specific areas of interest rather than join with others in addressing broader, but more sharply focused, university-wide missions.

To approach such multifaceted problems as agrarian reform (broadly defined), environmental degradation, policy analyses, and technology generation for small farms, the contributions of many disciplines are required.

3.1.12 General Panel Commentary

The review Committees as well as the Panel identified a number of other issues of significance to the University. Many of the

observations and recommendations of the Committees are already being addressed by the units involved. Our Panel has limited its commentary primarily to what we believe are the more significant issues which will help shape the University's future, including the mission of the university, its areas of primary emphasis or focus, the resources available or needed to enable the institution to carry out its mission, and some operational issues related to the effective discharge of its responsibilities.

It should be noted that while many have emphasized the need for a more sharply focused emphasis or orientation, especially in research and extension, very little has been said by either the review Committees or by university personnel concerning what that emphasis or orientation should be. However, our Panel shall address this issue in some detail in the following section (4.0).

We might comment further concerning the resources needed by the university in carrying out its future mission.

As indicated earlier, there appears to be a serious imbalance in financial resources available through the University's annual operating budget. This would appear to have developed over a span of years during which significant outside (donor) funds were available to begin new programs and create new institutes or centers. This donor funding facilitated the construction of buildings as well as the addition of faculty, staff, and operational funds. When the donor support ended, however, resources available to the university were apparently not adequate to maintain the programs at previous levels. Yet new buildings had to be maintained, faculty and staff were in place, and there was an understandable desire to try to continue what was considered a desirable program. Under these circumstances, it would appear that, for humane as well as other reasons, priority was given to retaining the personnel made possible under donor support -- with operational and maintenance support, in effect, being sacrificed to make this possible.

Whether this was the precise scenario responsible for the current situation or not, there now seems to be substantially more faculty in place than teaching loads can justify. The same may be true for administrative personnel, although that is much more difficult to evaluate.

Some might suggest that such excess faculty really poses no problem - if they are not needed in teaching, they can direct their efforts to research or extension. There are no real measures of need for such efforts -- indeed the need in research and extension is probably much greater than could ever likely be addressed. However, such a shift to research or extension is generally not feasible under current levels of funding because operational funds simply are not available to support such activities. This overall problem is further exacerbated by the relatively low salary status of faculty.

These circumstances, logically, call for some major adjustments in resource use as discussed earlier. There should be other opportunities, as well, to realize savings through adjustments in other programs. For example, the Food Service seems to be heavily subsidized from appropriated funds. If this is necessary to provide lower cost food to needy students, such a subsidy might be rationalized. However, most students appear to eat off campus, some indicating that the off-campus food is cheaper and "just as good or better."

If it is desirable to consider to other options for handling the campus Food Service, the university might explore privatizing the service by leasing the facilities to a private operator. Such a move would apparently save the funds now being used to subsidize the service and even generate some additional revenue through the lease arrangement. However, if the decision were made to continue operating the Food Service, a careful study might be made of the apparent necessity to subsidize the effort, given the competitive posture of external sources of food.

There are also some academic programs which appear to be inordinantly expensive. For example, the Dairy Training and Research Institute, with an annual operating budget of some almost P6 million in 1988 offered 5 courses, 4 of which had only 1 to 5 students. Yet the Institute had 10 faculty, 35 REPS and 70 administrative personnel. The Institute obviously has responsibilities other than teaching, but there is little to indicate why there should be such a large allocation of resources for personnel. The program generates some income through the sale of dairy products or animals; however, some P4.9 million in appropriated funds from the Extension budget goes towards its support. This is in excess of the funds allocated to some entire colleges.

Another unit, the Institute of Agrarian Studies, currently has 2 M. S. level students and it graduated only 2 students in 1989. Yet it has 9 faculty, 29 REPS and 19 administrative personnel.

These are merely examples of areas in which the university might effect significant savings. Such savings, in turn, could be used to address critical financial needs in other areas of university endeavor.

The importance of such adjustments in resource use is underscored by the great need to have more resources allocated to support high priority research and extension efforts of the University. As many have emphasized, external donors are now, in a major way, setting the research and extension agenda for the university since internal operational funds to support such endeavors are so limited.

If the university is to develop major thrusts or areas of emphasis in research, additional internally controlled funding is essential. But in the immediate future -- before there has been an

opportunity to make significant shifts in internal resources -- we suggest that the university consider a mechanism for planning and executing major university wide research and extension activities or thrusts that could require the involvement of many parts of the campus. Then external funds could be sought to support such a unified university effort rather than having individual faculty members or departments acting independently in pursuit of funds for separate, disjointed efforts which may be inconsistent with university-wide priorities.

It would appear that carefully conceived and well planned thrusts for the university could be strongly competitive for significant development assistance funding from major donors. The attractiveness of such proposals could be significantly enhanced if they were presented as interim measures for augmenting university resources while the longer term internal adjustments in resource use described herein are in progress.

3.2 Suggestions Concerning Major Areas of University Emphasis or Thrusts

3.2.1 Development-Focused Universities

The material in Annex B-3 speaks of Universities as institutions for "social transformation." The material in Annex B-2 suggests that agriculturally related universities such as UPLB might be considered as "critical centers for rural transformation." This implies the need to address broad issues of rural development which can lead to the improvement of rural areas and their people. The term "development-focused universities" might be used to refer to institutions with such a mission -- as suggested in Annex B-2. We believe that such a focus is appropriate for UPLB.

Historically, UPLB has had a "development focus" in terms of its efforts to improve the agricultural sector, making it more efficient and productive. It is suggested that such a focus now should be broadened and expanded to address some of the very serious problems facing rural areas and their people -- problems that go beyond agricultural production, *per se*.

We further suggest that careful consideration be given to the nature of such development efforts and that these efforts might well become the basis for major, university-wide areas of emphasis, the need for which was emphasized in previous sections of this report.

3.2.2 Possible Areas of University-wide Emphasis.

There are undoubtedly many important problems or issues that would lend themselves to broad university-wide attention and effort. The Panel suggests three such possibilities which we believe could merit consideration. They would involve

- 1) a major commitment to assist in the further strengthening and development of some of the other colleges and universities in the Philippines, having similar missions to that of UPLB;
- 2) a significant thrust or effort in the areas of sustainable agricultural development; and
- 3) a major commitment of the University to assist in the implementation of the agrarian reform program.

Each of these efforts could mobilize and effectively use resources from much of the total university. Moreover, each effort would be concerned with addressing a matter of significant national interest and need. The University has unique capabilities for carrying out such efforts.

3.2.2.1 Improving the National Agricultural Education System

A proposed organization of the National Agricultural Education System (NAES), also known as the "macro-plan" is described in the Annex. The designated National Agricultural University (NAU), UPLB is accorded the responsibility and opportunity within NAES to:

... be the lead university offering graduate and undergraduate agriculture and allied programs; in conducting basic and applied research; and as the link to international academic and research community. In the [Agricultural Technology Education Project] NAU will be responsible for teacher training, educational research and evaluation, and testing and verification of appropriate package of technologies."

The UPLB is regarded as the "apex" of the new system. Or less presumptively, as Undersecretary Perez of the Technical Panel for Agricultural Educations expressed it, UPLB is at the center of concentric circles of institutions at the zonal, regional and provincial levels. (See Annex).

The plan can be beneficial to UPLB and some other institutions if the plan successfully reduces the number of institutions supported by the government, and therefore increases the amount of funds available for the NAES. The financial effect however will, at best, be marginal and a long time in coming because the UP System's budget is already high relative to total expenditures on higher education. Also, the process of instituting NAES will be slow even after it is approved by Congress.

UPLB has the opportunity to creatively use or augment the two apparent emphases of NAES: regionalization and technology dissemination. One would not want regionalization to weaken the strategic leadership role UPLB can play; rather UPLB should see regionalization as an opportunity to more fully realize its mandate for improving the welfare of the rural sector. And while one would want to assure that UPLB and other NAES institutions maintain or increase their contributions to technology generation, adaptation and extension, this emphasis should be balanced by curricula in social sciences and other programs that focus on socioeconomic and institutional change. These two aspects of UPLB's challenge with the NAES are elaborated below.

Regionalization. Elsewhere it is remarked that UPLB is an important institution for agrarian reform (partly because it attracts students and faculty whose backgrounds are in the rural sector). With training in policy, and institutional management and organization (through programs in the College of Economics and Management, Human Ecology and other units) UPLB graduates can be well-placed to provide crucial leadership for the agrarian sector. Most importantly they would provide "ownership" by the rural sector of significant programs in land reform, family planning and environmental conservation.

UPLB as a whole is strategically placed to play an important role in transformation of agricultural education sector. It is deemed the national agricultural university, and has good physical and communication access to the national government. Their broad technical expertise has placed faculty within reach of and within, the decision-making circles of the Department of Education Culture and Sports and other departments. More importantly, UPLB and its faculty have come far as an instrument of the agricultural and rural constituency. In this light, UPLB may be regarded as obligated to that constituency to provide leadership in the improvement of the national agricultural Education system through education.

It is important that the NAES plan serve as a vehicle for UPLB's leadership, and not as an instrument for the dissipation of its influence to institutions that are less strategically placed to influence programs for the rural sector. Enormous resources that would be required to place other institutions in as potentially influential position, including communications access as well as substantive capabilities, as is UPLB's position with respect to government decision-making.

It is a two-way relationship between the rest of NAES and UPLB; UPLB should respond positively to the opportunity before it by critically examining the NAES plan in the context of the university's mission. Accordingly, UPLB might then help to formulate the steps in the establishment and strengthening of the NAES and creatively contribute to the curriculum in social sciences as well as technical fields, teaching methods, and technologies appropriate to changing the agricultural sector.

Specifically, UPLB might undertake initiatives to introduce competency based learning and modes of learning outside the classroom. Also, systems for teacher evaluation, promotion and reward within the entire NAES might be studied, so as to assure the recognition of superior achievement of faculty in teaching, scholarship and community service. Whether or not the task of being the national agricultural university appears too daunting for a single institution, the UPLB might consider establishing cooperative networks among the more capable agricultural universities such that the tasks might be shared. Helping to establish, four networking universities comprising UPLB, CLSU, VISCA and CMU, might better achieve UPLB's goals than going it alone.

Technology dissemination.

UPLB's role in the NAES is articulated through three zonal institutions, 13 regional institutions, and 77 provincial institutions. The roles of the respective levels of institutions are being pilot-tested through the Agricultural Technology Education Project (ATEP). The zonal schools will provide leadership in advancing the frontiers of knowledge in certain fields of agriculture" (ATEP Primer). The prospective roles of regional agricultural colleges are equally technologically oriented. The

Provincial Schools will offer two-year diploma programs. "At the end of the course, the student is expected to pass certification of skills examination and demonstrate capability to operate a small specialized and/or mixed farm enterprise." The four-year bachelors program will additionally emphasize the "why of the production process as well as the decision making and management considerations of an agricultural enterprise. Curriculum is commodity/location specific," (ATEP Primer).

This approach to agricultural education appears unnecessarily restricted to technical agriculture. Without weakening applied research and the technical content of the curriculum, it would appear useful for UPLB and associated institutions that are responsible for curriculum, to examine more broadly the possible role of PTIA's, regional institutions, zonal institutions, and UPLB - particularly their graduates - in the broader task of reforming the agrarian sector. The technological approach to development has been partially effective in increasing Philippine agricultural production. But incomes and political power are yet highly inequitably distributed (See Annex). Can the agricultural education system help to bring about greater participation of the rural sector in the public affairs that most affect them ?

Some suggestions of efforts to broaden the awareness of rural residents about the policy and institutional environment that affects them, and to instill confidence that they might indeed influence that environment include: subject matter on agricultural and economic development, subject matter in rural sociology and social change; practical experiences in government through internships or in having regular lecturers from government or relevant private institutions; school projects to bring about policy and institutional changes; and studies by students and faculty of what policies and programs, do or would, favorably or unfavorably affect them. These suggestions are not exhaustive. It would appear however appropriate for UPLB to consider, expand, study and implement approaches to education that go beyond the delivery of technology to the rural sector, to developing graduates' skills and confidence that will support them in influencing, formulating and implementing a wide range of rural development programs.

Technical Improvement in Agricultural Education

Appropriately the NAES plan will support the generation and application of agricultural technology. The suggestions for broadening the role of UPLB and institutions/units within NAES should not be construed to mean that agricultural technology is not important. Commodity and location specific technology is indeed essential to further development of the agricultural sector. The sometimes heard admonition that sufficient technology is available in the Philippines - it only needs to be extended to farmers - is not supportable from the observations of this Panel. The review team of the College of Agriculture commented similarly on the lack of impact of agricultural technology emanating from UPLB. This is

to suggest that efforts toward agricultural technology development not be diminished, but increased, throughout the NAES.

Technical areas in which agricultural colleges and universities around the country require strengthening were identified in A Report for Designing Agricultural Education Improvement Project (Pragma Corporation, November, 1988). They include agribusiness, environmental protection, farming systems, policy and planning, statistics and research methodology, and production agriculture. Within production agriculture, some of the specific areas identified were seed technology, plant protection, agroforestry and forage improvement. The significance of these fields may vary by geographic location, and may be emphasized at say, a regional level rather than at the provincial level. UPLB may want to give attention to these technical areas as it approaches the tasks of curriculum development for the NAES system.

Elsewhere in this report suggestions are made with respect to sustainable agriculture and agrarian reform. These emphases at UPLB should be directly taken into consideration by UPLB in its NAES responsibility for curriculum, teaching methodology development and evaluation, and technology generation and dissemination.

3.2.2.2 Sustainable Agricultural Development

The importance of the agricultural sector, as highlighted in the Annexes, underscores the continuing necessity to strengthen and improve this sector. Rapid population growth and severe problems of rural poverty further emphasize the need to have an increasingly productive and efficient agriculture that will both meet food needs and improve the incomes of rural people.

The ability to achieve such a goal, however, is being greatly threatened by the serious degradation of the natural resources on which agriculture depends. Extensive commercial exploitation of forest areas, along with further clearing of such areas by subsistence farmers, have contributed to a wide range of conditions that could seriously constrain further agricultural development.

For example, the clearing of uplands is contributing to a significant loss of indigenous plant and animal species and related germ plasm, thereby narrowing the available genetic resource base which could, in turn, limit further improvement of economically important species. This could have long-term negative consequences for agricultural production.

Moreover such deforestation has contributed to extremely serious problems of soil erosion and invasion of economically worthless species of plants in the highlands -- along with flooding in the lowlands, siltation of waterways, the deterioration of aquatic resources, and other serious consequences. There are other circumstances which are also limiting further improvement in agricultural productivity. For example IRRI reports a steady

decline in the productivity of many areas under intensive rice cultivation -- the causes of which are not fully understood. Such problems, in the long term, could greatly impair the ability of the Nation to meet its ever growing needs for agricultural products and to improve the economic and social conditions in rural areas.

While these are very acute problems in the Philippines, these circumstances are also common throughout much of the developing world. In fact these and related problems were of such magnitude that in the early part of this decade, the United Nations created a World Commission on Environment and Development to address these issues. The report of the Commission, chaired by Prime Minister Brundtland of Norway, called for global efforts to achieve "sustainable economic growth and development." (Our Common Future, Oxford University Press, 1987). This concept calls for "meeting the needs of the present without compromising the ability of future generation to meet their needs."

This treatment of sustainable development is similar in concept to the characterization arrived at by a special task force of the Consultative Group for International Agriculture Research (CGIAR). The CGIAR's treatment of this subject referred to sustainable agriculture as involving "the successful management of resources for agriculture to satisfy changing human needs, without degrading the environment or the natural resource base on which agriculture depends". ("Sustainable Agricultural Production, TAC, FAO, Rome, 1987)

Still another, but similar, characterization of sustainable development is provided by a Government document in draft form entitled "Philippine Strategy for Sustainable Development". In this document, it is suggested that such development ". . . is a process of change to meet the needs of people . . . without lessening the potential for meeting their future needs, the needs of other societies or those of future generations".

All of these characterizations of sustainability involve a dynamic concept of meeting changing (future) needs.

With the rapid growth of population in the Philippines, "changing needs" translates into "increasing needs". But the concept implies that these increasing needs must be met without further damaging the environment or natural resource base which must sustain agriculture. Moreover it is not enough to avoid further degradation of this natural resource base, there must also be major efforts to rehabilitate or renew the natural resources that have already been severely degraded. The needs of future generations will demand that these degraded resources be restored to productive use.

While labels such as "sustainability" or "sustainable development" may be transitory and come and go, we firmly believe the principles involved in these concepts are very sound and are, in themselves, "sustainable".

The Panel, therefore, believes that these sustainability concepts and the Nation's need to address them could provide an opportunity for a major thrust or primary area of emphasis in many parts of UPLB. This concept obviously has significant implications in terms of the continuing need to achieve greater agricultural productivity. But it also has the important dimension of needing to focus on environmental and natural resource degradation problems that might threaten long term productivity of the agricultural sector.

Efforts to achieve sustainable agricultural development would have implications to all three of the University's major functional areas -- teaching, research and extension -- throughout much of the campus. For example, much subject matter should be taught, and many on-going research efforts should be carried out, with a "sustainability perspective."

"The Philippine Strategy for Sustainable Development", now being formulated, involves a Cabinet Coordinating Committee. According to the draft of the current proposal, the DENR will be the primary implementing agency of this strategy.

It is very apparent to the Panel that in terms of efforts relating to achieving sustainable agricultural development, the UPLB has unique capabilities and potentials for playing a major role in helping implement such a strategy. The Panel believes that a well conceived plan specifying contributions which UPLB could make to such an effort should help provide the basis for generating significant financial support to allow the University to develop a major effort in this area. The College of Agriculture has already stressed the importance of such efforts.

It should be noted that sustainable development is a subject of major concern in both industrialized and developing countries. The prospects of generating donor funding for a major thrust in this area by UPLB, should, we believe, be very good.

3.2.2.3 Rural Development through Agrarian Reform

It has been pointed out that the Aquino government has enacted the Comprehensive Agrarian Reform Law which will see intensive reallocation of land across the nation over the next decade or so. This Act provides both a new context for rural development in the nation as well as a new imperative for UPLB.

It could be argued that it is actually a renewal of an old mandate for the university, for in words at least, the present legislation is similar to that decreed by former President Marcos in 1972. Yet this time the law has been enacted through due process of a democratically elected government.

Agrarian reform to be successful, needs to be supported by a sensitive, effective and efficient infrastructure. This needs to extend to the barangay level and be supportive of the spirit of the

legislation. It also needs to be coordinated at both provincial and national levels, in turn.

At the heart of the movement, is the productive farm - a smallholding, providing a natural resource base for rural families to support themselves for at least a significant part of their needs. To enable these farmers to improve the productivity of their enterprises in ways which are sustainable, they will need appropriate technologies to allow them to design and manage their farms to support a variety of needs.

In essence, they need productive, sustainable farming systems which will more likely be characterized by a complex of different enterprises than by monocultured cashcrops. Polyculture systems can be highly site (and even farmer) specific, depending upon how broadly a system is defined, and can present enormous challenges to professional agriculturists who are not generally educated in ways appropriate to understanding these conditions. UPLB has the capability of making major contributions to the development of such systems.

A mandate to play a central role in comprehensive rural development in the context of agrarian reform was first given to UPLB in 1973 by the then President Ferdinand Marcos. This call has now been renewed through the democratically elected Aquino government. The imperative is as relevant as it is timely, given the interpretation of both the nation in general, following the EDSA uprising, and UPLB, in particular, given the vision and directives of its current senior management.

For variety of reasons it could be concluded that whatever initiatives for reform that were taken back in 1972, were either ineffective or non-persistent. The facts of the matter are that in 1989 there is an involution of population pressure, poverty and rural resource degradation which represents a general worsening of conditions in the agrarian reform sector over the past 17 years.

To arrest and then transform this extremely serious situation, a number of critical initiatives have already been launched by the government including a Comprehensive Agrarian Reform Law, a proposal to restructure (create?) the National Agricultural Education System and an overall mission to decentralize the functions of government and reinforce a regional development focus.

There are a number of indications that UPLB is not being regarded as an institution critical to these developments--maybe because of past failures in coming to terms with the complexity of the issues, or maybe because its preferred mission is to concentrate on the generation and dissemination of agricultural production technologies.

It is argued that UPLB has the talent and resources to respond to the call to play a much more central role in the transformation of the agrarian sector. If it chooses to respond positively, then there are a number of significant issues it should address. Not the

least of these is the reconciliation through synthesis, of a number of profoundly different paradigms which currently have constituencies on campus. These have much to offer each other in particular in the quest for curricula, research and outreach activities which are appropriate to the complexities, dynamics and locations of the rural problems in the Philippines.

If these challenges are not accepted, then UPLB may be relegated to a role which is peripheral rather than central to the main stream of national development. We suggest that a major commitment by UPLB to the effective implementation of the agrarian reform program could represent an extremely important contribution to a matter of great national concern.

4.0 Implementation and Implications of Suggested Actions

4.1 Implementation

If UPLB is to develop one or more areas of major emphasis (especially in research and/or extension) the University, obviously, must go through a deliberate process of considering what these areas should be. There should be broad-based agreement within the institution concerning the efforts and a strong commitment to their implementation. Then a carefully formulated plan should be developed indicating how the University expects to carry out each major program, and specifying the unique resources and capabilities the institution has to offer. Such information, along with a detailed consideration of the importance of the issues to be addressed, could then be presented in an appropriate manner to the Philippine Government or to selected external donors.

In presenting proposals of this nature, one attractive feature is the fact that the programs could be implemented by using many personnel already in place in the University who are not fully needed in the teaching program but who lack support funding to carry on active programs in research and/or extension. Therefore the proposed programs should not require as much donor funding as might otherwise be the case.

Someone with the full authority of the Chancellor's Office, needs to have the responsibility for giving leadership to planning and implementing such efforts. This could be someone in the Chancellor's Office itself, the Vice Chancellor for Academic Affairs, someone in the Vice-Chancellor's Office such as the Director of Research or Extension -- or someone specifically appointed for the purpose of leading such an effort.

If there were more than one major thrust or area of emphasis (e.g. all three areas suggested earlier) it would likely be desirable to have a leader for each. This should be a person knowledgeable and competent in the area of emphasis and in a position to speak and act decisively in leading the effort. Such a person should be at a high level in the administrative structure of the institution and fully empowered to act on behalf of the University in carrying out his/her responsibilities.

As the University develops and implements such program thrusts or areas of major emphasis, there is need, at the same time, to address some of the problems of inefficient use of resources within the University as discussed in Section 2.0. This would involve a careful examination of what would appear to be significant proliferation of curricula and degree programs, many of which have very small enrollments. Consideration should be given to the recommendations of one or more review Committees that there should be a consolidation of such programs to achieve greater efficiency as well as to have a continued mass of students.

Closely associated with this issue is the problem of extremely low enrollments in many courses. There will always be circumstances which could justify the offering of some low-enrollment courses. However, the large number found in UPLB appear difficult to rationalize. These circumstances obviously translate into high instructional costs -- especially for personnel.

There is also need to examine and adjust personnel assigned to some programs or organizational units where current responsibilities would not appear to warrant current levels of personnel. At the same time, teaching responsibilities are so high as to require overloads in some other parts of the University (e.g. Arts and Sciences). A better workload balance would appear to be needed.

Furthermore, in an effort to achieve a more efficient and effective use of resources, there should be carefully scrutiny of efforts throughout the University to identify and adjust (in some cases, eliminate) programs of low priority and questionable need -- reassigning the resources allocated to such programs to more productive use.

As suggested early, there should also be a careful examination of the need to substantially subsidize a number of functions such as the food service and student housing which should be financially self-sustaining.

The implementation of the suggested university-wide program thrusts should effectively address perhaps the greatest question of resource use in the University by providing productive outlets for faculty not fully utilized in the teaching program. If for some reason, it is not possible to generate the resources to implement such program thrusts, serious consideration should be given to reducing personnel to levels more in keeping with needs in the teaching program -- using the resources thus saved to improve salaries and provide badly needed operating funds to enable the remaining personnel to be more productive in research and extension.

A strong commitment by the University to address such issues of internal resource use would, we believe, contribute to more effective and productive university efforts and, at the same time, enhance the institutions ability to attract significant levels of external donor funding.

4.2 Implications

There could be a number of significant implications associated with the implementation of the proposal relating to developing major programs of emphasis or thrusts within the university. Indeed such efforts would respond to or address most of the major issues of concern to the University set forth in a preceding section (2.0). For example such effort would

- identify the University with important actions aimed at addressing issues of special significance to the nation;
- respond to a common concern and criticism that the institution lacks a sense of direction or orientation;
- provide a means of generating badly needed operational funding to support important research and extension endeavors;
- provide a means of enhancing faculty and staff salaries;
- facilitate the more productive use of faculty whose time is not fully utilized in teaching and who lack the support funding to carry out research and extension responsibilities;
- avoid the "necessity" for creating additional institutes, centers or other organizational entities for the primary purpose of generating additional funding;
- avoid the necessity for so many faculty members seeking contract funding for research/extension activities, irrespective of the importance or significance of the work to the University; and
- provide an excellent basis for university-wide cooperation and interdisciplinary effort.

Accomplishing the above should contribute very significantly to improvement of morale among faculty and other personnel in the University.

4.2.1 Donor Support

We believe there should be excellent opportunities to generate significant donor support for major program thrusts or areas of emphasis such as those suggested. The international donor community appears strongly committed to assisting the Philippines, and well conceived programs at UPLB should command significant interest and support. In fact the Panel is aware that several major donors have specific interests in such program areas as sustainable agricultural development. We believe the other thrusts proposed herein should also command strong interest among donors.

It should be noted, as well, that some of the major donors prefer to consider supporting broad, multifaceted programs, around an important central theme -- programs that can be carried out by a single management entity -- rather than having to deal with many small projects associated with many different organizations. The Panel strongly believes that the University should move promptly to so organize itself and develop the basis to generate the external funding needed to help the institution achieve its goals.

5.0 Possible Linkages With Other Universities

Earlier in this report we have considered opportunities for UPLB to develop linkages with other colleges and universities in the Philippines -- with the objective of helping to strengthen and improve the other institutions. There would also appear to be an opportunity and need for UPLB to develop linkages with two or more universities in industrialized countries with the objective of further improving itself.

UPLB had such a relationship with Cornell University in the United States for a number of years. This is perceived to have been an extremely productive and meaningful relationship. Indeed, many would contend that this collaborative program made a major contribution to enabling UPLB to develop into the excellent institution it is today while also benefiting Cornell. The Panel believes that a linkage or collaborative relationship with well recognized universities in other countries could make significant contribution to UPLB's continued development.

We believe that such a relationship would be quite different than the earlier one with Cornell. The UPLB-Cornell program was heavily oriented to "institution building" efforts and involved graduate level training of large numbers of UPLB personnel. Today UPLB is a much more mature institution with a high percentage of its faculty with graduate degrees. Moreover, UPLB, along with some of its sister universities in the Philippines, offer a wide range of graduate programs, making graduate level training outside the country less necessary.

There is a continuing need, however, for interactions of UPLB faculty with other more advanced institution to keep abreast of new developments in the various disciplines and how such developments might be appropriately integrated along into UPLB's instruction, research and extension programs. With present graduate-level training capabilities within the Philippines there is the potential danger of excessive "inbreeding" among faculty. Therefore, a collaborative program of educational "enrichment" with other institutions would allow a UPLB faculty member to spend 6 months or a year at the sister institution to gain new or additional insights or perspectives.

There could also be a reciprocal relationship involving opportunities for faculty from collaborating universities to spend a sabbatical or other appropriate period at UPLB. There are many programs at UPLB that would be attractive to faculty from other institutions on such a basis.

There would be opportunities, as well, for shorter exchanges with collaborating universities to enable faculty to attend special conferences and short courses or to study, for brief periods, new research techniques that might enhance the programs of the faculty within their "home" institutions.

There could also be collaborative research efforts in which faculty from the cooperating institutions could carry out different facets of a total research program. Such a program might include the joint supervision of graduate students in either the Philippines or other countries, and involve 2-3 week supervisory visits in one country or the other. One could also envisage many other opportunities for productive relationships between cooperating institutions.

USAID and other international donor agencies have provided extensive financial resources to help strengthen and develop institutions like UPLB. There is a significant opportunity and need now for such donor agencies to commit at least "modest" resources to the further improvement and enrichment of developing country institutions such as UPLB. ("modest" resources in terms of original investments).

It is the Panel's opinion that such resources could pay handsome dividends in terms of their contributions to making a good institution like UPLB even better and more capable of serving the needs of the Nation.

A-0 The UPLB Environment -- Circumstances That Will Affect
the University's Future

The future of the University will be impacted by a wide array of factors and circumstances -- both internal and external to the University itself. The following sections address some of these circumstances.

A-1.0 The External Environment

The external environment, both within the country and globally, has very significant implications to the University and its future mission.

Around the world, agricultural systems and the natural resources which sustain them are under enormous pressures. Despite the significant progress made in food production in recent decades, it is estimated by the World Bank that over 700 million people, or about one-third of the developing world population, do not have enough calories for an active working life. This suggests that there is need for significantly greater agricultural output to meet the needs of current population, to say nothing of the almost 90 million additional consumers of agricultural products being added to the global population annually. The gravity of this situation is all the more evident, given the fact that 90 percent of this population growth is occurring in the developing world, many parts of which are already suffering from inadequate food levels.

The challenge to the global agricultural system was set forth very effectively in a recent report by a special panel of the World Commission on Environment and Development:

"The next few decades present a greater challenge to world food systems than they may ever face again. The effort needed to increase production in pace with unprecedented increases in demand, while retaining the essential ecological integrity of food systems, is colossal, both in its magnitude and complexity. Given the obstacles to be overcome, most of them man-made, it can fail more easily than it can succeed."

A primary reason for the wide-spread concern over future food prospects is the belief, by many, that we are, today, compromising the ability of future generations to meet their food needs through our current misuse of the natural resources on which agriculture depends

The Philippines is confronted with many of the same circumstances that gave rise to the very sobering appraisal of the global scene by the World Commission on Environment and Development. Many would say that circumstances are even more critical in the

Philippines that in the developing world generally. For example the rate of population growth in the Philippines is one of the highest of any country in the world. There are major problems of poverty, especially in the rural areas in the country. A high percentage of the country's tropical forests has been cut. This in turn, has contributed to significant loss of indigenous species of plants and animals, serious problems of soil erosion and invasion of economically worthless species of plants in the highlands along with flooding of lowlands, the siltation of the water ways, the deterioration of aquatic resources, and other equally serious consequences. There are also many other circumstances which are limiting further improvement in agricultural productivity.

These problems are compounded by the fact that the rate of growth of the agricultural sector has slowed in recent years. Agricultural productivity is not high compared with the other major countries in the region having similar ecological conditions. The nation is marginally self sufficient, if that, in rice. Its export earnings have fallen sharply in recent years -- both in absolute terms and in percent of total earnings.

All of these circumstances have great implications to a national University such as UPLB, with a primary responsibility for agriculture, forestry and related natural resources. UPLB will be influenced by other external forces, as well. There are now many other colleges and universities throughout the Philippines which also offer programs in agriculture, forestry, veterinary medicine and related fields. These other institutions will obviously have an impact upon UPLB's future.

There are also many other organizations, public and private, which will interact with, or need to be served by, UPLB. These, too, will influence UPLB's future. In addition, the University must also consider how it can effectively contribute to major goals or initiatives of the Philippine Government, especially those relating to agriculture and rural development.

The various elements of UPLB's external environment are addressed in greater detail in the following sections.

A-1.1 Philippine Agricultural and Rural Sector

Agriculture is a critical component of the Philippine economy in terms of production value, employment, foreign trade and personal consumption expenditures.

In 1988, agriculture was responsible for some 30 percent of the gross domestic product and directly employed over 10 million people, or 46 percent of the domestic labor force. During the same year, the nation had a net agricultural trade surplus of US\$334 million while experiencing a total merchandise trade deficit of US\$1.3 billion. Moreover, the processing of agricultural products accounted for about one-third of all manufacturing output. Food,

together with tobacco and beverages, accounted for 61 percent of total personal expenditures in 1988.

Although agriculture is a dominant force in the Philippine economy, the greatest poverty remains in rural areas. Farm households depend on non-farm sources for one-fourth to one-third of their income, and half of all rural income comes from non-farm sources. Only about one third of all poor farmers use fertilizers and pesticides and about 20 percent have access to irrigation.

National development plans have consistently given highest priority to agriculture and rural development. Specific objectives of the agricultural sector set forth in recent development plans include the following:

- Intensification of food production (esp. rice and corn beyond self sufficiency).
- Expansion and improvement of export crops.
- Expansion in animal production to achieve self-sufficiency in meat and milk.
- Further development of the swine and poultry industries through increased production of corn, sorghum and soybeans.
- Expansion of fish production.
- Protection of forests from unwarranted exploitation, reforestation of denuded areas, and protection of parks and wildlife.

Yields of most crops are low in comparison with those of neighboring countries with similar ecological conditions. Therefore, there would appear to be ample opportunities for substantially increasing agricultural output.

A-1.1.1 Land Area

The Philippines is primarily rural with a land area of some 30 million hectares. This is distributed among 12 large and 9 medium-sized islands, plus approximately 7,000 smaller islets, reefs and atolls.

The land-based eco-system is predominantly tropical rain forest. There are approximately three million has. of irrigated land and 120,000 has. of grassland swamp. Eight hundred thousand has. are in pine forests which are believed to be evolving into more diverse tropical rain forests. An estimated three to five million has. that were once forested are now covered with economically useless cogon grass (Imperata cylindrica).

Approximately one-half of the land in the Philippines is classified as "Alienable and Disposable" (A & D). This is land which may be privately owned. The other half, mostly with slopes greater than 18 percent, is public "Forest Land". Of the 15 million has. of Forest Land, only 40% has any significant tree cover and one million has. or less is in productive, old growth forest.

Logging in the upland has opened new areas for settlement as a result of building roads and the partial clearing of forests. This has also reduced to critically low levels the forest habitat of the many species of flora and fauna endemic to the Philippines. Such activities have contributed to major soil erosion problems in the uplands and related problem in the lowlands, including flooding and the increased siltation of water ways.

The latest agricultural census indicated that in 1980 the total land area devoted to temporary and permanent agricultural crops was 7.8 million has., up from 6.3 million in 1970. In 1980 the Philippines had 3.42 million farms, of which 86 percent were less than 5 has. and 96 percent less than 10 has. At that time approximately 1.5 million has. were covered by irrigation services, representing less than one half of the potential irrigable land. Two annual crops can be planted on most irrigated land, with some areas planted to three crops annually.

A-1.1.2 Agricultural Enterprises

Crops account for 73 percent of total agricultural production value, with livestock and poultry accounting for the remaining 27 percent. Rice dominates the crop sector, contributing 26 percent of the total value of crops. Other major agricultural crops include coconuts, corn, sugar cane, bananas, and mango which, together with rice, account for 69 percent of total agricultural crop value. The production value of the livestock and poultry sectors is dominated by the swine industry which accounts for 40 percent of the total value. This is followed by chickens with 34 percent, eggs 9 percent, and cattle 9 percent. The domestic dairy industry is very weak, contributing little to farm income.

Food crops outrank "commercial" crops in terms of both area and value of output -- accounting for 69% of the planted area and 64% of the product value. Rice and corn are, by far, the most important food crops, with rice the primary staple food for the urban population, the lowlands, and plains. Corn is the dominant staple food of the upland population. While the area under corn is almost equal to that under paddy or palay, the value of the latter is about 2.5 times that of corn. In the upland, corn is supplemented by upland rice and root crops.

In 1980 sugar cane and coconuts were by far the most important commercial crops, accounting for over 80 percent of the total value of such crops. Because of the sharply lower prices for sugar in world markets, the income from sugar has fallen sharply during the

last decade. In 1987 the value of both exported bananas, canned pineapple, and fish exceeded that of sugar.

A-1.1.3 Agricultural Production and Productivity

During the first half of this century, agricultural production increases came primarily from expansion of cultivated areas. Although there has been some continued expansion in cultivated areas since mid-century, significant improvements in productivity have made the principal contribution to the increased production of many crops.

For example, the area devoted to rice rose very slowly from 1965-66 to 1978-79; however rice production went up significantly due to higher yields per ha. The output on rainfed land during this period rose from 1.23 metric tons to 1.71 MT per ha., an increase of 39 percent. Yields on irrigated land increased more rapidly, from 1.81 to 2.75 MT per ha. -- or by 52 percent. Expanded double-cropping undoubtedly contributed to this growth.

The widespread adoption of high yielding varieties (HYV) together with the use of more fertilizer and pesticides were the principal factors responsible for this development. In the period from 1978-79 to 1986-87 the total harvested area of rice declined some 360,000 has. or 10 percent. Yields, on the other hand, increased approximately 25 percent and total production went up some 1.1 million MT or over 20 percent.

The production of corn also increased substantially during this period. From 1965-66 to 1978-79 production went up about 130 percent -- from 1.38 million to 3.17 million tons -- while the land area rose only 59 percent. From 1970-71 to 1974-75 yields stagnated while the planted area increased considerably, partly because cultivation was pushed into more marginal lands. From 1978-79 to 1986-87 corn production increased by approximately 1 million metric tons -- or by 33 percent -- while average yields went up 23 percent.

From 1975-87 there was no significant change in coconut production. During this period, however, the area devoted to pineapples increased 90 percent and yields went up 185 percent, for a total increase in production of 442 percent. There was a sharp increase in production of bananas in the 1975-80 period, due to increases in both yields and land area. The area devoted to cotton increased from 300 to 4,250 has., with yields increasing over three fold. The total output of cotton is still relatively low and contributes little to meeting the nation's needs.

In 1987, swine accounted for some 72 percent of the total volume of livestock and dairy products. In the period from 1978-87 pork production went up 39 percent.

In the period from 1977 to 1986, there was a sharp reduction in the output of forestry products, with log production declining some 56 percent and the production of lumber going down by about 38 percent.

During the same period, fisheries production increased slightly, with the largest gains occurring in the output of fish ponds.

A-1.1.4 Agricultural Sector Performance

Since 1965, the agricultural sector has made significant gains. The net domestic product of agriculture, fisheries and forestry grew at an average annual rate of 3.5 percent in the 1965-70 period, 3.8 percent from 1970-75 and 4.8 percent from 1975-78. The gross value added of all agricultural crops rose from an annual rate of 4.2 percent in 1970-75 to 4.8 percent in 1975-78.

The performance of the agricultural sector was weaker during the 1980s, although managing to sustain a positive growth rate despite economic crises and political turmoil. However, sectoral growth which was about 1.8 percent from 1980-82 to 1985-87 fell considerably below the rate of population growth and failed to come close to the growth rate of nearly 5 percent in the previous decade.

Weaker performance since 1982 can be attributed to several factors, including the closing of the land frontiers, decreasing opportunities for expansion of arable areas, as well as a slowed expansion of irrigated lands. The area under HYV rice varieties had reached 84 percent of the total rice areas (93 percent of irrigated areas) by 1982. Even though there was a further increase of 3 percent in area covered by HYVs by 1986, further sharp increases in paddy production were not realized. Extraction opportunities in the logging and fisheries sector declined as resources were depleted. These circumstances were compounded by the contraction of international markets for the principal export crops of the country, coconuts and sugar.

Also associated with the economic crisis were the reduced availability of (subsidized) formal and informal rural credit, record high fertilizer prices, and sharp increases in market rates of interest. These factors limited the growth in fertilizer use, and in 1984-85, fertilizer use actually fell below levels reached a decade earlier.

Public expenditures on agriculture were also cut back during the 1983-86 period. Moreover, the stagnation or decline (after 1983) in real wages in urban areas reduced the demand for commodities with high income elasticities, such as meat, fish and fruit.

A more favorable policy environment partially offset the negative effects on the agricultural sector in the 1980s. Specific

measures taken included: opening up of import trade in animal feed and wheat, phasing out of price controls on rice, poultry, eggs and pork, deregulation of interest rates, and phasing out of subsidies for agricultural credit. More significantly, the successive devaluation of the peso from 1982 to 1986 helped to offset the decline in international prices of export commodities.

The New Government, after assuming power in February 1986, moved quickly to further reduce distortions unfavorable to agriculture -- with the objective of increasing profitability of farming operations. Measures taken included: lifting of the ban on copra exports, the abolition of monopolies and monopolistic structures, liberalization of fertilizer importation and distribution, abolition of export taxes, and exemption of most agricultural imports from taxes and custom duties.

A-1.1.5 Agricultural Trade

Exports of agricultural products -- mainly copra, coconut oil, sugar, fruit and vegetables -- have traditionally provided the bulk of Philippines foreign exchange earnings. In 1965 agriculture contributed 87 percent of the value of all exports, with a value of US\$688 million. By 1980 the sector's share of total exports had dropped to 36 percent with a value of US\$2,287 million. In 1988, the agricultural share of total exports had declined still further to 23 percent -- with a value of US\$1,546 million. In the first six months of 1989, agricultural exports represented only 10.26 percent of the value of all exports.

This decline of exports in the 1980s has been associated with a sharp drop in income from coconuts, forest products and sugar. Some indication of the magnitude of this decline is reflected in the fact that from 1977 to 1987, exports of logs dropped from 2,050 to 211 million cubic meters. Exports of veneer dropped from 155 to 64 million cubic meters. Exports of sugar dropped from 2,575 metric tons in 1977 to 127 metric tons in 1987. Copra exports declined from 560,000 metric tons in 1977 to 121,000 in 1988. Coconut oil exports dropped by approximately 50 percent in the same period.

While the export base has been limited to a few products, the direction of the export trade has become more diversified. In 1970, exports to North America and Japan constituted 81 percent of the total. By 1978 this share had dropped to 59 percent, with Western Europe absorbing 19 percent and other Asian countries 14 percent.

Much has been said about the Philippines achieving self-sufficiency in rice production -- with the country exporting rice for the first time in recent history in 1977. Indeed in 8 of the 10 years from 1977 through 1986, there were some rice exports. It should be noted, however, that with relatively large imports of rice in 1984 and 1985, the Philippines actually imported more rice than was exported over the 10 year period. One might say,

therefore, that the Nation is only marginally self-sufficient, if that, in rice.

Imports of agricultural products represent only a small proportion of total imports. Furthermore the proportion of agricultural consumer goods imported has declined in recent years. Between 1965-78, meat and fish products for consumer purposes declined from 14 percent of total consumer imports to 4.5 percent; dairy products from 14.0 to 7.3 percent, and cereals from 51 to 15 percent. Production of sugar has dropped so low that in 1988 the Philippines had to import 100,000 m.t. -- representing a major change from a decade earlier when the country was a large exporter of sugar.

Of the principal raw materials imported during the 13 year period, the percentage of textile fibers remained constant (7 percent) while imports of animal feedstuffs increased from 1 percent of the total raw materials imports to 3.2 percent. By 1978 over 7 percent of the mixed feed protein required for the swine and poultry industry was imported. Imports of corn rose from 26,000 tons in 1969 to 148,000 tons in 1975.

The value of agricultural products imported from 1980 to 1987 changed very little. Although the value of agricultural exports declined substantially during this period, there was still a significant positive balance of trade in agricultural products in 1987. However, in the first 6 months of 1989, "local agricultural products sold in the world market lagged behind total farm imports during the same period, resulting in a high agricultural trade deficit for the country" (The Business Star, Manila, September 15, 1989).

A-1.1.6 Summary

Overall, the agricultural sector can be characterized as sluggish. Production is not increasing at a rate adequate to meet growing needs. The decline in agricultural exports is depriving the country of badly needed foreign exchange. Incomes of rural people, heavily dependent on agriculture, are not improving significantly. All of these circumstances emphasize a need for greater agricultural productivity and enhancement of rural income.

A-1.2 Rural Poverty, Population Growth and Resource Degradation

A-1.2.1 Poverty

In the May 7, 1988 edition of The Economist it was reported that " ... three-fifths of the 56 M Filipinos live beneath a poverty line that is officially set at around \$120 a month for a family of six." Even more sobering is the statement in a World Bank report released

around the same time: "There are more poor people in the Philippines today than at any time in recent history" (World Bank, 1988).

Comparing data provided both from the National Economic Development Authority (NEDA) and from its own estimates, the Bank revealed that an extra 10 million individuals were added to the ranks of those below the poverty line in the Philippines between 1971 and 1985. In that latest year it was estimated that more than half (52%) of the nation's 9.5 million families - equivalent to 31 million out of 54 million Filipinos - failed to provide the wherewithal to meet their minimum daily nutritional requirements of 2,016 calories and 50 grams of protein plus their basic non-food needs. Applying the same formula to the latest population estimate of 65 million (Population Reference Bureau - reported in the Manila Times, August 26, 1989) would indicate that there are now more than 37 million Filipinos who live in what The Economist refers to as "misery".

The findings of the World Bank review of poverty in the Philippines over the period 1971-85 were condensed as:

- the percentage of people living below the poverty line has not changed, but there are a larger number of poor in the Philippines as a result of population growth.
- the percentage of people below subsistence level (an income level that provides minimum food requirements but excludes non-food needs) is lower, but, again, the number of people living with lower incomes than those required for minimum food requirements is higher;
- the balance between urban and rural poor has slightly changed since poverty incidence increased in urban areas and did not change in rural areas;
- income distribution has improved slightly as a result of the increase in the average real incomes of the lowest deciles of the population.

With regard to this last dimension, it should be emphasized that the disparity in income distribution is still great. Families in the lowest 30 percent income bracket received an average 6.3 percent of total income over the period 1980-86, while those in the highest 10 percent income bracket received 44.6 percent (Blejer and Guerrero, 1988).

These statistics highlight three inter-related issues which connect poverty with agriculture in the Philippines context:

- Agriculture as a source of income for those (landed and landless) who live in rural areas
- Agriculture as a major source of foreign exchange from exportable estate crops (especially sugar and coconuts)

- Agriculture as the major source of food for all Filipino consumers.

And all of these dimensions are themselves set in the context of an ever-increasing population, a rapidly degrading natural resource base, continuing problem of insurgency and political unrest and macro-economic policies which still differentially favor industrial over agricultural sectors and urban development over rural development.

If one takes the bottom three deciles of the national income distribution as a working definition of the core poor in the Philippines, this amounts to a number in excess of 15 million individuals, 11 million of whom live in rural areas. Given a conservative population growth rate of 2.5% for the lowest income groups (down from the 1970-75 estimate or 2.7 per cent), the core poverty cohort will be expanding by around 400,000 people every year (World Bank, 1988).

Of the 3 million families which constitute the poorest of the poor, 2 million work in agriculture. The proportion of the population dependent on very small farms or with no land at all, has increased in the past decades and is one of the major factors contributing to increasing poverty in the rural areas.

Most of the rural poor are tenant farmers or landless laborers, who are involved in corn and rice production. Indeed almost half of the poorest rural farm households are rice farmers as the data in Table AT-1.2.1 illustrate.

Table - AT-1.2.1

Characteristics of Farmers in the Bottom 30% of
Income Distribution, 1985

	No. of Families	% of Total Poor Farmers	% of Wages	<u>Income</u> % of Entrepreneurial Activities	Annual Per Capita Income (P)
Rice	625,961	43.3	12.48	58.99	1,995
Corn	412,333	28.5	13.73	58.53	1,770
Sugar	7,985	0.6	22.63	46.72	2,041
Other crops	145,771	10.1	12.76	54.71	1,816
Coconut	224,603	15.5	10.90	58.82	1,958
Fruit	6,098	0.4	36.57	37.14	1,882
Livestock	10,659	0.7	10.89	52.67	1,899
Poultry	3,613	0.2	8.19	62.60	2,486
Not Classified	8,982	0.6	0.24	66.55	1,964
Totals	1,446,004	100	Mean 12.70	58.30	1,909

Source: FIES and World Bank, 1988.

A -1.2.2 Population Trends

The Philippine population has more than tripled over the past four decades (Porter and Ganapin, 1988) from 19.2 million in 1948 to an estimated 64.9 million in 1989. For the first one or two decades of this period, the annual population growth rate exceeded 3.0 percent. From 1970 to 1975 the rate was estimated at 2.7 percent suggesting a significant reduction. Yet, that level continues to persist, making it Asia's highest (United Nations Fund for Population Activities, 1985).

At this rate of increase, the population will exceed 85 million by the end of the century, and reach more than 130 million by the year 2020.

Any further declines in overall death rate at 7 per 1000 population, or infant mortality rate at 48 per 1000 livebirths, will exacerbate this situation. The average completed family size in the republic has dropped from 6.5 births per woman in 1960 to 4.6 in 1989 - this rate would have to halve again for the national population to exhibit zero growth. Whilst family sizes are declining, it is still not uncommon to find families of 8 or 9 children, especially in rural areas.

The current population dynamics of the Philippines translates as an addition of some seven to eight hundred thousand entrants to the labor force each year. The economy has been unable to absorb such a scale of increase for many years and this has seen:

- an increase in unemployment and underemployment throughout the country, especially in rural areas
- an associated outmigration from rural areas and the burgeoning of urban slums
- the expansion to more than one million individuals who leave the country to seek temporary employment overseas (and whose remittances now represent a significant source of foreign exchange)
- the migration of landless laborers into the uplands in search of land.

It has been estimated (Porter and Ganapin, 1988) that up to 30 percent of the Philippine population may now dwell in the uplands. This migration to the steep slopes of once-forested land, is now associated with an appallingly high level and rate of environmental degradation.

A-1.2.3 Natural Resource Degradation

The clearing activities of the immigrant farmers to the uplands have exacerbated one of the most pressing problems in the Philippines - deforestation and its associated effects on the degradation of a range of natural environments. Added to years of commercial exploitative logging, the practices of the slash-and-burn kaingineros have brought about perhaps the most rapid destruction of forest reserves in the world. It has been estimated that in the two decades since 1968, the Philippines has lost almost a third of its total forest resources - a decline from 18 million to 11 million hectares - although if one takes into account the quality of that which remains, adequately stocked forests now probably total less than 8 million hectares (Porter and Ganapin, 1988). In more dramatic terms this has been equated to a loss of 21 hectares per minute (Whitmore, 1980). In addition to the loss of important forest resources for future revenue, such rapacious behaviour must also have caused the extinction of unknown numbers of species of flora and fauna.

While recent bans of lumber exports and the introduction of other restrictions on logging have slowed the rate of forest denudation, environmental degradation continues. This is particularly critical in major watershed systems where the seasonal hydroecological pulse is often severely disrupted through deforestation. With the cover removed, and the earth often cultivated, both the topsoil and subsoil become eroded through the runoff impact of rain. Even as the slopes lose their soil, so the rivers of the watershed become silted, in turn markedly affecting the water flow. In the absence of trees and soil to "absorb" rainfall, rivers become raging eroding torrents in the wet, slowing to but a trickle in the summer.

The increased sediment load of rivers and streams greatly increases the severity of flooding; it also greatly impacts irrigation systems, as well as fouling the waters of lakes, estuaries and river mouths so upsetting the life cycle of many species of fish and indeed threatening to actually stifle fish life altogether. Moreover, deforestation clearly affects the hydroecological cycle in other ways than runoff and its effects. The level and stability of water tables are markedly changed when the trees are removed from given areas. In irrigated areas this can lead to serious problems with salinization.

Finally, the loss of forest cover is often associated with a diminution of rainfall and perturbation of other local climatic effects, leading to severe water shortage and even drought.

In sum, to quote again from Porter and Ganapin (1988):

"... the destruction of forest resources not only alienates those who are directly dependent on those resources - primarily ethnic minorities - and strengthens the insurgent movement; it also further exacerbates the subsistence crises created primarily by the pressures of population growth on a limited agricultural base. It weakens the economy's ability to provide sufficient food, reduces the incomes of small farmers by increasing floods and reducing the availability of irrigation water, and increases the cost of one of the basic necessities of life for the poorest of the poor."

Serious as it is, deforestation is not the only cause of the degradation of the physical environment in the Philippines. There are at least three other major sources of concern:

- the loss of soil structure and fertility through inappropriate and exploitative farming practices.
- the pollution of soil and water and the chemical contamination of food products through indiscriminate use of chemicals in both agriculture and industry
- the destruction of fish habitats particularly of lakes, mangrove stands and coral reefs, and the use of exploitative fishing techniques both leading to severe reductions in the country's fishing resources.

Taking this third issue alone, we can again see the disproportionate effect that environmental degradation and the competition for resources has on those least able to adjust and most needy - the poorest of the poor.

The livelihood of the resource poor, small municipal fisherman has been severely undermined over the past couple of decades as the effects of sedimentation and pollution have continued to reduce the quality of the fishing environment. Like the situation between forests and watersheds, the marine environment is also characterized by patterns of complex relationships which are both bio-physical and socio-cultural. Encouraged by the income to be gained by fishing, capitalized commercial fishermen have encroached on the traditional inshore fishing waters. Their equipment is such that it is not only non-selective in its harvest, but also damaging of the sea bed - the breeding habitat of many fish. With declining harvests, in the face of this commercial competition, the resource-poor fishermen are forced to intensify their efforts and this has included indiscriminate fishing of coral reefs as well the use of crude techniques which actually destroy the reefs. The single most important cause of reef destruction however, appears to be heavy

siltation from reforestation, dredging, filling and mining. The actual harvesting of coral has exacerbated the situation to the point where "... fully one-third of 619 coral reef locations monitored (in a 1981 study by UP) had less than 25 percent of its living coral cover remaining, while only 5.5 percent of the locations had 75 percent of their living coral cover" (UP-PMSC, 1981).

A final major factor in the disruption of traditional fishing patterns has been the proliferation of capital intensive fishpens whose owners have been laying claim to increasingly large proportions of lake areas. They have also been associated with the destruction of mangrove swamps in their construction of new pens.

Destruction of natural habitats and bio-physical structures like forests, lakes, reefs and mangrove swamps not only means a continuing degradation of the resource base for production; it also leads to serious perturbations in many other biological and physical cycles and fluxes. These issues are systemic - a change in circumstances in one place at one time can have profound implications for other places at other times. As always, those least able to manage such impacts, which can be catastrophic in their consequences, are the poorest of the poor.

A-1.3 Linkages of UPLB with Governmental Agencies and Programs

UPLB is linked in various ways with a number of governmental bodies and programs. Among 250 transactions of UPLB colleges with off-campus institutions in 1987, half were with Philippine government agencies, a third were with international organizations, and 18 percent were with private Philippine organizations. The transactions included cooperative projects, grants and contracts, technical assistance, use of outside agencies in instruction, student scholarships (with many probably uncounted) and other linkages. In the college of Arts and Sciences alone, 41 students received scholarships from 20 private organizations and 15 students were funded by government agencies.

The relationships between academic and other public service sectors have historically been stable and mutually supportive, with UPLB faculty contributing particularly to programs of the Department of Agriculture (DA). More recently its linkages with Agriculture in the area of policy appear to have diminished in the policy and program planning area (DA currently provides substantial funding in plant breeding), while ties with the Department of Environment and Natural Resources and the Department of Science and Technology seem to have grown. Despite these shifts, the DA remains the governmental body most closely related to UPLB. The nature of these relationships is discussed below, as well as UPLB's role in major government programs, and some of the university's ties with other departments and agencies in the executive branch of government, and legislative offices.

A-1.3.1 Types of linkages

The linkages of UPLB with governmental agencies include:

- graduates of the university employed by governmental agencies;
- the university's provision of informational and other services to agencies in relation to their respective missions;
- degree training of government employee-scholars;
- grants and contracts provided to UPLB to pay for services or to broadly support university programs in the agencies' respective areas of responsibility;
- cooperative (or sometimes competitive) efforts by the agencies and UPLB in areas of the public's interest;
- line administrative and fiscal relationships to the executive and legislative branches of government; and
- informal critical, political or other evaluative relationships that emanate from either society's interest in the university as interpreted and expressed through governmental agencies, or conversely, from the university's self-perceived role in serving society through its influence on government.

A-1.3.2 Principal Agencies Linked

Probably a number of important ties between academic units at UPLB and other public organizations have not come to the attention of the review Panel. Some of the key relationships however that were noted, include those listed below.

A-1.3.2.1 Department of Agriculture (DA)

The Department of Agriculture issues grants and contracts largely in the area of production agriculture, mainly to the Institute of Plant Breeding (IPB), the National Institutes of Biotechnology and Applied Microbiology (Biotech), the National Crop Protection Center, and, to a lesser extent, to the Center for Policy and Development Studies (CPDS). DA employees are often trained at UPLB on scholarship and the DA employs graduates of UPLB. Faculty of UPLB on an individual basis have provided critical reviews and policy advice through unsolicited studies and public media.

Extension efforts by UPLB have often been funded on a project basis by external donors and university resources, and while not directly competitive with the DA, the relationships in this regard have, occasionally appeared to be uneasy. Cooperation of UPLB in government extension programs is presently limited to training programs (many DA employees have been trained) coordinated engagement at the field level.

A-1.3.2.2 Department of Science and Technology (DOST)

The Department of Science and Technology provides grants and contracts that support programs of the College of Arts and Sciences (CAS), College of Agriculture, IPB and Biotech. These are largely in the basic research areas but also includes support of the CAS Integrated Academic Program in the Sciences (INTAPS), a science scholarship and teaching program.

PCARRD (Philippine Council for Agriculture and Resources Research and Development), administered under the National Science and Technology Authority, is a major conduit of international and national research funding. PCARRD funds UPLB research on a project basis, largely in the areas in which the university has been assigned responsibility by PCARRD. Areas for which UPLB has national responsibility include legumes, ornamental and medicinal crops, rice and other cereals, vegetable crops, smallholder beef and carabeef farms, dairy, smallholder forage and pasture, swine, poultry, agricultural engineering, farming systems, soil resources, watershed management, applied rural sociology and macroeconomics. The university is also designated leader at the regional level for other commodities.

A-1.3.2.3 Department of Environment and Natural Resources (DENR)

The Department of Environment and Natural Resources (DENR) provides support to the Colleges of Forestry and Agriculture for specific research services, largely channeled through the Philippine Council for Agriculture and Resources Research and Development (PCARRD). DENR also gives grants to the Development Academy of the Philippines (DAP) which in turn hires UPLB faculty. Components of a reforestation project funded by DENR is administered through the UPLB Foundation.

A-1.3.2.4 Department of Agrarian Reform)

The Department of Agrarian Reform has long been closely associated with the Institute of Agrarian Studies (IASt) of the College of Economics and Management. IASt trained DAR employees and conducted studies for the DAR. In recent years the DAR was less active and less well funded, such that the relationships has

declined. With new emphasis on agrarian reform the role of IAST in support of the DAR is unclear (further discussed in "informational services" below).

A-1.3.2.5 The Department of Education, Culture and Sports (DECS)

DECS has no direct administrative responsibility for the university, however the Secretary of DECS serves as chairman of the UP Board of Regents. Indirectly the DECS is strongly related to UPLB in that it administers other government-funded institutions of secondary and tertiary agricultural education. Within the National Agricultural Education System, and through a sub-body of DECS, the Technical Panel for Agricultural Education (TPAE), UPLB is identified as the national Agricultural University. (See Annex A-1.4, the Philippine Agricultural Education Sector.)

A-1.3.2.6 Other Departments

Many other agencies of government are related to UPLB through projects, funding and other relationships. Some of these, it would seem, should be more closely related to the university. Other departments with concerns related to UPLB include the Department of Trade and Industries (agricultural trade and agro-industries), Department of Labor and Employment (agricultural labor, wages and rural unemployment), Department of Justice (forcing the closure of agricultural schools in accordance with NAES exclusions), Department of Transportation and Communication (rural roads and communications), the Department of Social Welfare and Development, Department of Health, the Central Bank (rural banking) and others.

A-1.3.2.7 Sub-agencies and Programs

Some of the smaller sub-agencies and programs that provide research grants and contracts to UPLB include the Population Commission, Bureau of Energy Development, National Food and Nutrition Research Institute, the National Nutrition Council, Fiber Industry Development Authority, Cotton Research and Development Institute, National Research Council of the Philippines, National Food Authority and the Bureau of Forest Development.

A-1.3.2.8 Coordinating Bodies

Coordinating bodies that strongly affect UPLB include the National Economic Development Authority (NEDA) and the National Food and Agricultural Council (NFAC).

A-1.3.2.9 Legislative Organizations

The legislative branch of government is occasionally directly approached by UPLB for funding of special projects (the overall budget is presented by the President of the UP system), most recently for the Water Buffalo development program. Also UPLB's Center for Policy and Development Studies does work for the Senate Committee for Agriculture Development.

A-1.3.3 Competitive Relationships

In certain of its services the UPLB is competitive with smaller sub-agencies. For example, both Biotech and the Bureau of Soils conduct soil analyses on a fee basis. The competition is sharp enough to have driven the fee down to a barely break-even rate.

In previous years the Agricultural Credit and Cooperatives Institute (ACCI) of UPLB College of Economics and Management had responsibility for analysis and evaluation of the agricultural credit system. ACCI was partially funded by the government through projects for this purpose. More recently the Central Bank and the rural banking system have developed their own rural credit research capacities. As a result, ACCI's mission is somewhat competitive with some of these banks units, and ACCI's funding has declined.

A-1.3.4 Employment relationships.

Discussions of the review panel within and outside the university suggest that UPLB is viewed primarily as a source of manpower for agriculturally-related positions in government and to a lesser extent in the private sector. Graduates of UPLB have historically aimed their careers at government service. As a result, Los Banos graduates populate agencies and programs nationwide. Remarkably, it is also stated that UPLB over time has furnished few top leaders in agriculture, for example, at the level of Secretary and Under-secretary. This is attributed, by some, to graduates' perceiving their roles mainly as academicians and technicians, and their corresponding disinterest in high political or social responsibility.

UPLB alumni constitute a loyal following that perpetuates the success of graduates in finding positions in government agencies and programs. The informal employment network is probably the most commonly felt and exercised form of support for the institution among alumni. However it is suggested by government officers and private sector leaders that the role of UPLB as the traditional public recruiting ground for agriculture, should decline. Reasons cited are that (1) the government requires fewer agricultural employees than previously, (2) with regionalization of agricultural planning and services, it is appropriate that governmental

institutions recruit from local institutions, and (3) the relevance of UPLB education is questionable in that it is said to be too oriented to theory, and too little to practical skills.

The latter view is all too conveniently and frequently expressed of universities generally, and it is not clear that UPLB deserves precisely this criticism, particularly since graduates are also said to view themselves as technicians. However the apparent contradiction in the two comments could be resolved by one informant's view that UPLB graduates are "high-level technicians," who work neither at the practical hands-on level, or the highest level of government. As mid-level technocrats they are best prepared and most inclined to give technical advice in agriculture.

Yet others suggest that Philippine society remains a socio-economically stratified society, and that agriculturists have been drawn predominately from strata that traditionally have not expected, nor been expected, to lead or direct the affairs of the nation. In this context UPLB is perceived by some to be an institution that "knows its place," providing a good education to the common man (as US landgrant institutions were first envisioned), and upward mobility -- only to a point. Some suggest that for UPLB to assert leadership, or provide a critical view of society, might risk displeasure of those who have traditionally led. Further to the point, the perceived decline in the profile of UPLB at the seat of government might be viewed by some as less a case of the government's distributing Los Banos' former influence to regional institutions, than, in effect, of returning the proprietorship of the agrarian sector to the academic aristocracy.

A-1.3.5 Informational and other Services

While research and extension are perceived by university students, faculty and administrators as co-equal functions with that of education, UPLB's role as an institution in supporting governmental agencies in their respective missions presently appears limited. Officers of the DENR, DOST and DA all cited instances of having referred first to Manila-based firms and institutions for information and assistance in framing policy with respect to agriculture and forestry. This contrasts with the situation 15 years ago when agricultural production programs were initiated or even "written" at UPLB.

A-1.3.5.1 Agricultural Technology

According to the role many within UPLB perceive for their institution, the provision of agricultural technology is the primary form of informational and technical support of the DA and other agencies. UPLB has previously played an important role in making specific technical recommendations of cultural practices to farmers through government agencies. As mentioned earlier, UPLB was largely

responsible for the technical content of such programs as Masagana '99. Also, there have been obvious key advances in component technologies such as rice and corn varieties, horticultural crops, legume varieties, mango flower inducer, reproduction techniques for the macapuno coconut and other advances. Through government and private sector programs these have made their way on to Philippine farms.

Despite these advances, previous external reviews suggest that on balance, "only a very limited number of research discoveries have been adopted by end-users at a level that can be of significant effect to the agricultural sector," (College of Agricultural Sciences, Review Committee). Except in the Department of Environment and Natural Resources, government officers did not prominently express to the review Panel a view of UPLB as an important source of technology that could be employed in the fulfillment of their respective missions.

In an effort to contrast the possible role of UPLB's "hard" technology in supporting government, the Panel also asked about models, policies, methodological approaches or other "soft" technologies that might have been provided by UPLB. In this area as well, UPLB appeared to have been superseded by other government support groups.

A-1.3.5.2 UPLB Relationship to Agrarian Reform

Most lamented at UPLB, and remarked upon by outsiders, is the recent request by the Department of Agrarian Reform (DAR) to the Makati-based Asian Institute of Management (AIM), for AIM to prepare the conceptual framework for the government's new land reform program under the Comprehensive Agrarian Reform Law. A unit of UPLB, the Institute for Agrarian Studies, was founded in 1970 and adopted the purpose of serving "the society and the nation in the search for approaches and strategies for solving [the agrarian reform] problem." "It must continue its links with the Department of Agrarian Reform and other agencies and organizations while maintaining its primary commitment to farmers, landless workers and others at the lower end of the agrarian structure."

With funding support of the government the IASt (formerly Agrarian Reform Institute), conducted teaching, studies and extension to support land reform, and its staff now number 9 faculty, 29 REPS, and 19 administrative staff. However, despite DAR's commissioning of significant new work toward agrarian reform, and the employment of over 5000 new staff (according to recent newspaper accounts), the IASt has not been directly called upon. Some of its staff, however, were said to have been hired as consultants by the Asian Institute of Management, to help plan the new Comprehensive Agrarian Reform Program (CARP). The access of this UPLB unit to its principal client agency, has clearly declined.

A-1.3.5.3 Access to Department of Agriculture

The problem of access of UPLB institutions to government bodies extends to the Department of Agriculture as well. In a recent address the Secretary of Agriculture named a dozen or more new agricultural programs, and pointedly disregarded any possible technical support that might be utilized from UPLB. At the same time, in discussions at UPLB, none of the programs mentioned by the Secretary, were identified among research or extension interests of UPLB units. One businessman who noted the decline in UPLB's influence in Manila suggested that it had been replaced as a principal agricultural advisory body by CRC (Communication Research Center).

One reason given for the shift are lack of effective entrepreneurial representation to government agencies of UPLB's capabilities for policy analysis, technology generation and adaptations, and other development services. Lack of timeliness in providing such services is also mentioned. Others suggest that UPLB's expertise is somewhat off-target now -- more oriented to production agriculture than to agricultural processing and agribusiness. Certainly the distance of Los Banos from Manila and the associated poor telephone communications with Los Banos plays a role, particularly to a government that is predominantly urban-oriented.

A-1.3.5.4 UPLB and the Department of Science and Technology

The DOST is a significant client for UPLB's bio-technology and other programs in which particularly Arts and Sciences faculty are involved. However, a preference for Manila-based consultants was expressed by DOST officials. For agribusiness feasibility studies, "DOST goes to La Salle University, Ateneo de Manila and to UP Diliman," stated a DOST Officer. The reason that Los Banos is neglected is that "performance indicators are missing," i.e. no track record with the Department in this kind of work. Meanwhile DOST cites a need for assistance in the analysis of social and environmental impact of new technologies. According to the Secretary, DOST itself has "no expertise in the management of technology and technological change."

DOST officials also cite a need for support in extension, both operational and in the development of effective models for extension of new technologies. However one DOST official states that for such purposes, UPLB is "out-of-touch," and "poor in marketing its own activities." "UPLB must be vocal on policies!" The official went on to ask what is wrong, "Are they overloaded? They are silent. They are not leading."

A-1.3.5.5 UPLB and the Department of Environment Natural Resources

The UPLB College of Forestry's provision of informational and other services to DENR appears somewhat more satisfactory than other of the linkages mentioned. Here as well, De La Salle University and Ateneo are also often relied upon. UPLB is responsible for monitoring DENR's reforestation program. The UPLB Forestry and Agriculture Colleges are helping to develop sustainable systems for forested areas. The Secretary of DENR however feels that UPLB, particularly the College of Agriculture, should go further. An agroforestry curriculum should be offered because up to one third of the population is engaged in agroforestry. Eighteen million people live in the uplands, 11 million in forestlands as slash and burn tillers. (Incidentally, it was also stated that only DENR is actively engaged in population control, presently an unpopular notion with the government.)

Active cooperation of the DENR and UPLB College of Forestry is also reflected in the college itself. The college has participated in the establishment of government policy (however meeting resistance from the industry). Many faculty participated in writing of the forestry code. The college is also engaged at decentralized levels by monitoring and evaluating government forestry programs. A strong degree of commitment to understanding and resolving social issues associated with forestry, in cooperation with DENR, is evident among the faculty. The present and future problems of forestry are complex, and while UPLB is small, its faculty claim they are "equal to the task."

A-1.3.6 Critique and evaluative relationships

The relationships discussed above can be characterized as intended, reciprocal transactions of government and the university. There are occasions, as well, when the university serves society in its critique of government programs. There are at least two views within the university of what its role should be. One is the view that UPLB's mission is to provide technical and other information that is of use in formulating programs and policies, but that UPLB should not assert a role in assuring that the information is employed to the benefit of society. According to this view, UPLB is not directly responsible for the success or failure of agricultural development.

A second view is that the university is ethically bound, in its service to society, to assure that the products of its scholarship are employed to the benefit of society. According to the latter view, the University must be an advocate. Part of the reasoning for the latter approach is that Philippine government by its nature does not respond to information or guidance that is merely made available; rather policy is made through influence -- through "whispers in the ear" of officials. It is said that there is an

enormous amount of publicly available advice, some of it contradictory. If UPLB's advice, technical or otherwise, is to be utilized in government, advocacy is required, according to staff of the Center for Policy and Development Studies.

It appears that the institution does not take the advocacy role, and there is little indication that faculty are encouraged individually to advocate policies. It is asserted that the faculty have the "right" to promote their views and commentary of national affairs, but no reference was found regarding their possible "responsibility" to do so. A good indicator of this is a compendium of analyses and policy recommendations prepared by some UPLB faculty and their Los Banos colleagues, known as the "greenbook."

The greenbook was prepared to provide guidance to the new government. The authors chose to offer it as their individual work, rather than as a publication of the university. Reasons for this approach were understood to be that this would protect the university should the positions prove unpopular with the government (in fact, many of the recommendations are said to have been used). Also there seems to be the sense that because the analyses and recommendations may indeed not represent a consensus of faculty and administrators, it should not be promoted as a university publication. Likely such concerns would be expressed on many campuses about publications on controversial topics, and the outcome of whether such a publication would become an official university publication would be an equally open question.

What seems more surprising about the publication is the high degree of circumspection still expressed about the publication, two years after its issuance. Except for its authors, faculty and administrators seem noncommittal about whether or not they agree or disagree with greenbook recommendations. External reviewers of the Center for Policy and Development Studies, which oversaw the work, mainly criticize the book for being unfinished. Unfinished or not, it is large, definitive, widely read and sometimes used. One concludes that unless a clear mandate for policy analysis is received from on high, the Los Banos community reserves its judgement.

A-1.4 The Philippine Agricultural Education Sector

In assessing Philippine agricultural education it is useful to understand its role and relationships within the overall Philippine education system. Agricultural education partly reflects the character of the entire system -- especially trends in growth and sources of funding. Also higher agricultural education depends upon the supply of graduates from lower level institutions for its students, and competes for those students with institutions offering fields of study outside of agriculture. These relationships are discussed below.

A-1.4.1 Basic Education

Strong basic education helps rural dwellers understand and respond to agricultural opportunities. It's also needed to prepare students for success in secondary and schools and institutions of higher learning in agriculture. In turn, the success of tertiary agricultural education, research and extension institutions can in part be gauged by the economic health of the rural sector and the consequent access of rural population to strong basic education.

A-1.4.1.1 Enrollment Rates

Essentially all Filipinos initiate their formal elementary education, with two-thirds continuing into secondary school, and a quarter entering tertiary institutions. These rates of enrollment are among the highest of developing countries. Further, over 20% of the national budget is devoted to education, also one of the highest rates worldwide. The national education budget increased especially rapidly after 1985 when secondary education was nationalized and teacher salaries were increased. Efficiency of this substantial investment is impaired by high dropout rates at the elementary level.

A-1.4.1.2 Dropout Rates

Fifteen per cent of students fail to complete the first grade, and thirty per cent leave school by the end of the fifth grade. High dropout rates reduce literacy and possibly other factors in economic development such as health, family planning, agricultural productivity, and political and social awareness. Lack of money is cited as one of the principal reasons for quitting school. Dropout rates are higher in poorer areas, also suggesting that rural poverty is a major cause of student attrition. By alleviating rural poverty, agricultural and rural development have a major role to play in supporting national literacy and education. Clearly tertiary

agricultural education and universal basic education must be seen as mutually supportive sectors of the education system.

A-1.4.1.3 Quality

Quality of elementary education is also a concern. According to a 1988 study, Philippine 10- and 14-year-olds ranked lowest in science achievement among students of 17 countries. In tests administered by the Department of Education, Culture and Sports (DECS), elementary and secondary student scores average between 30% and 50% compared to the 75% target achievement level. One result is that high school graduates, especially from rural backgrounds, are

poorly prepared for higher studies in agriculture and other sciences, a problem emphasized by UPLB faculty.

A-1.4.1.4 Summary

In summary, basic education and tertiary agricultural education are mutually supportive components of the education system. The former provides the human resources needed for advanced agricultural training. Within the rural sector, literate entrepreneurs are required to employ the technologies and organizational approaches that emanate from agricultural teaching, research and extension institutions, working with and through governmental agencies. At the same time, higher incomes that should be associated with successful rural development are a key factor in rural residents' access to basic education.

A-1.4.2 Tertiary Education

Quality of education at all levels is partly related to the amount of resources that are allocated to it. The rapid expansion of institutions of higher learning threatens the quality of tertiary education. The number of post-secondary schools has tripled since 1955, with 400 institutions added since 1975 -- approximately half public, half private. While the rapid expansion reflects the strong emphasis Filipinos place on higher education, it also reflects an incautious political response that has helped to establish more institutions than can be effectively supported.

A-1.4.2.1 Expansion of Higher Agricultural Education

Presently, 1200 Philippine post-secondary institutions enroll 1.5 million students per year. A fifth of the students are in non-degree programs and 2 percent are in graduate school. The remainder seek bachelors degrees -- representing three quarters of all post-secondary students. Well over half of students enrolled for bachelors degrees study business or engineering. Only three percent major in agriculture. The political process of expanding tertiary education is especially evident in agriculture.

Most agricultural colleges and universities (ACUs) were developed out of agricultural secondary schools. A number of ACUs still retain affiliated high schools, which are regarded as an important source of students for the higher level institution. Local political pressure to convert agricultural high schools to ACUs is stimulated by increased community prestige, and the increased incomes college teachers receive. There are now 285 higher agricultural education institutions, of which 189 offer bachelors degrees, and others offering one or two year technical or vocational programs.

A-1.4.2.2 Types of ACUs

Agricultural colleges are established and funded in three ways: (a) 41 institutions are directly chartered and funded by the Congress and administered by their own board of trustees, (b) 76 schools are unchartered and funded by the Department of Education, Culture and Sports (DECS), and (c) 72 are privately funded and administered. While only 20 percent of all tertiary education is publicly funded, 62 percent of higher agricultural education institutions are publicly funded. Of the publicly funded agricultural institutions, 35 per cent are directly chartered and funded by Congress, outside the control of DECS.

A-1.4.2.3 Educational Standards

In 1983-84 the Technical Panel for Agricultural Education was established to help rationalize the agricultural education system. It has set standards for graduate programs in agriculture, fisheries and forestry, including physical facilities, curricula, and faculty and student qualifications. Few institutions are in full compliance; 13% of chartered ACUs, 1% of DECS-administered schools and 3% of private institutions meet 80% of the minimum standards.

Graduates of most ACUs hence find themselves yet unprepared for agricultural careers, resulting in disillusionment with agricultural education. Compounding the problem of the low quality of graduates' education, is the large number of agricultural graduates relative to the number of off-farm jobs in agriculture. After a high enrollment of 78 thousand students in 1979/80, students in higher agricultural education had declined to 46 thousand by 1984/85. Improvement of the tertiary agricultural system is clearly needed.

A-1.4.3 Macro-Plan for Agricultural Education

Following guidelines established by DECS for all tertiary education, attempts are being made to rationalize higher agricultural education. A National Agricultural Education System (NAES), or "Macro-Plan," is proposed which would reduce the number of government supported institutions, and concentrate resources in the remaining schools. Several similar versions of the system have been considered in Congress. One version provides for a four-tier agricultural education system comprising (a) a national agricultural university (UP Los Baños), (b) three zonal agricultural universities, (c) 13 regional universities and (d) 77 Provincial Technical Agricultural Institutes (PTIAs).

A-1.4.3.1 National and Zonal Institutions

The National University, designated as UPLB, would (a) focus on post-graduate programs and curricula models, (b) conduct basic and applied research, (c) assist regional colleges, (d) link with national and international agencies in areas of advancing sciences related to needs in agriculture and rural development, and (e) share expertise and facilities with government and private sector for policy planning and evaluation, and staff training. Zonal institutions (deleted from some of the proposed organizational models) would function much like the national university, but define their areas of activity according to the human and physical environment in their respective zones.

A-1.4.3.2 Regional and Provincial Institutions

Regional colleges would (a) concentrate on BS degree programs with some improvement in post-graduate education and coursework in critical technologies for the region, (b) conduct adaptive research needed for the region, (c) assist PTIAs, and (d) link with government regional offices in planning and evaluating programs and training their staff. Provincial Technical Institutes in Agriculture (PTIAs) would (a) offer technical courses on farming and extension work with selected involvement in degree and non-degree post-secondary courses, (b) conduct pilot research and verification trials, short courses and training programs, (c) assist provincial and municipal agriculturists in planning and evaluating programs and training technicians, and (d) assist agricultural high schools.

A-1.4.3.3 External Funding of NAES

Various donors have expressed interest in assisting the Philippine government in implementing the National Agricultural Education System (NAES), also known as the "macro plan." The DECS agency EFPITAF (Educational Development Projects Implementing Task Force) is proposed to coordinate the donor-assisted projects, similarly as it coordinated previous World Bank-assisted projects in education. The Agricultural Technology Education Project (ATEP), funded through the Asian Development Bank, has begun to "pilot test" the NAES plan, primarily at the provincial level.

A-1.4.3.4 Curriculum Improvement

ATEP involved institutions at all levels of the proposed NAES in developing and introducing new curriculum at 13 of the 77 PTIAs. The "occupationally oriented" Diploma in Agricultural Technology (DAT) will be offered by the PTIAs based upon the "DAT-BAT" curriculum, two- and four-year programs, respectively. The DAT is a

73 unit curriculum comprising 21 units of general education and 52 units of technical agriculture, of which 18 units are practical learning experiences. The BAT (Bachelors in Agricultural Technology) is 154 units comprising 21 units of general education, 80 units of technical education and 18 units of internship. Curriculum is to be commodity and location specific. The DAT is to emphasize learning to use technology, while the BAT will additionally emphasize "the why of the of the production process."

A-1.4.3.5 Institutional Roles in ATEP

The principle roles of the national, zonal and regional institutions in the ATEP are to develop, evaluate and introduce the DAT-BAT curriculum. They will train teachers for the PTIAs and develop and test technologies that will be taught through the PTIAs. UPLB is specifically responsible under the ATEP teacher training, research on agricultural education, evaluation of agricultural education, and testing and verification of packages of technology. UPLB and the zonal institutions are to collaborate in these efforts. The indicated zonal institutions are Central Luzon State University, Muñoz, Nueva Ecija; Visayas State College of Agriculture, Baybay, Leyte; and Central Mindanao University, Musuan, Bukidnon.

Among others responsibilities, the regional institutions are to collaborate with the national and zonal institutions in testing and verification of technologies for the regions. Four of the 13 regional agricultural universities have been identified for participation in the ATEP. These are: Benguet State University, Camarines Sur State Agricultural College, Aklan Agricultural College, and the University of Southern Mindanao in North Cotabato.

A-1.4.3.6 PTIAs in ATEP

PTIAs are to "receive technologies" from zonal and regional institutions and translate them into "techno-guides or productive learning packages and activities." Direct linkages of PTIAs with the national agricultural university under the ATEP are not identified. The Provincial Technical Institutes of Agriculture that have been identified for assistance under the ATEP are: Ilocos Sur Agricultural College, Isabela State University, Western Luzon Agricultural College (Zambales), Rizal College of Agriculture and Technology, Palawan National Agricultural College, Bicol University, Panay State Polytechnic College (Capiz), Bohol Agricultural College, Southern Samar Agricultural College (Eastern Samar), Katipunan National Agricultural College (Zamboanga del Norte), Northern Mindanao State Institute of Science and Technology, University of Southeastern Philippines (Davao), and Upi National Agricultural School (Maguidanao).

A-1.4.3.7 Other External Support of NAES

Additional projects are expected by EFPITAF to undertake development of other components of the envisioned NAES. The Australian Government and the European Economic Community are currently considering possible support. Official establishment of the NAES progressing in the national legislature, but is not among the priority actions which the President has requested of Congress.

A-1.5 Donor Activity in the Philippines

As of 1987 2.2 billion dollars of capital assistance and 150 million dollars of technical assistance to the Philippines were planned for the immediate term by major donors (Development Cooperation Report of the Philippines for 1987, UNDP, Manila). Newspaper accounts suggest that as much as a 4 billion dollar backlog of unspent capital assistance is presently available to the Philippine government. Capital assistance includes foreign exchange support for government programs (such as IBRD's support for education, nutrition, industry, transport/communications and other expenditures); as well as aid expended as commodity imports.

In 1987, disbursements of capital assistance amounted to 1.6 billion dollars, and technical assistance amounted to 35 million. Technical assistance accounted for 2 percent of total aid. The IBRD or World Bank accounted for over 60 % of capital assistance, with 40 % coming from bilateral donors. Japan is the largest bilateral donor to capital assistance, resulting from grants for infrastructure and equipment through the Japan International Cooperation Agency (JICA).

Capital assistance in 1987 was largely allocated to trade and development finance (33 %); agriculture, fisheries and forestry (28 %); transportation and communication (15 %); and the remaining 28 % distributed over 8 sectors. Technical assistance was more highly dispersed over sectors: general development (22 %); agriculture, fisheries and forestry (13 %); health and nutrition (11 %); humanitarian aid and relief (10 %); transportation and communication (9 %); and eleven other sectors accounting for the 35 % balance.

In 1987, USAID accounted for 29 % of bilateral technical assistance to the Philippines, and for 11 % of capital assistance. USAID provided 24 % of all technical assistance in agriculture in 1987. As of January, 1989, USAID had 5 active projects in agriculture and rural development, with total budgets of 72 million dollars. A rough assessment of the indicated outputs of all the projects taken together indicates a strong emphasis on the development of rural institutional infrastructure. Three-quarters of this appears to be in the area of local public institutions, and one-quarter in private sector or private sector support institutions.

Agricultural production currently has the second strongest emphasis among USAID's agriculture and rural development projects, about 23 % of outputs. This includes agricultural research, extension and other rural production oriented expenditures. Rural physical infrastructure accounts for 14 % of indicated outputs of agricultural and rural development outputs, and 4 % relate to natural resource conservation, such as reforestation. None of the indicated outputs suggest the development of human resources for agriculture and rural development.

Indicated Outputs of Agriculture and Rural Development
Projects, US Agency for International Development

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Output category	Percentage
Rural institutional infrastructure	59
Agricultural production	23
Rural physical infrastructure	14
Environment and natural resources	4
Human resource development	0
Total	100

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A-2.1 The Evolution of UPLB and its Major Academic Units

In 1908 an Act creating the University of the Philippines was passed by Congress. On March 6, 1909, the Board of Regents, in its very first meeting, agreed to established immediately two units -- a School of Fine Arts and a College of Agriculture. The College of Agriculture was the first unit organized. An option for land, originally meant for the site of an insular agricultural school at Los Baños, was turned over to the U.P. Board of Regents to serve as the site of the proposed College of Agriculture.

A-2.1.1 College of Agriculture

Classes started with 12 students on June 14 1909 under an American Dean, Edwin B. Copeland. Along with three other instructors, the four-member faculty held its first classes in faculty residences since no college facilities were available. Tents borrowed from the Bureau of Education were also used until the first all-purpose College building was completed in October of 1909. After one year, a formal four-year curriculum was instituted. The College produced its first graduates in 1911.

A-2.1.2 College of Forestry

The College of Agriculture started expanding with the establishment of a Department of Forestry in 1910. Four years later, this department became a School, and, in 1949, the School was made a College. Thus the College of Forestry is the second oldest College at UPLB.

A-2.1.3 College of Engineering and Agro-Industrial Technology

Like the College of Forestry, the College of Engineering and Agro-Industrial Technology started as a department in the College of Agriculture. Originally a Department of Agricultural Engineering, it became an Institute of Agricultural Engineering and Technology in 1976. It was elevated to College status in 1983.

A-2.1.4 College of Arts and Sciences

Presidential Decree No. 58 issued on November 20, 1972 created UPLB and made it an autonomous University within the UP System. With this action, the University moved quickly to establish

a College of Fine Arts and Humanities, later changed to the College of Arts and Sciences. With the issuance of Presidential Decree No. 58, the UPLB "assumed the task of transforming itself into a complete and balanced University, offering comprehensive, quality education in the natural and social sciences and the humanities." (1987 Annual Report).

In 1983, the College reorganized six of its departments into three institutes: the Institute of Mathematics and Physics, the Institute of Chemistry, and the Institute of Biological Sciences.

A-2.1.5 College of Economics and Management

The College of Development Economics and Management, now the College of Economics and Management, was established in 1978 through the integration of several UPLB units: the Institute of Agricultural Development and Administration, the Agrarian Reform Institute, and the Agricultural Credit and Cooperatives Institute. In 1980, the Research Management Center was created and attached to the College.

The Agrarian Reform Institute, now the Institute of Agrarian Studies, was established at UP Diliman in 1970 and transferred to UPLB in 1972. The Research Management Center was encouraged by Philippine Council for Agriculture and Resources Research and Development (PCARRD) and UPLB's concerns for institutionalizing management capabilities in the national research system, especially in agriculture and natural resources.

A-2.1.6 College of Veterinary Medicine

The College of Veterinary Medicine was established as one of the first units of the University. The College opened its first classes on the grounds of the former Quarantine Station, Pandacan in 1910. The College was transferred to Los Baños in 1919 to promote closer relations with UPLB's agricultural programs. The College was transferred back to Pandacan in 1933, then to Diliman in 1949, and back to Los Baños in 1983. The transition from Diliman to UPLB is still in progress, and the first students were expected to graduate from the College in Los Baños in 1989.

A-2.1.7 College of Human Ecology

The College of Human Ecology evolved, in part, from a department in the College of Agriculture dealing with what is commonly called "home economics." The program in Human Ecology was established as an Institute in 1974 and was elevated to College status in 1983.

A-2.1.8 Graduate School

Graduate studies at UPLB started shortly after the opening of the College of Agriculture, with the first M.S. degree conferred in 1913. In 1959, the Board of Regents established the University's Graduate School, headed by a Dean. The UPLB Graduate School was created as a unit distinct from the College of Agriculture in 1972, as a consequences of UPLB's autonomous status.

A-2.1.9 Institutes and Centers

In addition to the units, referred to above, associated with the various colleges, UPLB has the following additional institutes and centers.

Institute of Plant Breeding (IPB)

In an effort to strengthen plant breeding programs in the Philippines and make them more supportive of effort to intensify production of major crops, an Institute of Plant Breeding was established in 1975. It was placed under the College of Agriculture to provide better coordination of plant breeding research undertaken by various UPLB units.

National Crop Protection Center (NCPC)

The National Crop Protection Center was established in 1976, primarily to develop appropriate crop protection systems against pests and diseases of important Philippine crops. The Center was placed under the College of Agriculture for administrative purposes.

National Institutes of Biotechnology and Applied Microbiology (BIOTECH)

Established in 1979, the Institute's primary area of concern is the development of technology for microbiology-based industries, particularly in the production of food, fuel, alcohol, chemical feedstocks and fertilizer substitutes. The Institute is organized under the UPLB Chancellor's office for administrative purposes.

Farming Systems and Soils Resources Institute (FSSRI)

The Farming Systems and Soil Resources Institute was established in 1982 "to complement, reinforce and fully exploit the research results of the IPB and the NCPC," as well as other units. Basic to the Institute's function is "the revalidation of existing data on soil resource characteristics, considering environmental changes and land use over the years." The Institute is under the College of Agriculture.

Institute of Food Science and Technology (IFST)

This institute was created in 1982 as an academic unit under the College of Agriculture. Focussing on small and medium-scale food industries the Institute is expected to coordinate the several food production programs in UPLB. Its thrusts include product and process development, improvement of food processing machineries for efficient use of waste materials, and production improvement and quality control.

Institute of Animal Science (IAS)

A Department of Animal Husbandry was one of the first units of the College of Agriculture in 1909. In 1982 the Institute of Animal Science was created out of the staff of the Department of Animal Science. Closely working with the IAS is the Dairy Training and Research Institute which was organized under the College of Agriculture "umbrella" in 1983.

The Institute of Animal Science along with IPB, BIOTECH, FSSRI, IFST and NCPC became a part of the National Agricultural and Life Sciences Complex by an Executive Order in 1982. The Complex was intended to become a "living laboratory for research and basic study in biotechnology and applied microbiology, plant breeding, food industry, animal production, and crop production and management."

Institute of Development Communications (IDC)

After its transformation from a department to an institute, the Institute of Development Communications "hopes to undertake expanded research in the creative use of traditional and modern communication systems for human development such as in the areas of communication policy, distance education, and social impacts of modern and traditional communication technologies." The Institute is organized under the College of Agriculture.

Center for Policy and Development Studies (CPDS)

The Center was established in 1974 to develop programs which would cut across different units of the UPLB campus as well as other colleges of agriculture and agencies, both private and public. As envisioned, the "Center will mobilize, harness and aggregate various discipline and on-going studies in the task of helping policy makers analyze policy issues and problems with a view of better policy formulation, particularly in agriculture and rural development." The Center reports directly to the Chancellor's Office.

Museum of Natural History

The Museum was created in 1976 and organized from the staff, physical resources and systematic collections of the then existing museums and herbari, including the hortorium and culture collections of department in the College of Agriculture, Forestry, and Arts and Sciences.

National Training Center for Rural Development (NTCRD)

The center is one of thirteen training centers in the national network called the Philippine Training Center for Rural Development. Established in 1977 the network is mandated to "speed up and facilitate agricultural and rural development, distribution and utilization of applicable technologies of extension workers of all development agencies and institution within the government and by all Filipino farmers." With recent reorganization in the Department of Agriculture, the Center has become a part of a national network of Agricultural Training Centers.

Postharvest Horticulture Training and Research Center (PHTRC)

This Center was established during the Ninth Ministerial meeting of the Association of Southeast Asian Nations in 1986. Its purpose is to provide technical training to junior staff of ASEAN government agencies in the field of postharvest handling of fruit and vegetables.

Agricultural Machinery Testing and Evaluation Center

This Center was established in 1977 through a Memorandum of Agreement with the then Ministry of Agriculture and Food. Its purpose has been to promote local design and manufacture for agricultural machineries and to strengthen and encourage local machinery industry. The Center was funded by the Central Bank and

the IBRD through the fourth CB-IBRD project. The Center is administered through the College of Engineering and Agro-Industrial Technology.

Learning Resource Center

The purpose of the Learning Resource Center is to provide students with learning and enrichment activities in support of the instructional functions of UPLB. One of its primary functions is to administer the Agricultural and Rural Development Scholarship (ARDS) program established in 1977.

Institute of Environmental Science and Management (IESAM)

A program on Environmental Science and Management was reorganized and established as an Institute of Environmental Science and Management in the College of Arts and Sciences in 1987. It is an interdisciplinary program with affiliated faculty from several colleges.

A-2.1.10 Summary of Academic Units and Programs.

Altogether, UPLB has seven Colleges, a Graduate School, and some 24 academic units or programs designated as Institutes, Centers or Museum. There are, in addition, some 33 academic departments and additional designated "programs."

A-2.2 The Mission of UPLB

In its earliest years, the institution which evolved into UPLB was concerned primarily with education and training in subjects relating to agriculture and forestry. With time, the institution initiated research and extension programs in an effort to make the agricultural sector (including forestry) more productive and efficient. A related concern were the economic and social problems of people in rural areas, representing a vast majority of the country's population.

These were still the primary concern and orientation of the Institution some 63 years after the founding of the College of Agriculture. Presidential Decree No. 58, which created the UPLB as

an autonomous University, strongly emphasized agricultural and rural development, as indicated by the following language:

"... the Government is strongly committed to the proposition that agricultural and rural development should be achieved as a foundation for industrialization and social and economic progress."

"... the entire country has been proclaimed a land reform area to emancipate tenant farmers from the bondage of landlordism as a prerequisite to the development of a strong and viable economy."

"... in order to effectively implement the land reform proclamation, there is an urgent need for a highly competent center and training to turn out the needed manpower and to undertake relevant research and extension services in agriculture, agrarian reform, agricultural engineering, agribusiness, agricultural credit and cooperatives, forestry and related sciences and technologies."

"it is necessary to establish an agricultural center that will effectively mobilize and totally, realistically and directly apply its academic and technical expertise and physical resources to achieve the purposes of the New Society."

With the issuance of Presidential Decree No. 58, the institution began to transform itself from a College of Agriculture "into a rounded, complete and balanced University, offering comprehensive, quality education, not only in agriculture, but in the natural and social sciences and the humanities, as well."

Over the next few years elements of the College of Agriculture provided the nucleus for several new colleges: Arts and Sciences, Economics and Management, Engineering and Agro-Industrial Technology, and Human Ecology. While most degree programs in the new colleges reflected an agricultural or rural development orientation, many were in the more basic natural and social sciences or humanities area. For example, degree programs are offered in math, the biological sciences, the physical sciences including physics and chemistry, economics, chemical engineering, and engineering science. Graduate programs, some to the PhD level, are either offered or proposed in many of these fields.

Today, one frequently hears comments to the effect that the institution is evolving into a "comprehensive university" -- but that for the next 5, 10 or 20 years, the University should continue to have a primary orientation toward agriculture.

The 1988 UPLB Annual Report indicates that the University plans to initiate -- among others -- the following degree programs within the next 10 years:

- PhD programs in computer science and mathematics
- Master programs in Communication Arts, Fermentation Engineering, Development Economics and Science Teaching
- BS/AB program in Electronics and Instrumentations.

Colleges are also proposing to implement other degree programs such as B.S. level programs in both civil and electrical engineering.

The proposed research and extension priorities for the next decade, as set forth by the University, have a clear agricultural, natural resource and rural development orientation. For example, the 5 priority research areas include:

- Reforestation and Agroforestry
- Coconut
- Environmental Management
- Conservation and management of national stocks of plants and animals
- Sugarcane

Priority areas in extension include an "expansion of the scope of several projects or activities, including the Agricultural Development for the Countryside, the Laguna Integrated Development Project, the University Community Relations Program and the Agricultural and Livelihood Project."

For a conceptual discussion of UPLB's mission and processes for its definition, see ANNEX B-3, especially B-3.5.

A-2.3 UPLB Organizational Structure

A-2.3.1 A Unit of the University of the Philippines

The UPLB is one of the four major campuses or units of the University of the Philippines. The Chancellor, as the chief administrative officer of UPLB, reports, administratively, to the President of the University whose office is on the Diliman Campus of the University of the Philippines. The President, in turn, is responsible to the UP Board of Regents, the governing body of the university.

The Board of Regents is composed of the Secretary of the Department of Education, Culture and Sports as Chairman, the President of the University as Vice-Chairman, the Chairmen of the Senate and House Committees on Education, the President of the UP

Alumni Association, a member of the university faculty, a UP student, and five others appointed by the President of the Philippines. A Secretary of the UP System Office of Central Administration serve as Secretary to the Board. The student and faculty members are rotated among the major campuses of the University.

The Board of Regents is empowered by the University Charter to establish policies and to carry out broad governance functions, including the following:

- to receive and appropriate to the ends specified by law, financial resources for the support of the university;
- to approve the establishment of colleges, schools, and other major units within the university;
- confer honorary degrees;
- to establish chairs in the colleges and to provide for the maintenance and endowment of such chairs;
- to appoint, on the recommendation of the President of the University personnel of the university; to fix their compensation, hours of service and such other duties and conditions that it may deem proper; and to remove them, for cause, after appropriate investigation and hearings;
- to approve courses of study and to fix tuition and fees;
- to provide fellowships and scholarships;
- to prescribe rules for its own government, and to enact for the government of the university such general ordinances and regulations which are consistent with the purposes of the university;
- to receive in trust, legacies, gifts and donations of real and personal property, and to administer such gifts for the benefit of the university or a unit thereof;

Certain of these responsibilities are delegated to the individual units of the University.

A-2.3.2 UPLB Administration

Chancellor

The Chancellor is responsible for overall administration of the University. There are several UPLB offices or units which report directly to the Chancellor. These include the three Vice-Chancellors, (Academic Affairs, Planning and Development, and Administration), several staff functions, (audit, internal control,

legal office and public affairs), and several institutes and centers that involve broad, multidisciplinary efforts. These include the National Institutes of Biotechnology and Applied Microbiology, the Center for Policy and Development Studies, and the Museum of Natural History.

Vice Chancellor for Academic Affairs

This Vice-Chancellor is the chief academic officer of the University, giving leadership, guidance, and coordination to the teaching, research and extension functions of the university. Programs of the various colleges and other special academic and research units come under the jurisdiction of the Vice Chancellor.

Several key officers or functions report directly to the Vice Chancellor, including the Office of the Student Affairs, the Directors of Research, Extension and Instruction, the Graduate School, the Continuing Education Center, the University Library, the University Printing Office, the Registrar, the Department of Civilian Military Training, and the Department of Physical Education.

Vice-Chancellor for Planning and Development

This Vice-Chancellor has responsibility for the Campus Planning and Development Office, the Budget Office, Program Development Staff, the Management Information System and the UPLB Computer Center. The Office is concerned with the overall planning and development of university programs and related activities, including allocation of budgetary resources.

Vice-Chancellor for Administration

This Office has under its jurisdiction a wide range of administrative services and support functions, including the Accounting, Cashier, Business Affairs, Records Maintenance and Human Affairs (personnel) Offices; the Supply and Property Management Office, the University Food Service, the University Health Service, and the University Police Force.

A-2.3.3 Colleges

The seven colleges have responsibility for an array of departments, institutes, and centers. Departments are considered to be academic units, with teaching, research, and (in many cases) extension responsibilities. In a number of instances, "super"

departments have been created by the formation of institutes, having essentially the same responsibilities as a department -- with, perhaps, an expanded research function.

There are, however, some institutes that have, primarily, a research or R & D function -- with no direct teaching responsibilities. There are also centers with specialized functions that may include research, training, and extension-related activities. Following is a summary of the units associated with each of the colleges.

College of Agriculture

The College of Agriculture includes the Departments of Agricultural Education and Rural Studies, Agronomy, Entomology, Horticulture, Plant Pathology, and Soil Science. It also has several institutes which might be considered "super" departments -- including the Institutes of Animal Science, Development Communication, Food Science and Technology, and Dairy Training and Research. The Institutes of Plant Breeding and the National Crop Protection Center are, primarily, research institutes, with seconded faculty but with no direct teaching responsibility. The Farming Systems and Soil Research Institute was organized is funded as a research institute to help exploit the research results of other programs such as IPB and NCPC.

Also under the jurisdiction of the College of Agriculture are the Central Experiment Station and the UPLBCA Research and Training Station at La Granja, Negros Occidental.

College of Arts and Sciences

The College include the Departments of Humanities and Social Sciences along with several institutes which could be considered either "super" departments or an amalgamation of several related departments or disciplines. These include the Institutes of Chemistry; Mathematics, Science and Physics; Environmental Science and Management; and Biological Sciences. The College also has responsibility for the Learning Resources Center and the UPLB Limnological Station.

College of Economics and Management

The College has the following academic departments: Development Management, Agribusiness Management, Agricultural Economics, and Economics. In addition, there are the following units: The Agricultural Credit and Cooperatives Institute which is a regional center for training and research in agricultural credit and cooperatives in the South East Asian Region. The Insitute of

Agrarian Studies is a center for research and extension on the national program thrust of agrarian reform. The Research Management Center is concerned with institutionalizing management capabilities in agricultural and natural resources within the national research system.

College of Forestry

The College of Forestry includes the following units: the Departments of Forest Biological Sciences, Forest Resources Management, Silviculture and Forest Influences, Social Forestry, and Wood Science and Technology. These departments constitute the primary academic units, having teaching, research and perhaps some extension responsibilities. In addition, there are two other units within the college: (1) The Institute of Forest Conservation was created in 1985 as a result of the merger of the Forest Research and Extension Center (FREC) and the Center for Forest Education and Development for Asia and the Southwest Pacific Regions (CFED). This merger was intended to strengthen the research and extension functions of the College. (2) The Forest Development Center was established in 1978 with the mandate to "conduct basic policy research in forest policy formulation and implementation" (1986 UPLB Annual Report).

College of Human Ecology

The College has the following academic departments: Community and Environmental Resource Planning, Human and Family Development Studies, and Social Development Services. The former Department of Human Nutrition and Food has recently been given institute status as an academic unit.

College of Engineering and Agro-Industrial Technology

The College embraces the following departments: Agricultural Machinery Engineering and Technology; Agricultural Processing Engineering and Technology; Agro-Meteorology; Chemical Engineering; Engineering Sciences; and Land & Water Resources Engineering and Technology. In addition there is the Agricultural Machinery Testing and Evaluation Center which has, primarily, a research and extension function concerned with promoting local design and manufacture of agricultural machines. There is also the Sugar Technology program which is a research and development activity.

College of Veterinary Medicine

The College includes the following six departments: Veterinary Anatomy; Veterinary Parasitology and Protozoology; Zootechniques; Veterinary Physiology and Pharmacology; Veterinary Medicine and Surgery; and Veterinary Microbiology, Pathology and Public Health. In addition there is a Veterinary Extension Office which coordinates the extension functions of the College.

A-2.3.4 Graduate School

The Graduate School integrates and administers the various programs of the various academic units -- departments, institutes and colleges. There are some three hundred members of the graduate faculty of the university plus a number of "visiting" faculty who participate in the graduate program (e.g., staff from IRRI).

A-2.3.5 University Council

The University Council is made up of faculty members holding the rank of Assistant Professor and above. The Council has the power to prescribe the courses of study and rules of disciplines subject to the approval of the Board of Regents.

A-2.4 FINANCIAL RESOURCES

UPLB's operating budget reflects two major sources of funding: (1) the "General Fund" which represents appropriations from the Philippine Government and, (2) the "Revolving Fund", representing income generated by the University from fees, sale of products, rents, food services, etc.

In addition, there are two other sources: (1) Income, primarily from research contracts and grants, which comes through the UPLB Foundation and, (2) similar income from contracts and grants that are handled directly by the University rather than through the Foundation. In neither case, however, are these resources reflected in the University's internal operating budget.

Additionally, there appears to be a general recognition that some grants and contracts are handled directly by individual faculty members -- or possibly by departments -- without going through either the Foundation or higher administrative offices of the University. The extent of these arrangements is not known, although a senior administrator estimated as much as 15-20 percent of all research contracts may be handled in this manner. It is also recognized that many faculty members engage in private consulting, presumably outside of university working hours. The extent of such activities or the amount of income generated is not known.

Apparently, the University has no requirements for reporting such activities.

A-2.4.1 Internal Operating Budget

Table AT-2.4.1.1 summarizes University operating budgets from 1980-1989. These data show that budgets almost doubled during this 9 year period -- from P120.9 million to the current P237.8 million -- an increase of 97 percent. Revolving fund expenditures have increased much more (268 percent) than General Fund (82 percent). Moreover, operating expenditures have gone up to a greater extent (110 percent) than total expenditures (97 percent) -- due to the fact that capital outlay funding has been very low in recent years.

With an inflation rate of approximately 300 per cent since 1980, the total 1989 (operating) budget, expressed in 1980 values, would be about P80 million. In real terms, therefore, the UPLB budget has declined about one-third since 1980.

A summary of the 1989 UPLB Operating Budget is shown in Table AT-2.4.1.2. These data indicate a General Fund appropriation of P203.5 million and a Revolving Fund budget of P34.4 million -- for a total of almost P238 million. Some 73 percent of the total was committed to Personnel Services, 26.6 percent to Maintenance and Other Operating Expenses, and less than 1 percent to capital outlay.

Table AT-2.4.1.3 indicates the budget levels for the major functional accounts within the University for 1989. These data indicate that General Administration and Support was allocated some 10.4 percent of the total budget, Advanced and Higher Education, 37 percent; Research 30.1 percent and Extension 13.0 percent. It might be noted, as well, that over one-third of the budget for Auxiliary Enterprises is from the General Fund which suggests the extent to which some of these enterprises, especially food services and dormitories, are being subsidized from appropriated funds.

Table AT-2.4.1.4 reflects the nature of Personnel Service expenditures. Some 62 percent of such expenditures are for the salaries of permanent positions, 4.1 percent for wages, 11 percent for contractual employees, 5 percent for honoraria and 15 percent for cost of living allowances. Smaller amounts are allocated to other purposes.

Table AT-2.4.1.5, AT-2.4.1.6 and AT-2.4.1.7 reflect budgetary allocations to the major academic units along with the allocations to special units for research and extension. These data show that some 85 percent of the budget for Advanced and Higher Education Services went to the 7 colleges, with Agriculture and Arts and Sciences receiving the largest shares. These funds, to support, the teaching function plus those research and extension activities not funded through the special allocations from the Research and Extension Services budgets.

Table AT-2.4.1.1 UPLB Operating Budget 1980-1989, (P000)

Year	Operating Expenditures	Capital Outlay	General Fund	Revolving Fund	Total
1989	236,684	1,200	203,469	34,415	237,884
1988	207,245	940	174,547	33,638	208,185
1987	204,809	3,186	176,133	31,862	207,995
1986	132,162	12,706	169,868	25,000	194,868
1985	159,761	NA	140,663 *	19,098 *	159,761 *
1984	141,173	10,444	133,766	17,851	151,617
1983	128,122	23,116	141,025	10,213	151,238
1982	109,935	13,077	113,352	9,660	123,012
1981	116,262	6,136	113,619	8,779	122,398
1980	112,616	8,320	111,594	9,342	120,936

% Increase					
1980-89	110.2		82.3	268.4	96.7
=====					

* Operating Budget only

Source: Planning and Development Office

92

Table AT-2.4.1.2 Expenditure Categories, 1989
Operating Budget (P000)

Expenditure Category	General Fund	Revolving Fund	Total	% of Budget
Personal Services	169,115	4,209	173,324	72.9
Maintenance and Operating expenses	34,154	29,206	63,360	26.6
Capital Outlay	200	1,000	1,200	0.5
T o t a l	203,469	34,415	237,884	100.0

83-

Table AT-2.4.1.3 Functional Budget Expenditures - 1989
(P000)

Function	General Fund	Revolving Fund	Total	% of Budget
General Administration and Support	21,346	3,430	24,776	10.4
Advanced and Higher Education	78,093	9,901	87,994	37.0
Research	64,873	6,863	71,736	30.1
Extension	27,292	3,602	30,894	13.0
Medical Services	2,224	570	2,794	1.2
Auxilliary Services	4,328	9,049	13,377	5.6
Foreign-Assisted Projects	5,313	-	5,313	2.2
Capital Outlay	200	1,000	1,200	0.5
T o t a l	203,669	34,415	238,084	100.0

94-

Table AT-2.4.1.4 Personal Services Expenditures 198
(P000)

Expenditure Category	Expenditures	% of Total
Salary, Permanent Positions	108,210	62.4
Wages	7,060	4.1
Contractuals	18,229	10.5
Substitute Faculty	144	0.1
Graduate Students/Assistants	230	0.1
Consultants		0.0
Lecturers	261	0.2
Honoraria	9,335	5.4
Allowances	3,974	2.3
Hazard Pay	2	0.0
Cost of Living Allowance	25,878	14.9
T o t a l	173,323	100.0

Source: Planning and Development Office

95

Table AT-2.4.1.5 Budgetary Allocations to Advanced and Higher Education Services Units - 1988

U N I T	General Fund Budget (P000)	% of College	% of Total

Colleges			
Agriculture	20,910	37.5	31.7
Forestry	6,695	12.0	10.1
Arts and Sciences	13,249	23.8	20.1
Economics and Management	4,532	8.1	6.9
Human Ecology	2,429	4.4	3.7
Engineering and Agro-industrial Technology	3,109	5.6	4.7
Veterinary Medicine	4,808	8.6	7.3
Sub-total	55,732	100.0	84.5
Certain other units			
Museum of Natural History	276		
Institute of Environmental Science and Management	204		
Graduate School	1,023		

Totals			
General Fund	65,972		
Revolving Fund	10,361		
Total for Function	76,333		

Source: Planning and Development Office

86

Table AT-2.4.1.6 Budgetary Allocations to Research
Service Units - 1988

Program/Activity	General Fund Budget (P 000)
Basic Research Fund	972
Abaca Development	555
Inst. of Plant Breeding	11,652
Post-harvest Horticulture Training and Research	725
BIOTECH	7,152
PCARRD Coordinated Research Projects	3,698
Inst. of Agrarian Studies	2,505
National Azolla Action Program	4,170
Farming Systems and Soil Resources Institute	2,778
Institute of Animal Science	2,587
Institute of Food Science and Technology	2,637
Institute of Chemistry	2,054
Institute of Biological Sciences	2,663
Institute of Mathematical Sciences and Physics	2,179
National Crop Protection Center	5,766
Agricultural Mechanization Development Program	523
University Library	1,554
T o t a l s	
General Fund	60,060
Revolving Fund	6,262
Total for Function	66,322

Source: Planning and Development Office

87

Table AT-2.4.1.6 and AT-2.4.1.7 indicate that most of the special Institutes and Centers receive funding from either the Research or the Extension Services budgets of the University. Most of such funding came from the Research Services budget although some programs such as the Institute of Forest Conservation, the Forestry Development Center, the Agricultural Credit and Cooperatives Institute, the Center for Policy and Development Studies, and the Research Management Center, were funded from the Extension Services budget. The Dairy Training and Research Institute receives almost P5 million in General Fund revenue plus over one million pesos from the Revolving Fund. Much of this is apparently being used to support such operational entities as the dairy processing plant.

In 1988, those functions under Auxiliary Services had a total budget of P11.9 million, almost one-third of which came from the General Fund. This included some P1.5 million in General Fund revenues for the University Food Service, representing some 32 percent of the total Food Services Budget. It would appear that the Food Services as well as the residence halls are being significantly subsidized from the General Fund.

A-2.4.2 Funds from External Sources

Table AT-2.4.2. indicates the nature and level of funds from external sources other than those handled by the Foundation in the period from 1986-1988. These data show a total of some P22.8 million from external sources in 1988 -- down from P30.8 million in 1986. Some P14.8 million of the 1988 total was for research, representing 65 percent of the total external funds. Some P3.3 million, representing 15 percent of the total, was for extension-related activities.

A-2.4.3 Funds from the UPLB Foundation

Table AT-2.4.3 reflects the level of funds available to the University from the UPLB Foundation. These funds represent a wide range of activities related to the teaching, research and extension functions of the University. Some involve sale of products or services for income generation. Most, however, relate to the research mission of the University. It should be noted that income from the Foundation has increased significantly in each of the past 2 years. The 1987 level was some P8 million over the level in 1986. The 1988 level increased by a like amount over the 1987 level. If the growth in income for the first five months (January through May) of 1989 continues at the same pace throughout the remainder of the year, Foundation income should increase as much or more in 1989 as it has in each of the previous two years.

The Foundation is currently assessing each contract or grant account an overhead or administrative charge amounting to an average of 7 to 8 percent of the Funds available to the University. The percent varies with the size of the contract. Beginning in 1988 the overhead was allocated to five entities: the UPLB Foundation, the

Table AT-2.4.1.7 Budgetary Allocations to Extension Services Units - 1988

<u>Program or Activity</u>	<u>General Fund Budget</u> (P000)
Institute of Forest Conservation	3,899
Forestry Development Center	1,780
Agricultural Credit and Cooperatives Institute	1,868
Dairy Training and Research Institute	4,840
Special Agricultural Activities	7,479
Center for Policy and Development Studies	881
Research Management Center	216
Veterinary Extension Program	119
Seed Technology Training	556
Totals -	
General Fund	24,489
Revolving Fund	3,646
Total for Function	28,135

Source: Planning and Development Office

89

Table AT-2.4.2 Funds from External Sources
1986-1988
(P000)

<u>Nature of Funds</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>
NSTA	2,437	1,692	1,081
General Trust	2,454	1,482	1,704
Scholarship Grants	1,560	592	341
Professorial Chairs/Grants and Donations	4,360	1,444	1,610
Training/Seminar/Workshop	1,676	3,589	3,294
Research Projects:			
Local	2,616	3,978	5,452
Private	1,154	1,276	1,271
Foreign	5,578	1,637	1,346
PCARRD	7,990	7,815	6,682
Total	<u>30,824</u>	<u>23,774</u>	<u>22,781</u>

Source: UPLB Accounting Office

Table AT-2.4.3 Funds from UPLB Foundation
1986-1988
(P000)

	1986	1987	1988
Total Funds Released	9,577	17,469	25,417
Administration Cost	973 ^{1/}	1,515 ^{2/}	1,884 ^{3/}
Administration Cost as % percent of total	10.2%	8.7%	7.4%

^{1/} Administrative costs divided equally (1/3 each) among U.P. Foundation, the University (Central Administration) and the unit or college involved in the program.

^{2/} Administrative costs divided as follows: 38.6% to U.P. Foundation; 22.9% to UPLB; 14.5% to the participating colleges, and 24% to the participating unit.

^{3/} Administrative costs divided as follows: U.P. Foundation; 26%; UPLB, 20.2%; College, 18.1%; Unit, 17.2%; Capital Build-up Fund, 18.1%.

Source: UPLB Foundation

91-

UPLB, the College participating in the program, the unit involved within the College, and a special "Capital Build-up Fund". We were told that the intent is allocate about 20 percent of the total to each entity.

A-2.5. Research and Extension

A-2.5.1 Research and Extension Administration

A Director of Research and a Director of Extension coordinate these respective functions of the university. Other officers coordinate these functions in some colleges, for example the College of Agriculture has an Associate Dean for Research and Extension. They are advised by a University Research and Extension Council (UREC), established in 1984 which sets research and extension priorities, standards and direction. The need for such a council was stated in Chancellor Emil Javier's Executive Order No. 5, stating that whereas the University Council was the highest academic body for instruction policies, there was no parallel body for "consultation and policy-making in research and extension..."

Functions of the UREC include:

- helping set policies, standards and rules related to planning, implementing, and evaluating research and extension,
- reviewing research and extension directions,
- reviewing and recommending research and extension personnel policies
- channeling communication among university units concerning major research and extension developments
- providing a forum for discussion of issues and advising on matters requiring decisions or actions.

The UREC was initially constituted of a maximum of 50 members from the College of Agriculture, 40 members distributed among 6 other colleges, and 10 member from other university units approximately proportional to the number of research or extension personnel (REPS) in those units. Seven committees were formed including the committees on Research Direction and Utilization, Research and Extension Administration, and Personnel Welfare. The Committee on Personnel and Welfare was specifically charged with helping to remedy the disparity of compensation and privileges between junior faculty members and the research/extension staff members, which had been the immediate stimulus for forming the Council.

A-2.5.2 Research

A-2.5.2.1 Priority Research Areas

Researchers were said to have encountered problems in defining specific fundable projects in general research areas that had been identified prior to 1988, which included: sustainable productivity, energy, appropriate processing industries, environmental management, policy studies of technology assessment, equitable socioeconomic systems, and Philippine culture and social change. "The broadness and overlapping research areas of each thrust resulted in a failure of the identified thrusts to provide direction to research," (Annual Report, CY 1988, Office of the Director of Research). As a result, a workshop was held in December, 1988, which refocused research thrusts in narrower areas where UPLB's limited research funds could have impact.

The ten priority research areas that were identified in late 1988, include:

- coconut
- sugarcane
- reforestation and agroforestry
- environmental management
- conservation and development of native stocks of plants and animals
- non-conventional uses of natural products
- domestic consumption patterns
- rural institutions
- agricultural mechanization
- semi-conductors

These suggested priority areas were subsequently further screened to suggest the first five as top priorities and the other five as additional areas of concern (UPLB Annual Report, 1988). The 1988 Annual Report further suggested that within these major areas, the following activities were identified for immediate attention:

- post production technology
- farming systems
- social forestry
- environmental and resource management

- land and water resource engineering
- human and ecological approach to agricultural and rural development
- Southern Tagalog environmental studies, and
- Strengthening of the basic sciences

These successive iterations of priority research areas/activities indicate, as one observer stated, a continuing difficulty among faculty and administrators of coming to terms with UPLB's priorities. Further, they surmised, there remains an apparent intent for the various units to "continue doing their own thing," unrelated to other unit's activities. Promisingly, however, there continues to be discussion of priorities and the process itself appears healthy, if it continues.

A-2.4.2.2 Research System

Until recently, there was no overall process for research identification, research monitoring, evaluation of results, and dissemination of results to users. What system there was, related only to research that was funded by UPLB. Any monitoring and evaluation of research funded by other agencies, was left to those agencies. More recently, at least the major agency-funded research, has been brought into the research review system. In 1988, representatives of DOST and PCARRD joined UPLB faculty in the review of all their respectively funded research.

Research proposals are reviewed according to criteria that give priority to the following attributes of a proposal for funding by UPLB:

- projects proposed by new Ph.D. recipients (to encourage them)
- students' thesis research
- research proposals by units that do not typically attract outside funding
- applied research as opposed to basic research

Funding agencies outside of UPLB apply their own criteria for accepting a research proposal. PCARRD for example gives priority to UPLB research in certain areas in which the university is regarded as having a comparative advantage (See Annex A-1.3.2.4).

On-going and completed Research is also reviewed. In 1988, 245 projects/studies were evaluated. Of these 71 were proposals, 187 were on-going, and 17 were completed. Criteria for review were not

identified. Quality of research is not explicitly evaluated because, as one who participated in the review said, "In Philippine culture we cannot look people in the eye and say 'this was not good'". The 1988 projects included 147 funded by UPLB-PCARRD, 49 UPLB-funded projects, and 49 other projects.

A-2.5.2.3 Research Funding

In CY 1988, P101 M. was expended on research. Table AT-2.5.2.3 shows the sources of research funding.

Table AT-2.5.2.3. Sources of UPLB Research Funds

SOURCE	Amount (M P)
General Fund	
Research institutes/programs centers	55.4
Revolving Fund	6.3
UPLB-PCARRD Program	3.7
UPLB Basic Research Program	1.0
Foreign-assisted Research Fund	6.4
Grants	
PCARRD	9.5
DOST	3.0
Basic Research Fund	2.0
Others/FIDA, POPCOM, NFAC	2.0
Local Private Organizations	0.1
International Organizations	11.8
Total	P 101.1

Total research funds increased by 9.1% in 1988 compared to 1987.

96

Fifty-five per cent of all research funding comes from the units which conduct the research, largely in the form of faculty and staff salaries. Twenty-eight per cent of research funding comes from Philippine government grants and local and international organizations, and the remaining 17% comes from other UPLB general fund sources. With a total of 72% of research funds coming from UPLB General Fund Sources (55% from units and 17% from university-level funds), it might appear that UPLB is in a position to establish its own principle initiatives in research. However, most of these funds are designated for specific efforts which may leave little discretion for their allocation. Of course, this neglects the some 10% to 20% of research/extension moneys that are believed to flow outside the system.

A-2.5.2.4 Principle Issues

Committees of the UREC identified the following major issues in the UPLB research system in 1988 (Annual Report, CY 1988, Office of the Director of Research):

- research proposals processed outside university channels;
- need for a system to identify and patent where possible, commercializable technology
- regularizing the terms of employment of research and extension personnel (REPS), with four specific schemes suggested for rectifying the situation
- delayed research budget releases and bureaucratic procedures that resulted in the termination of staff and then eventual retraining of replacements.
- occupational health and safety of personnel, and
- need for research evaluation and monitoring procedures.

Other research issues that were identified by faculty and administrators included the need to create more effective mechanisms for interdisciplinary research, and for including farmers in research. The UPLB research review panel suggests opportunities for incorporating these features in proposals when they appear for review.

Overall, the strongest aspect of the UPLB research system, as indicated by one higher university official, was the independence of researchers to carry out their work in the directions they see as being most appropriate. The weakest aspect was suggested to be the degree to which researchers are pampered - no one seems to be able to do research on their own but instead require many assistants. The Officer suggested that UPLB is "breeding research directors." Agriculture was said to be the strongest area of research, and

social sciences, weakest. This is supported by a review of research topics, showing 90% of topics on applied technical subjects.

Not surprisingly, technical bias of research was reinforced when publications emanating from UPLB researchers, was examined. The major vehicle for publication, especially from those in the College of Agriculture is a journal called The Philippine Agriculturist which is published by the University. Much of the work done in other centers is published as working paper series.

For instance both the Center for Policy and Development Studies and the Agricultural Policy Research Program publish such series. Another important vehicle for research publications, the Journal of Agricultural Economics and Development, is sponsored by the Center for Policy Development and Studies and the UPLB Agricultural Policy Research Program.

Progress is being made on a number of the issues that face the research system at UPLB. Some indicators include the comprehensive and systematic presentation of research and research issues and proposed solutions in the research Annual Report, CY 1988. Efforts at establishing a more effective research system are clear. The ambivalence about research directions is treated openly and the decision processes indicated can be expected to achieve resolution. Consulting issues are being worked on, and initiatives are being taken to find non-traditional sources of research funding. Also, perhaps a good indicator of integrated, focused development-oriented research initiatives are represented by the Southern Tagalog Agriculture and Resources Research and Development Consortium (STARRDEC).

A-2.5.2.5 STARRDEC (Southern Tagalog Agriculture and Resources Research and Development Consortium)

STARRDEC was created to coordinate research and development programs in agriculture, environment and natural resources in Region 4. It will identify strategies of research management for development in the region that will maximize generation, verification, utilization and exchange of research results and information. The consortium includes two agricultural colleges along with UPLB (one in Cavite and one in Palawan), and seven government departments and/or agencies. Many units within UPLB participate including social science and other units of the College of Arts and Sciences, the College of Economics and Management, College of Agriculture and other units. Region 4 Governor Medalla charged the consortium to, among other things, help change the attitudes and values of the citizenry.

STARRDEC appears to be an excellent vehicle for UPLB to realize a critical role in sustainable agriculture, improvement of agricultural education, and socioeconomic transformation of the agricultural sector of Region 4. Remarkably, to this point, the Consortium does not appear to have explicitly considered its

possible contribution to the NAES or to CARP. Much initial effort has been spent on getting organized.

A-2.5.3. Extension

A-2.5.3.1 Extension mission

The UPLB Offices of Extension is more explicit than most in stating its mission with respect to long-term social economic transformation of the rural sector. The "Handbook on Extension Policies and Administration," 1988, shows the relationship of specific objectives to the Philippine constitution of 1986, as follows:

Education for Development The Philippine Constitution of 1986 provides for an "integrated system of education relevant to the needs of the people and society." Such an educational system must, among others, encourage critical and creative thinking, broader scientific and technological knowledge and promote vocational efficiency. These constitutional provisions broadly define the development role and orientation of academic institutions including the University of the Philippines Los Baños (UPLB).

As an autonomous unit of the University of the Philippines System (UPS), the UPLB is governed by the University Code. The Code provides for the exercise of academic function, encompassing basically instruction, research and extension components.

UPLB in National Development Within the context of its code, the UPLB directly supports the national development efforts in the medium and long run through its instructional, research and extension programs. In the short run, however, the research and extension activities are addressed to more immediate and localized needs but with long-term implications. The UPLB, therefore, must serve as a resource for national development and a social conscience for upgrading the quality of human well-being in the Philippines.

From this basis, the UPLB extension handbook states its mission, function, philosophic orientation, and general objective. Its specific objectives are stated as:

1. To strengthen and expand the internal capacity of the university in undertaking effective university extension;

2. To synthesize and promote the use of applicable and suitable technologies for improving productivity and increasing income of target clientele;
3. To promote and strengthen intra-institutional capabilities for intensifying and broadening people's participation in development; and
4. To promote and strengthen inter-institutional linkages for effecting distributive social and economic development services.

More clearly here than elsewhere within UPLB is expressed an obligation of the university to balance knowledge generation with efforts toward promotion of equity and people's participation in development. The Extension Handbook further states the structural focus of university extension as:

"The thrusts of the university extension are based on institutional decisions which are affected by spatio-temporal priorities. UPLB has chosen to focus primarily on rural and agricultural development concerns. This decision is in accord with current medium term national development priorities."

"An effective university extension along the above structural focus covers a wide range of services/programs aimed to deeply involve the community and in turn needs a wide participation of faculty, staff and in development efforts.

A-2.5.3.2 Extension Program

The extension program is described as "a set of internally consistent actions or services to carry out medium or long-term operational and structural adjustments in order to effect development within a broad geosocial space." Its eight programs include development of staff capability, communications and promotional services, supporting technology utilization and adaptation, providing business management and economic support services, providing training needed for national development, organizing community participation in development efforts, providing community social services and promoting the establishment of rural physical and institutional and infrastructure through engineering and other inputs.

In implementing its programs the Office of Extension has published a 96-page "Directory of UPLB Specialists," and a list of 109 short courses that UPLB offers: Each short course description gives dates and duration of the courses, a course description,

intended clientele, names of course coordinators, and training fees. All of the short courses are available for international as well as domestic trainees. Another current publication project is a compendium of technologies generated by the university.

In addition to training and publications, the Extension Office monitors and evaluates extension projects as carried out by the colleges. Colleges are involved in a number of current action projects which include the Agricultural Development Program for the Countryside, the Laguna Integrated Agricultural Development Project, the University-Community Relations Program and the Agricultural and Livelihood Project. While the overall programs appear well-conceived, little was learned by the Panel concerning project implementation from the Extension Office. With responsibility for implementation residing with colleges, the various activities as described by the separate colleges gave an impression of fairly dispersed and fragmented activities. There was little evidence of coordination with government extension efforts.

Coordination with government extension efforts is somewhat problematic at this point because recently the national extension service has been decentralized. Extension will be directed from the regional level. In this respect, the STARRDEC project (see A-2.5.2.5) appears to be an opportunity for UPLB to link to Region 4 extension programs. However, overall it appears that UPLB is most inclined to organize its modest action projects independently of government programs. A UPLB Officer said it this way:

"We don't see how we can work with them unless the workers come to us. We don't have any kind of national program to which we can relate."

A-2.5.3.3 Extension Personnel/Budget

Teaching faculty are expected to spend at least 50% of their time in instruction, and the balance of about 50% in either extension or research. For extension faculty, a detailed set of credits for various activities is stated in extension policies. Detailed policies and procedures for rewarding extension personnel performance are also provided in the extension Handbook.

A wide range of units and activities are included under extension General Fund budget, totaling P24 M in CY 1988 or about 40% of the amount allocated for research (under the budget report. The research account shown in Table AT-2.5.2.3 show a slightly higher research budget. This difference may represent other grants that were not included in the account provided. (See also Tables AT-2.4.1.6 and AT-2.4.1.7)

A-2.6.1 Number of Faculty and Qualifications

There have been changes in both faculty members at UPLB over the past decade since the World Bank review, and the general level of the academic qualifications. Back in 1967/68, there were 300 faculty (teaching staff). By 1980/81 this had risen to 673 and by 1987 the number had reached 796. In 1967, less than 10% of these had achieved Ph.D awards and less than 20%, masters. By 1987, more than 34% had acquired their doctorates and 38% their masterals. Around one third of the current faculty hold temporary positions.

Table AT-2.6.1 shows the number of faculty by college and faculty rank. University-wide, half of faculty are of instructor rank. In the College of Arts and Sciences 73% of faculty are of instructor rank, partly reflecting the high teaching load of that college in fulfilling its major responsibility for the core curriculum. Ten per cent of faculty are full professors, while the colleges of Forestry and Agriculture are highest with 17% of their faculty at the rank of professor. The College of Economics and Management has the lowest percentage of professors, 3%, resulting partly from the high losses of faculty to positions outside the university.

Table AT-2.6.1. Faculty by Colleges and Rank, 1989.

College	Inst.	Asst. Prof.	Assoc. Prof.	Prof.	Total
Agriculture	71	82	46	42	241
Arts & Science	203	48	17	11	279
Econ & Mgt.	34	36	9	3	82
Forestry	29	19	10	12	70
Human Ecol.	9	14	6	3	32
Eng. & A.I.T.	27	17	6	2	52
Vet. Med.	18	17	2	5	42
Total	391	233	96	78	798
% of Total	49.0	29.2	12.0	9.8	100

Faculty teaching, research and extension loads are referred to elsewhere.

A-2.6.2 Faculty Evaluations

There is a somewhat complicated formula by which the various activities of different faculty members, are equated for the purposes of evaluation of their work for promotion or other adjustments to their working conditions. For example there are respective equivalents for published papers, instructional materials, extension outputs and other publications.

EQUIVALENCES FOR PUBLICATION IN REFERRED JOURNAL (As reviewed by Ad Hoc Committee, May 17, 1989)

A. Equivalences for one article published in refereed journal

- 4 lecture notes/handouts for training courses
- 4 working papers/discussion paper/policy brief
- 4 book reviews
- 4 poster papers
- 3 research notes or communication in journal
- 1-3 technical bulletins
- 2 articles published in proceedings of conference
- 2 papers presented in conference
- 2 staff or occasional paper/monograph/concept paper
- 1 policy paper
- 1 chapter in book
- 1 state of the art paper

B. Other Publications

- 1 book = 1-5 articles published in refereed journal
- Editor of book (with introduction and/or summary)
- 1-2 articles published in referred journal

C. Instructional Materials

- 1 course syllabus = 2 articles published in refereed journal
- 1 laboratory manual = 1 article published in refereed journal
- 1 set of audio-visual materials (in modular form or approved by appropriate committee of department) = 1-2 articles published in refereed journal

D. Extension output equivalent to one article in refereed journal

- 10 audio/radio broadcast materials
- 3 visual/print media output such as visual art work, literary composition

2 audio-visual material in the performing arts such as for
TV, movies, peer evaluated slide sets and video tapes
5-10 popular/feature articles published in paper with
national circulation
2-6 sets of exhibit materials

NOTE: Equivalences for special forms of output shall be determined separately like new crop varieties and other genetic materials from the Institute of Plant Breeding, machineries and similar output from CEAT, bibliographic compilation from the Library, test norming or group dynamics sessions from the OSA, computer programs and models, as well as directional jobs and lead roles from the Department of Humanities.

These equivalences have acquired particular significance recently, with a review of faculty for upgrading and for reclassifying REPS. REPS are research and extension personnel who are presently not members of the academic faculty. This latter category of people is somewhat of a catch-all and includes a range of professionals and sub-professionals from post docs to laboratory technicians, currently there are 450 REPS and efforts are underway to convert many of them to faculty status. In order to do so, a set of minimum qualification standards were established in June, 1989.

The minimum qualification standards combine years of service, publications or equivalents, and level of education (degree held), to place REPS at various levels within the four major faculty ranks - instructor, assistant professor, associate professor and professor. While devised for the purposed of converting REPS to faculty, the schedule is likely to be used henceforth for the purpose of establishing the rank of any new faculty, and for future promotions.

Faculty state that promotion in rank has in the past not been a major incentive because little increase in salary is associated with promotion. Having project or consultancy responsibilities is more remunerative than promotions. Nevertheless, it is apparent that with the new schedule, many faculty will be promoted, having achieved standards of performance well beyond their current rank. UPLB faculty generally hold lower rank than their counterparts in other higher agricultural education institutions, at equivalent levels of academic achievement. Again, however, this does not appear to be of much concern among faculty because it means little in terms of money, and anyway, working at UPLB is regarded as more prestigious than working at other agricultural schools.

Student evaluations of faculty are regularly employed to improve teaching. A detailed questionnaire is completed by each student in each course, according to which students rate faculty on a scale of 1 to 5 with respect to 17 traits in classroom performance, faculty/student relationships, laboratory management (if applicable) and students' general comments. The tabulated scores are given to the faculty member a semester after the rating.

Student evaluations were not indicated among the criteria used for advancing faculty within or between ranks.

A-2.6.3 Faculty Compensation

Low salaries and associated low faculty morale and high losses of faculty are discussed elsewhere in this report. Sources of faculty compensation include their regular base salaries, stipends for each student supervised, stipends for serving in various roles in projects funded through the university, and pay for consultancies taken outside of the time required for teaching or other university commitments. Through consultancies that are officially recorded one can double his/her salary. Speculation is that faculty unofficially occasionally quadruple their annual salaries through consultancies.

The attractiveness of outside income is especially clear in view of the fact that salaries in real terms have declined 20 per cent since 1975, despite recent significant increases. A complicating factor is that except for housing, Los Banos has a higher cost of living than Manila. Housing costs are somewhat ameliorated by the university's provision of housing, although single family dwellings are limited.

A-2.6.4 Administrative Staff

UPLB employs a large number of administrative staff who support university programs in wide ranging services as clerks, drivers, administrative officers, janitors, draftsmen, records examiners, etc. The 35 ranks, each with 8 steps start at the top for the President of the Philippines and range downward to the entry level for personnel such as bird boys (who watch crops), at P2000/mo. (or P1400 take-home pay). Differentials between ranks are small such that a clerk/typist at grade VI earns about P3000/mo., compared to the grade I P2000/mo. Medical care with retirement benefits however are a special attraction, although many feel they could earn higher cash incomes in Manila.

Education of children is a high priority among UPLB administrative staff, and Los Banos is attractive in that sense. The quality of public education in Los Banos is quite high and is considered to be worth sacrifices.

A major concern of the group is the standardization law that is coming into effect. Administrative staff are afraid they will be classed like Manila counterparts who actually have less responsibility than persons working for an educational institution like UPLB. Equivalently ranked staff in a government office are perceived as doing less and having to use their judgement and intellect less.

Administrative staff regard themselves as the "shock absorbers" of the system. They make the university "run smoothly". Presently they feel somewhat abused. When faculty received permanent recurring pay increases, they received lump sum payments, not incorporated into base salaries. They reported not receiving permanent pay increases since 1986.

Administrative staff account for a high proportion of budgets. One moderately sized college reported that personnel costs comprised about 60% faculty and 40% administrative staff.

A-2.7 Students and Graduates

A-2.7.1 Student Enrollment

In 1989, UPLB enrolled 5730 students of whom 81 per cent were undergraduates. Highest enrollments were in the colleges of Agriculture and Arts and Sciences, each with about 30% of the total student enrollment. A third of the College of Agriculture enrollment was graduate students, by far the largest graduate program within the university (Table AT-2.7.1).

A-2.7.2 Graduation Rates

Graduation rates as shown in Table AT-2.7.2 can be depressed by either larger numbers of non-degree enrollees, high dropout rates due to scholastic problems, or most likely, students transferring to other colleges or universities. A number of students enter UPLB Arts and Sciences while waiting for admission to medical, engineering or other schools. In turn, students enter the College of Agriculture in order to move later into Arts and Science, resulting from the latter's more stringent admission standards.

The College of Engineering and Agroindustrial Technology had the lowest graduation rate but also one of the higher percentages of non-degree enrollees. The College of Economics and Management also has a relatively high percentage of non-degree students and a moderately high graduation rate. Among those programs not affected by large numbers of non-degree students it would appear that Arts and Sciences has a relatively high graduation rate and the College of Agriculture a relatively low graduation rate. This may partly correspond to the relative successes of the two colleges in attracting quality students. Faculty of the College of Agriculture have noted the relative decline in scores of their students on the National College Entrance Exam, while the College of Arts and Sciences has been able to maintain a relatively restrictive admissions policy. The former requires a higher minimum UPCAT (UP College Admission Test) score than the latter.

Overall the success rate of students enrolled for bachelors degrees appears to be about 65%, which is around that experienced by some public universities in the US. (compared to 90% + at highly

Table AT-2.7.1 Enrollments By Colleges - 1989

Enrollment						
College	Under-graduate	M S	PhD	Non-Thesis	Total	% of Total
Agriculture	1,132	333	255	-	1,720	30.0
Arts and Sciences	1,603	128	42	-	1,773	30.9
Economics and Management	510	29	40	52	631	11.0
Engineering and Agro-industrial Technology	342	4	-	24	370	6.5
Forestry	391	62	42	14	509	8.9
Human Ecology	224	14	-	23	261	4.6
Veterinary Medicine	460	6	-	-	466	8.1
Total	4,662	576	379	113	5,730	100.0

107-

Table AT-2.7.2 Enrollment and Graduation By College
1988-89

College	Enrollment 1st Sem	Number Graduating	% of Total
Agriculture	1,301	152	11.7
Arts and Sciences	1,657	242	14.6
Economics and Management	611	67	11.0
Engineering and Agro- industrial Technology	502	32	6.4
Forestry	383	61	15.9
Human Ecology	253	30	11.9
Veterinary Medicine	494	48	9.7
Graduate School			
M S	661	171	25.9
Other Master's	102	36	35.3
PhD	364	63	17.3
Total	6,328	902	14.3

competitive private institutions). Nevertheless, for the Philippines, UPLB is a highly competitive school; that is, overall it attracts students from near the top of the NCEE, compared to other higher agricultural education institutions. Higher graduation rates could be expected.

A-2.7.3 Enrollment by Course

Table AT-2.7.3 shows the number of courses offered by each college at various levels of enrollment. The College of Agriculture, for example, offered 77 courses in which 3 to 5 students enrolled. Overall, 26% of all courses offered had 1 to 5 students, and 43% of all courses had 10 or fewer students. These levels of enrollment are low by U.S. standards. A number of faculty and administrators agree that there may be many courses offered that could be deleted. There is a reported tendency to continue to add but rarely delete courses.

A factor that one administrator suggested may affect student/faculty ratios in courses is that students are heavily dependent upon faculty for guidance, supervision, borrowed course materials and so on. In this respect, it appears more like a tutorial system in European universities, with the added feature of a capital constraint. For example, the administrator suggested that in the U.S. you can turn a student loose in the lab and not worry if there is breakage or excessive use of chemicals. "Here", he said, "we have to closely supervise, because if we don't, there won't be any chemicals or glassware left for the next class."

Also, library bookholdings are deficient. A student at UPLB, it was suggested, is very dependent upon his/her teacher for materials and oral explanations. Yet another faculty member, however, said that although this sounds good in theory, in fact UPLB faculty are so busy that they are not really all that intensive in their student interactions.

A.2.7.4 Origin and Recruitment of Students

The majority of UPLB students are said to come from urban areas in the surrounding region. The urban bias results primarily from urban students achieving higher scores on entrance exams and their generally better financial resources. A UPLB scholarship program is intended to partly remedy the bias. Also, a "bridging" program to prepare rural high school entrants for college has been instituted. The emergence of strong regional universities such as Central Luzon State University, the Visayas State College of Agriculture and Central Mindanao University has lessened some of the demand for education at UPLB.

Recruitment at high schools has been increasingly employed as a way of attracting good students. Recent individual recruiting efforts by colleges has resulted in increased enrollments in units such as the College of Economics and Management.

Table AT-2.7.3 Distribution of Course Enrollment By Colleges
1st Semester 1989

College (Enrollment Level)	Number of Coursees with Indicated Enrollment					
	1 - 5	6 - 10	11 - 20	21 - 30	31 - 40	> 40
Agriculture	77	55	60	23	10	14
Arts and Sciences	68	32	60	44	22	70
Economics and Management	15	13	9	18	2	12
Forestry	34	22	15	4	7	7
Human Ecology	9	8	8	9	1	3
Engineering and Agro- industrial Technology	19	18	20	10	2	2
Veterinary Medicine	0	0	1	0	1	20
Other Units						
P E Department	0	0	0	1	2	15
Dep't. Citizen Military Training	1	0	1	0	0	11
Total	223	148	174	109	47	154
% of Total	26.1	17.3	20.3	12.8	5.5	18.0

110-

A-2.7.5 Student Attitudes

The Panel interviewed a selection of undergraduate and 10 graduate students from various colleges. About two-thirds of undergraduates had regarded UPLB as their first choice of college. Several had indicated U.P. Diliman as their first choice, and two had actually attended Diliman before switching majors or otherwise deciding to come to Los Banos. The students uniformly showed enthusiasm for UPLB, and the two who had attended Diliman said they found UPLB more serious. One was emphatic that her courses were harder and better at UPLB, and for that reason was glad to be at UPLB.

Undergraduate students suggested they would like more practical experience as a part of their curriculum. One said that in the classroom, "we stick to theories and skim through issues." The venue for discussing issues, they said was outside the classroom. The faculty see a need to discuss issues but they can't find the opportunity. The student felt that land reform, population and environmental issues were barely touched upon, but were important problems they would face. One suggested that "especially at U.P. Agriculture students should be prepared."

One Journalism major had two agriculture roommates whom he said were mainly oriented toward getting jobs. He said that the "agriculture curriculum needs to inculcate the attitude of helping others." But UPLB is not to blame, he said, "education generally causes you to be very individualistic." Another said that friends who have graduated say that, "what we were taught is not what we see." "Courses should be not only for the individual but for the rural poor." The university should have "exposure programs" they said.

A number of remarks were made about textbooks not being oriented to the Philippines, or even to tropical or developing countries. This was said to be true both of technical subjects as well as of social science courses. "Filipino textbooks are not used."

Most of the undergraduate students felt the UPLB student body as a whole to be uninformed and unconcerned about campus as well as national affairs. Fellow students were said to be unmotivated and non-participatory, our sample of students notwithstanding.

Graduate students seemed to represent the students of whom the undergraduate spoke - serious and concerned about their careers. They were also concerned about deteriorating facilities, especially graduate student housing. They felt UPLB to be a good university, and regarded the younger faculty as especially good. They felt some of the older faculty needed new ideas and renewal through exposure to the field.

The students reflected positively on UPLB, and the differences between the idealism of undergraduates as compared to graduate students was probably not atypical of any campus.

A-2.7.6 Graduates

A study of graduates was conducted several years ago but was unavailable for review. According to graduate school administrators, a system for tracking graduates is needed. The intention would be to identify the kinds of jobs graduates obtain and learn from them on a continuing basis what modifications, based on their experience, should be made in curriculum. Graduates are said to predominantly go into public service; indeed much evidence of this was seen. However, a prominent UPLB alumnus, businessman and public servant suggested that UPLB should now aim its graduates toward the private sector. Students need to be trained, he said, more in management, agribusiness, marketing and agricultural processing. (See Annex A-2.8.2, the UPLB Alumni Association).

A-2.8 University Support Facilities and Organizations

Principle university support facilities and organizations to which the review panel gave attention included the UPLB Foundation, the CPDMO (Campus Planning, Development and Management Office), Central Analytical Laboratory (Biotech), library, and the UPLB Alumni Association. In each case the visits and discussions were brief and therefore subject to the limitations of cursory examination. Comments on these units of UPLB are provided below.

A-2.8.1 UPLB Foundation

The UPLB Foundation, Inc. manages the finances of externally funded projects, individual consultancies of faculty, income-generating production activities and services, and gifts to the university. It also supports the marketing of UPLB expertise and services as undertaken by academic units and individuals. These activities result in income which the Foundations uses to pay its administrative costs and support university programs.

Not all income-producing projects and services of the university are channeled through the foundation. Except in special situations, projects funded by the Philippine government are directly entered into university accounts. Although university policy is otherwise, some grants, contracts and individual consultancies may be recorded in neither university or foundation accounts.

Policy guidelines of the Foundation are published as are all current accounts. The Foundation receives income through its management activities principally through administrative overhead charges (ranging from 5 to 15 %, depending upon the value of the transaction), earnings on short-term investments of advance payments of project costs received from funding agencies, and profit from production activities and services. These activities have produced significant income for the university, for example, 0.5 M Pesos in the second quarter, 1989. (For further financial details, see Annex A-2.4.3).

The executive director of the Foundation conducts all promotional and financial affairs of the Foundation, guided by Board of Directors. Management of externally funded projects is conducted by the unit providing the services identified in the respective grant or contract. The Foundation's income generating activities, such as raising and selling agricultural produce, selling forest and horticultural planting materials, computer services and the university bookstore, similarly have their own separate management structure.

Some of the functions that appear to have separate management attributes within the structure within the Foundation, include the following:

- Promoting and marketing of UPLB services and expertise to governmental agencies, donors, private sector and other potential users;
- Investment of Foundation assets for interest and other income;
- Solicitation of gifts from alumni and organizations, that are not associated with university services;
- Financial oversight of university profit-generating agricultural and forestry production activities; and
- Grants by the Foundation in support of university teaching, research and extension programs.

A-2.8.2 Alumni Association

The UPLB Alumni Association was formed in 1930 as a College of Agriculture association. When other colleges at Los Baños were formed, the groups confederated into a UPLB Alumni association, which is now a sub-organization of the overall University of the Philippines Alumni Association. The President of the UPLB Alumni Association is presently Vice President of the UP Alumni Association.

The UP Alumni Associations has 20,000 members. No membership fee is charged, but members have been encouraged to donate at least 1000 pesos, but few do. The association's most successful financial campaign was the Diamond Jubilee fundraising effort which raised over 0.5 M. pesos. The association also raised money to build an alumni association building.

A-2.8.3 Campus Planning, Development and Maintenance Office (CPDMO)

The CPDMO comprises five sections which have responsibility for (a) buildings and housing maintenance service, (b) utilities and equipment services, (c) transportation and mechanical services, (d)

grounds and roads maintenance and (e) professional/technical service (architectural design, engineering, construction oversight, legal and contracting services). The responsibilities of these sections include over 300 buildings, including 216 housing units, 28 kms. of roads (which would require an estimated 12 M. pesos for full repair and surfacing), about 1000 hectares of immediate campus and farm property (plus another 20,000 ha in more the Makiling Forest and the Quezon and Laguna land grants that are not intensively managed). Not included are properties used by the International Rice Research Institute and other organizations which would revert to UPLB if vacated.

The motorpool was recently decentralized to units of the university. However CPDMO remains responsible for the inspection of repairs, and for maintaining the vehicles used for off-campus trips. Many university vehicles are second-hand, supplied by the International Rice Research Institute, and require high maintenance costs. Vehicles generally are in short supply and fairly old. Faculty may be reimbursed in the amount of the cost for public transportation to and from their indicated destination(s), for use of their own vehicles with prior approval of a request showing that alternatives are not available. The university's thirty-two vehicles average slightly more than ten years old.

Much of the routine building maintenance and repair is done by individual units because CPDMO lacks resources. In effect, units employ project or other funds to do jobs that would normally be done by CPDMO. Similarly much of the construction and renovation is done by private contractors, at an estimated 20 % cost premium, when CPDMO units are overloaded.

A major problem of the unit is antiquated and deficient number of units of major equipment items, such as pumps, generators, tractors, mowers and vehicles. Six water pumping stations serve the UPLB campus, and a spare pump is needed for each. When a pump is broken, the respective area of campus goes without water until the repair. Keeping the water system in order is one of CPDMO's biggest problems.

Another complication has been the non-completion of various facilities that were begun under a World Bank loan, but not completed with loan funds because of increased costs of materials. CPDMO has had responsibility for finishing facilities for the College of Veterinary Science, Forestry and possibly other units as well. Some planned construction was cancelled as a result.

Over the past year, emphasis has been given to campus maintenance. A number of observers have commented that the campus presently looks better than it has for several years. Despite aging equipment, the CPDMO appears presently able to promptly resolve the most serious problems of campus maintenance and repair.

A-2.8.4 Library

The university library is a well-constructed, spacious and well-managed facility, that nevertheless suffers, like other units, from a deficiency of operating funds. Its 120,000 volumes are deficient for a library of such national and Asian regional importance -- probably about a tenth of what a small landgrant university in the US would have. UPLB has a reasonable collection of serials and has generally been able to keep them updated. In 1988, 656 serials were available through library subscriptions (costing \$136,000) 518 through library exchange, and 444 were available as gifts.

To overcome the problem of deficient holdings, the librarian subscribes to worldwide computerized agricultural information systems, which are updated quarterly. Inadequate telecommunications from Los Banos limits the convenience of the systems, but it is workable. Also an exchange system with the IRRI library (which has 86,000 volumes) facilitates scholarship. An IRRI book or serial can be made available in about one day.

The number of new book acquisitions have increased steadily each year, and about doubled from 1987 to 1988, from 2400 volumes to 4700. A special grant of \$100,000 in 1989 above the normal budget, will enable further improvement of the library. Serial titles are growing also, with 29 added in 1988 and 25 deleted, for a net gain of 4. Many of these are periodicals that are provided free of charge by various organizations. Serials are deleted or added based upon faculty recommendations.

The library was designed for air conditioning and cannot easily be naturally ventilated. The air conditioner has been inoperable for about a year, so that work and study conditions are uncomfortable at best. Repairs costing over \$200,000 are expected within the next several months. Library staff creatively and very competently use their resources to provide library services under difficult circumstances.

A-2.8.5 Central Analytical Services Laboratory

The university has a number of teaching and research laboratories associated with various campus units. The review Panel visited one of the best of these laboratories at the National Institutes of Biotechnology and Applied Microbiology (BIOTECH), which can be used by faculty and their students, and by outside agencies. Fees charged for university users are less than outside agencies. The posted schedule of analyses suggested that the laboratory was well utilized, but could probably take on additional work.

The laboratory was well equipped and managed. Fees for fourteen common analyses were established ranging from 20 pesos for soil pH analysis in water (including 10 pesos for sample preparation) to 1200 pesos for Carbon/Hydrogen/Nitrogen analysis for

five samples using an elemental analyser. The facility has a gas chromatograph and nuclear magnetic resonance equipment (NMR). Soil analysis fees are equivalent to those charged by other agencies and are at about break-even rates.

Continuous, stable electrical supply and water supply are major problems. There is no voltage stabilizer for the laboratory. The NMR requires two-days for the equipment to stabilize after an outage, which occurs frequently, limiting utility of the system. Considerable effort is required to maintain a continual supply of distilled water. Overall, the laboratory is highly impressive and well maintained.

B-0

Special Papers by Panel Member

B-1.0 Strategic Planning for Universities As Critical Learning Systems

Richard Bawden

B-1.1 Introduction.

Development depends not so much on finding optimal combinations for given resources and factors of production as on calling forth and enlisting for development purposes, resources that are hidden, scattered or badly utilized

Albert Hirschman.

We do not, in our colleges today, make use of any learning principles in a considered, systematic, professional way. We do not design the college as a learning environment. We do not give anyone a specific responsibility for bringing to the college the best available professional and scientific knowledge for designing that environment.

Herbert Simon.

The (American) college or university is a prototypic organized anarchy. It does not know what it is doing. Its goals are either vague or in dispute. Its technologies are familiar but not understood. These factors do not make a university a bad organization; but they do make it a problem to describe, understand and lead.

Michael Cohen and James March.

If education is to meet successfully its many demanding tasks and missions, it will have to find new and more dynamic decision strategies.

Rachel Elboim-Droir.

B-1.2 The Process of Evaluation and Review.

There are three forms of review which are commonly used to evaluate organizations:

- Ex post (a look back!) a review of the extent to which particular pre-set missions or targets have been achieved over time.
- Ex ante (a look around!) a review of the situation as it exists, in relation to the level of achievement of current objectives and/or preparedness to meet its stated future objectives.
- Strategic (a look forward) a review of the processes and mechanisms which the organization is using to create its own futures in linking "its forward direction with the movement of historical forces in the environment".

Put another way we might state that the three approaches just outlined can be paraphrased as (1) the achievement of past plans, (2) the achievement of present plans with recommendations for changes, and (3) the appraisal of current processes of planning with action for the future, plus some comments on possible futures, respectively.

Such reviews might be conducted by people internal to the organization, or by people brought in from outside, or by varying combinations of both. They might focus on particular parts or aspects of the organization or relate to the entire enterprise. Evaluation of the whole organization or of its parts might be something that is done on a regular basis, or it might merely be an ad hoc process.

In the present context, this is an external, ad hoc strategic evaluation of an entire organization (UPLB), which, however draws heavily on both ex post and ex ante evidence.

The major concern of the strategic evaluator is the quality of the relationships that an organization has with its surrounding environments, and all of the implications of this on its purposes, internal integrity and culture and all of the activities it conducts in the pursuit of its purpose. In conceptual terms, it is a review of the manner by which a particular system is going about its critical functions or transformations:

- the transformation by which it fulfills its particular purpose (or mission).
- the extent to which it transforms its environments
- its own self-transformation (autopoiesis).

Each of these transforming functions is inter-related with the others. Like an organism in co-evolution with its environment, the successful organization exists in a state of mutual influence and interdependence with its environments. Establishing and maintaining such "appreciative" relationships is difficult, for the organization builds up an inertia which is difficult to redirect. And with this inertia there comes the "setting" of a prevailing culture within the system - an ethos and an ambience which characterizes the nature of the organization; what sort of place it is and what sort of things it stands for; what sort of worldview or *weltanschauung* prevails, what value system and philosophies are dominant; the nature of the model upon which the organization's mission and objectives, are based.

The synthesis of all of these features together comprise "*the essence of the university*".

As those within the university reflect on these issues and share their thoughts and ideas, they form an organized system which develops a strong degree of introspection with time, and this results in the loss of connection of the system with its environments. These, however, continue to change in often significant and unpredictable ways. The whole situation is also widely open to differing interpretations; Interpretation of the nature and extent of observed environmental changes and assessment of their possible implications on the nature and dynamics of the system, are perceptions and constructions of those doing the observation.

All of these issues have a particular significance for universities, which are at the best of times, only loosely coupled systems with poor co-ordination of their component parts. What connections they do develop with their environments tend to be markedly restricted to the interests and specialized competencies of their academic population. In this way different types of universities have evolved with different traditions; some passive and accepting of the demands of the societies in their environments, and others proactive in their adopted roles of social critique. Whichever the course taken however, each university tradition or essence tends to become self-reinforcing rather than self-transforming.

Perhaps this is why inertia in academia is so legendary! As Elboim-Dror, (1970) has claimed "...the dominant pattern of decision making...is by incremental change. This seems to be a common pattern in most organizations, but in education it is dominant. But this does not suit a rapidly changing and demanding environment. If education is to meet successfully its many demanding tasks and missions, it will have to find new and more dynamic decision strategies". There is an ethical imperative here for universities to change their ways for, as Rourke and Brooks (1966) have stated "...faculties have put themselves in the indefensible position of being willing neither to assume the burden of guiding the university's academic development nor to concede to others the right to do so."

The key notion of strategic development is the re-definition of the essence of the organization by all those who contribute to it: So it is vital that all those who have a stake in the future of the organization, are involved in "the new and more dynamic decision strategies." As Keller (1983) has envisioned it "...strategic planning is people acting decisively and roughly in concert to carry out a strategy they have helped to devise" and which will effectively link the system to its environment in an inter-dependent way. And the first step in this direction is "...to get everyone in the organization to think that way" (Cyert, 1978). It is important to emphasize the notion that strategic planning is a process which is not confined merely to the design of plans for the future. Strategic planning is action oriented and highly participative. It consists of both thoughts and actions; of concrete activities as well as abstract ones.

This external evaluation of the University of the Philippines at Los Banos has concentrated its analysis on strategic issues in the context outlined above. The members of this panel believe that there are major strategic issues to be addressed by the university before sensible progress can be made in addressing "lower orders" of problems and issues of concern.

The essential thrusts of this investigation have been in the following five directions:

- (1) An analysis of past events to determine strategies that the university possibly used in its historical, development in dealing with past environmental forces.
- (2) An appraisal of the main environmental features which might currently be bearing on the university and suggesting new strategies for the continued evolution of the system.
- (3) An analysis of current issues being recognized and present strategies being used to address them, and how both these issues and strategies relate to (1) and (2) above.
- (4) An exploration of a novel conceptual framework - the university as a critical learning system - as a guide to the development of improved strategic processes.
- (5) The application of the logic of the "learning system" model to provide new perspectives on both past and current issues which may or may not have been previously recognized as critical strategic issues.

In this manner, the external panel of consultants has concerned itself essentially with "what should be done about arriving at what should be done" rather than providing a list of prescriptive changes in operations which it recommends.

During their deliberations they have drawn heavily on two previous sets of reviews:

- an ex post impact evaluation of UPLB as an agricultural university, conducted by a team from the World Bank in 1980 and published in 1983 (which concerned itself with what had been done).
- an ex ante external evaluation of the university distilled from a series of internal and external reviews of different component parts of the system the report summary of which was published in 1989 (this review considered what is currently being done and what should be done in the future, from the perspectives of those who wrote it.)

They have also had access to impressions gained during an extensive evaluation conducted by US-AID of agricultural universities in 10 other nations across the globe.

By its very nature, much of what is being presented here is speculative; a series of hypotheses and propositions of what might have occurred in the past, is occurring presently and what might happen in the future.

Our overall working proposition is that :

Both the bio-physical and socio-cultural environment of the rural sector of the Philippines, are caught in an involution of ever-increasing population pressure, poverty and natural resource abuse.

The rate of reform or transformation of this state of affairs is far too slow to prevent further serious degradation of the rural environments in the country.

Comprehensive and enduring reform of the situation is dictating endeavours which reveal the inadequacy of the prevailing tradition at (and *essence of*) UPLB, of development through technological improvements in agricultural production.

These inadequacies are much more than differences in opinion. They are associated with profound differences in paradigmatic beliefs across the campus. What UPLB is facing are the tensions associated with shifting paradigms which are certainly not confined to this agricultural university nor even to this country. They are tensions of difference nevertheless that UPLB must address if it is to more closely link itself to the "main stream of development" in the Philippines.

There is therefore an urgent need for UPLB to re-address its *essence* and concentrate on creating its strategic futures in this regard, with a preparedness to

transform itself from a technological agricultural university into a broad and critical instrument of social and environmental reform, and this is as vital for the nation, as it is for the welfare of the university itself.

In the sense that we use it here, strategic planning represents an almost classical paradox. To change the way we do things, we must change the way we see things. But as a precursor to that process, we need to see that the way we are seeing things is inadequate!

This is why personal transformations usually only follow exposure to novel propositions. In the organizational context it is important that strategic changes do not result in the rejection of what existed successfully in the past. Thus it is most important that UPLB maintains its existing strengths while building new ones. It is vital that the expertise and experience of the university as a center of excellence in agricultural science and technology is not weakened as UPLB forges new, more systemic ground as a key center for critical and comprehensive rural development.

The implications for the transformation as envisioned will have far reaching effects and will be reflected in new ways of thinking, new ways of knowing and new ways of doing things. New styles of curricula will be developed and offered. New research methodologies and agendas will emerge and the organization will build important new linkages of influence across a range of new organizational domains. As these linkages are of mutual influence, they are accurately portrayed as together constituting a network.

The management of these very significant adjustments in the way UPLB "goes about its business" will be difficult, for by its very non-incremental nature and by the profound belief systems that are challenged in the process, the strategic developments that this university will need to go through will be laden with conflict. This will be exacerbated by the re-allocation of resources which will almost inevitably arise as an outcome of the process.

It is our hope that the perspectives and methods of our approach will be useful in the debates about methodologies and directions for strategic development of UPLB. It is for this reason that we have dwelt so heavily on the concepts behind the way we have gone about things.

It is also our hope that our position is constructively controversial, for difference of opinion is one of the richest sources of learning amongst those willing to learn. As George Keller (1983) has stated "...to enter the house of strategy, one must go through the doorway of debate and catharsis".

*Richard Bawden*B-2.1 A Global Context

Universities with an agricultural focus, have played major roles in the process of national development across the globe. The application of science and technology to crop and livestock production, has resulted in impressive growth in agricultural productivity worldwide. The universities have been central in the generation of much of this technology through the scientific research and development conducted by their faculty. They have also been instrumental in providing succeeding generations of scientific manpower to continue to build research capacity and in providing infrastructures and associated extension and teaching manpower to enable end-users to learn how to use technological innovations. Their influence in transforming levels of agricultural productivity has been particularly marked over the past two or three decades leaving very few nations untouched by the multidimensions of the scientifically developed "green revolution".

The development and spread of these key institutions around the world has been markedly influenced by the activities of personnel from the Land Grant Universities of the United States of America. Through their involvement in institution building programs including the transfer of faculty and graduate education fellowships, they have seen the emulation of their model in many different nations. It is the transfer of this model, developed over the latter half of the nineteenth century in the United States of America, that has seen the commitment to teaching, research and extension as the three critical functions that agricultural universities use as the matrix for designing the details of their specific missions. A literal subscription to these three functions however both understates the full impact of such universities on society, as well as providing a potentially serious organizational constraint to their dynamic development under circumstances of societal change.

For all sorts of reasons, there are a number of concerns expressed about the directions and organization of universities originally developed around the tri-functional "land grant" model and a number of commentators have suggested that the model itself be re-examined for its continuing utility in a rapidly changing world. Others have suggested that it is not the model *per se* that is at fault but in distortions in its application.

In any event, it is useful to examine the universities in a way which accepts the broader mandate than that is often attributed to land grant model. Thus, in addition to the three essential functions usually associated with the generation (through research) and the dissemination (through extension outside the classroom and teaching within it) of production-enhancing innovations,

universities have also been vital in two broader aspects of development: They have contributed in crucial ways; (a) to the spread of what might be called scientific, technological and commercial literacy through the population at large, and (b) to the development of philosophies and models of human endeavor which have been widely used as the basis for the policies by which the people are socially organized and, indeed, governed.

It is the sum of all these functions, both explicit and tacit, that contribute to the utility of agricultural and rural universities.

Far from being perceived as mere institutes of technology then, focused on productivity growth, such universities can be construed as "*critical centers for rural transformation through learning*". In fact however, all evidence suggests that very few rural universities or universities with a strong emphasis on agricultural research and education, seem to have accepted this broader perspective as their overall mission or *raison d'être*.

In addition to these extra dimensions in the influence of agricultural universities on their societies which illustrate the potential limitations of the tri-partite model, there are some more fundamental aspects of the model itself which merit critique.

Central to the notions of *teaching, research and extension* are concepts and philosophies of knowledge, knowing, communication, science and learning which are rarely made explicit nor therefore subject to critical review. Unusual indeed are individuals who challenge the paradigms of research, or teaching or extension which are held, as espoused theories, by the faculty at large. Rarer by far, are those individuals who raise for general debate, the epistemological and ontological assumptions upon which such theories are embedded! Yet in recent years, much has been researched and written about theories and philosophies of issues such as cognition, organizational development and the dynamics of complex systems, which challenges much of what is conventionally held about human activities like researching, teaching and managing. Embedded within this philosophical framework are also extremely pertinent issues of ethics. There is also the concept of the ideology of the university: The matter of the extent to which those who constitute the university community are prepared to acquiesce to society at large, or to critique it.

B-2.2 The New Challenges

Notwithstanding their past successes, in designing and promoting more technological approaches to agriculture, agricultural universities are currently being faced by a whole host of new issues and problematic situations. And in many senses this is as true in the "*developed world*" as it is in the "*developing one*". The nature and scale of these issues are such that they represent fundamental challenges to the way these universities "go about their business", and in the way in which they are organized and are

structured to enable this to happen. The conventional focus on production and productivity-enhancement through science and technology as the basis for the design, conduct and evaluation of all that agricultural universities do, is now clearly too limiting. The metaphor of the agricultural university as an institute of technology, with a passive ideological stance on social and environmental issues, is far too naive.

Like all organizations, universities are part of the social fabric of the environments which surround them. They can no more avoid being influenced by such environments as they can avoid influencing them. However, they can certainly do much to inhibit and distort this flow of mutual influence, and the adoption of an unsuitable metaphor or model of operation is often the basis for the all too commonly encountered isolationism of universities in all quarters of the globe. In continuing to dwell in an isolated state, remote from the changing challenges of their environments, and persisting with models of behaviour which merit review, many agricultural universities in particular are finding disfavor with their students, clients and patrons alike. And this in turn is leading to much tension and confusion within the institutions themselves, as faculty and administrators are failing to come to terms with the issues which are fundamental to their relative demise. Like all systems that become closed to their environments, their continued introspection breeds resentment both without and within.

In the light of the broader perspectives of the university as an open system, coupled to its complex and dynamic environments through appreciative relationships, an emerging metaphor which allows new insights into the notions of development and progress is that of the university as a *learning system*. This is a system which is in the business of learning transformations: of helping people to learn how to deal more effectively with their ever-changing worlds as well as one which itself is learning how to do the same. For the fact of the matter is that we do not know all there is to be known about growing and equitably distributing food. Indeed, we have been quite unprepared for many of the externalities which have negatively impacted on both the socio-cultural and bio-physical environments in which agriculture is practiced. We are not even sure after all is said and done, that we know very much about how people learn anything at all about the complex environments in which they live; nor how they design and select novel strategies which for them constitute improvements in the quality of their own lives and of the lives of the communities of which they are parts.

For all the success in hoisting grain production across the world in recent years, it is now quite clear that "...hunger results from poverty and environmental degradation, not just from lack of production of food" (Smuckler *et al*, 1988). And for all the efforts, "...the extremes of rural poverty in the third world are an outrage" (Chambers, 1983).

It is not too trite to point that the traditional agricultural or rural universities have reached a critical turning point in their histories in many countries of the world. Even where such universities have grown into comprehensive, multi-purpose institutions, the Colleges and Institutes of Agriculture and Food within them, face most of the same challenges for change.

As Busch and Bawden (1989) have recently pointed out, rural universities are now operating in a very different world from that in which the Land Grant Model was grounded. Amongst the reasons for these differences these authors cited the following:

- The increasing internationalization of world agriculture and the realization of the complex social ecology of trade which extends way beyond national borders and where the term "global agriculture" takes on a major new significance.
- New geo-political alignments and ideological shifts are adding huge new uncertainties to the standard dynamics of the world community which continues to increase in absolute size.
- An overall decline in international multi and bi-lateral grants-in-aid and their replacement by loans, leading to ever-increasing external debt loads.
- Increased ecological awareness around the world of the fragility of much of the natural environments in which agriculture is conducted and of their inter-relatedness also on a global, indeed stratospheric scale. And the fact that the source of much of this increased awareness comes from observations of the devastating effects that agricultural practices have had already in some places, adds a certain poignancy and urgency to this factor.
- Dietary demands have begun to change in many parts of the world where incomes are rising, at the same time as poverty and hunger remain apparently intractable to alleviation in many other parts.
- New linkages are being forged between agriculture and other sectors of the economy in many parts of the world, and this with comprehensive land reform programs elsewhere is changing the traditional structures and patterns of agricultural production. This synthesis of endeavor for the increasing commercialization of agriculture is bringing benefits on an unparalleled scale. It is also providing new tensions of interest conflicts, of restrictions of previously free information, of patentable live organisms, and of privatization of sizeable proportions of previously public institutions. It is also emphasizing many of the paradoxes inherent in deeper investigations of just what it is that constitutes improvements in the name of "development".

- Underemployment and unemployment persist in the face of increasing population pressures and insufficient rates of job creation in all sectors of the economy. Increasingly University graduates are included within these ranks especially as public sector positions become saturated .
- The decline in the influence, status and profile of agriculture as an attractive and vibrant sector of the economy as a whole in many countries of the world is having a serious effect on the enrollment and faculty attraction patterns, with potentially devastating long term effects on the continued viability of the agricultural sector.
- Often the very success of the foundation Colleges and Universities of Agriculture has resulted in an unregulated proliferation of others anxious to reap the benefits of government support, but where the outcome has been a diversion of limited funds away from the "strength" to support an unsustainable plethora of much weaker institutions.
- And within academia itself, the last decade or so has seen the emergence of many new theories, philosophies and practices in science, education and learning, policy and management, and organizational development that place at question the very essence of what constitutes any university, let alone one dedicated to the imprecise notion of sustainable development. And all of this is happening in environments which are increasingly recognized for their complexity, systemicity or interrelatedness, as well as the discontinuous patterns and unpredictable paces of change which characterize them.

It is in this dynamic environment that universities must now review their positions. There is every indication that these reviews will be akin to what Keller (1983) has referred to as "...living through a revolution" where the changing ground is like a "...shift that is causing unprecedented dismay, confusion and hand-wringing in higher education circles today." Such is the state of the *Turning Point*.

B-2.3 The Turning Point

Over the past few years in particular, there has been a number of studies of agricultural and rural universities which have revealed the characteristic tensions of organizations facing profound change. One of the most comprehensive of these was that conducted through US-AID which involved dozens of investigators, who worked in more than 20 universities in 10 nations in South and Southeast Asia, in Central and South America, and in North and Central Africa. While there were as one would expect, many differences between institutions revealed in this study, there was also a surprisingly high level of coincidence of common issues (Bawden and Busch, 1988). Some of these are mentioned below in a

127-

section which draws heavily on a paper prepared for BIFAD by Busch and Bawden (1989). They are not presented in any order of rank or rating, and indeed each is clearly inter-related with the others.

B-2.3.1 Breadth of Perspective

The majority of agricultural universities in developing nations were founded at a time when problems of food production and security were paramount at both national and global levels. At that time, the universities in the developed world, which provided the basic organizational models of agricultural services for others, were also concerned most about production and productivity enhancement through science and technology. Such a focus is as understandable as it is defensible but given the scenarios for the changing world about them, it is an emphasis that is now clearly too limiting.

In some places of the world, and in the United States of America in particular, the production-science focus was broadened through the development of the Land Grant Agricultural Colleges into comprehensive universities. Those Colleges that were strong were able to benefit from the broader perspective that this multi-disciplinary exposure provided, while being able to maintain their focus on solving the problems of their rural clientele through continued commitment to their Land Grant mission. This has been achieved through integration of the three conventional thrusts of education, research and extension with what might be loosely termed, their tacit influence on rural transformation through their general behaviour as communities of learners.

As mentioned before, this largely unrecognized or at least unheralded dimension, the University as a learning system, is an extremely important element in the success of a university in influencing its environments. Such an influence can be very pervasive, extending through all educational sectors from kindergarten through to the higher sector; through the media and other professional infrastructural services; through industrial and commercial sectors and enterprises, and through to policy makers and government. It is both methodological and philosophical, and is a major invisible force in providing societal perspectives and ideologies. It is of course not unique in this regard, nor is the "flow of influence" all in one direction, from the gown to the town!

In the ideal situation, the university and the societies around it are linked in dynamic inter-relationships. As an open system, the university is as much influenced by its environments as the environments in turn, influence it. Yet this is the area of greatest concern revealed by the studies of the agricultural universities in the latest US AID initiative. Too often the institutions visited did not exhibit the characteristics of "open systems". Too often they were virtually closed to environmental influences even as they persisted in their very channeled activities as generators and disseminators of production-enhancing technologies. In these instances, the narrow perspectives could be

found reflected in very technical curricula with little emphasis on social or environmental science; in very mechanistic and single disciplinary research programs; and in extension initiatives built heavily on technology transfer through what might be termed "the conduit model" of communication! Here there was almost passionate commitment to making the model work without too much consideration of the relevance of the model to changing circumstances.

B-2.3.2. Role in National Development

When systems are closed to their environments, or merely reactive to those forces they cannot ignore (such as ever-declining appropriations from their paymasters!) it is not just their internal perspectives that are constrained; they also ignore their potential for influencing their environments. In the present context this translates as missed opportunities to play a vital role in national development beyond agricultural production and productivity growth. As indicated, universities cannot avoid being part of the fabric of social life in their respective nations and regions. Yet at worst, agricultural universities in some countries, remain organized in ways which almost assure their maximal isolation from many social domains of enormous potential importance to national development. Even in instances where faculty and administrators could operate differently, they all too often seem unaware of the importance of their influence in broader issues of national development beyond agricultural production, or even see this as a legitimate goal of university programs. This situation sometimes pertains to the institution as a whole and sometimes to particular groups, such as Institutes, Departments or Colleges within. In the latter circumstance, it is not so much linkages between the system and its environment that are deficient, but the integrity of the system itself - mechanisms for integrating the component parts of the system into a functional whole, are deficient. And key to both these circumstances are (a) the processes by which the system is organized into a whole and (b) the mechanisms by which the whole system decides on what it is attempting to achieve - its strategic mission.

Which begs the questions of just what agricultural university administrators and academicians indeed regard as their role(s), and what mechanisms they use to review such roles: The "whats" and the "hows" of strategic development.

B-2.3.3. Purpose, Mission and Strategic Development

Any successful organization, like its organism analog, is one which co-evolves with its environment. This is a dynamic process by which institutions need to constantly question and, if need be refine their purposes, missions, functions and strategic directions. This is a sensitive position, for there needs to be developed a critical interdependency - a mutuality of influence where each organization influences its environments as it, in turn is influenced by them. Universities should never allow themselves to

be unilaterally led by the societies around them; nor can they ever assume that they can unilaterally lead those societies. The manner by which each is enmeshed in the fabric of the other should be the subject of continual review. The process of strategic shaping and re-shaping is both a continuous and participative one. As George Keller (1983) has put it for universities "..... an academic strategy that asserts that neither willfulness nor acquiescence to the fashions and temporal external conditions, is an appropriate course. Rather, a university's own direction and objectives need to be shaped in the light of the emerging national situation and new [external factors as well as the perennial needs of youth, truth and intelligence. And because the external environment is in constant flux, strategic planning must be continuous, pervasive and indigenous, not a blueprint or the work of a planning officer or a one-time experiment at some mountain retreat."

Questions about whether or not a university should "go comprehensive" or not, is a strategic question. So too are questions of research directions and philosophies. Debates about the competencies needed for the coming generations of agricultural graduates are strategic as are those by which the university decides to build and/or enhance its linkages with other institutions in its environments.

While most of the universities involved in the international study referred to, had a sense of the importance of strategic missions, few were organized in such a way that the strategic planning process was either pervasive or effective. Indeed it was this perceived lack of application of strategic planning, "envisioning" or purpose-setting processes which led to a series of initiatives launched by US-AID with an international workshop on "Planning for Universities for the 21st Century" held at Reston, Virginia in October 1988.

It is the lack of participation in such a process of articulating the purposes and missions of universities (or any organization for that matter) that leads to so much confusion and disillusionment amongst faculty.

Strategic planning is perforce a conflict-laden process: The debate about whether to be a focused agricultural university with a national and international reputation for excellence, a provincial institution for systemic or integrated rural development, a multi-purpose and multi-disciplinary regional or national comprehensive university, a research university with major emphasis on graduate programs, or whatever, will draw as many disagreements as agreements. Yet it is the very process of critical debate that allows creative exploration of amendments to purpose and adjustments to mission which, as stated, are central to the progressive university.

B-2.3.4 Leadership and Management Issues

Whilst planning is, or at least should be, pervasive at all levels throughout universities, there are a number of arguments to support the notions of strong leadership to facilitate development, and effective management to resource it. Leadership needs to be both designated and functional if confusion and uncertainty are to be allayed and managers need to have both responsibility and accountability if they are to be effective in the allocation of resources to be used to operationalize the desired strategies. Issues crucial to the quality of leadership and management are those of security of tenure and adequate rewards.

Very little attention seems to be being paid to the assurance of quality of leadership and management in agricultural and rural universities around the world. Too often the excesses of two extremes are encountered, either:

- Autocratic, centralized power or
- Overly democratic and thus bureaucratized power.

In the first instance, leadership and management suffer at the whims and prejudices of powerful individuals who rule rather than administer. Under their influence, the positions of their line managers are all too frequently rendered impotent and thus characterized by ineffectiveness and/or high turnover.

At the other extreme, the talents of potential leaders are completely dissipated through endless and fruitless discussion in committees and commissions with little hope of effective decisions ever being made or taken!.

Where they are present, these two polar situations tend to become exacerbated as universities become more diverse in function and multi-disciplinary and comprehensive in character.

As with the almost ubiquitous lack of pervasion of strategic planning, agricultural universities worldwide are noticeable for the relative lack, or poor quality, of programs of development on offer for their leaders and managers. This is all too often reflected in ineffectual administrative management at all levels from the university as a whole, down to the smallest organizational units.

B-2.3.5 Linkages

There is arguably no point on which there is greater agreement amongst observers of agricultural universities around the world than that which relates effectiveness with environmental linkages. As has been emphasized throughout this submission, open learning systems are constantly interacting with their environments. In the case of successful universities, this is manifest by the diversity and quality of the linkages that have been made with and are

maintained between the academy and a host of other relevant individuals and organizations beyond the campus. The US-AID studies have revealed that perhaps the most enduring linkages which exist in agricultural universities around the world are those which link professional scientific peers through the "invisible colleges" of their scientific disciplines; and this is particularly obvious in the case of faculty connections with their doctoral or post doctoral supervisors. In some ways the very success of these disciplinary bonds and networks can threaten those which are perhaps more pragmatically focused on local problems and where inter-disciplinary commitment is necessary. Direct involvement in the creation and nurturing of learning networks or cultures beyond the university (or even Department) is still regarded at many locations, as a distraction to the main business of research, scholarship and, perhaps, education!

B-2.4 The Case for Systemic Transformation

As mentioned earlier, agricultural universities were almost invariably founded with a focus dedicated to production enhancement: And this in turn was grounded in the philosophies and methodologies of the reductionist and positivist natural sciences born of the mid to late nineteenth century. All too often, and especially in countries where there are inadequate linkages between the university and its other constituencies, such universities continue to be modelled around a view of the world which is limited to the transfer of technology; of knowledge generation and knowledge dissemination as a hierarchical and uni-directional process which flows from "lab to land" or from "teacher to student" or from the *informed to the ill-informed*".

Yet such a model is clearly epistemologically flawed as well as being of questionable ethics. The academic does not hold the mortgage on knowledge nor are his or her ways of knowing, the only useful ways for making sense out of the world. Such a model is clearly far too simplistic for effective operation in a world which is now appreciated as a complex of inter-related parts and issues which exist in dynamic relationships with each other; of systems in sensitive co-evolution with their environments. A world in which everybody is a learner and where valuable knowledge and novel ways of knowing deserve to be respected whatever their source. Development from this perspective, is a mutual exploration of what it is that constitutes desirable and feasible change for all who are likely to be affected by any intervention in the "natural order of things". This approach recognizes the importance of potential impacts on the bio-physical as well as on the socio-cultural dimensions of the environments; on individual values and welfare as well as those of communities and societies. But it also recognizes the importance of maintaining a crucial imperative on levels of production. So the agriculturist must now combine concerns for productivity growth with other issues such as the stability, equitability and persistence of any farming system that is designed.

Lack of concern for such a systemic perspective in conventional agricultural science has seen many undesirable if unintended negative impacts result from inappropriate "development" strategies. Agricultural universities have justly been criticized in this regard. Yet to counter such a trend is extremely difficult, for reductionism and positivism must be complemented by equal emphasis on holism (systemics) and constructivism and this means a serious commitment to the exploration of new paradigms. This shift in perspectives suggests that complex and dynamic situations cannot be explained solely by a study of what is "*obviously wrong*" with individual parts of whole systems. Holism posits that wholes have properties which are emergent and unknowable or even unpredictable from a study of the parts. Constructivism presents a view of the world which is open to interpretation and re-interpretation with the constructs of each individual accepted as plausible explanations rather than as ultimate or statistically significant truths.

These shifts in paradigms have enormous implications for universities in whatever they decide are legitimate functions in helping people to deal more effectively with their worlds: in behaving as learning systems dedicated to assisting in desirable and feasible transformations.

New philosophies and methodologies are needed for research to address what has been termed "the science and praxis of complexity". New forms of curricula and educational strategies will be needed to accommodate the different ways and foci of learning that are emerging as legitimate perspectives on intelligence and competence. New processes and functions are needed to allow an expansion of the concept of extension as a process of co-action and collaborative learning and researching. And finally these initiatives will all have implications for the way universities are organized and the way by which they and their social fabrics are inter-related.

B-2.5 Summary

In summary, the dramatic increases which have been achieved over recent decades in the growth in agricultural productivity have tended to overshadow attempts to develop more systemic models of development through learning.

To turn this situation around will necessitate important re-directions for universities concerned with agricultural and rural development. In particular, the situation calls for a focus to the debate about universities in the process of development and to issues relating to:

- their fundamental purposes and missions
- their relationship with their environments
- their organization in the face of change; and

- the processes by which each of the above issues is to be tackled.

Such a focus can be provided by encouraging universities to conceptualize themselves as learning systems; organizations which:

- have as their basic purpose (transformation) helping people to learn more effectively
- themselves learn through the synthesis and synergy of the learning of the individuals within them
- build linkages with a wide range of environmental domains in ways which facilitate inter-dependent learning for effective mutual influence
- are organized (and managed and led) in ways which enable them to retain their integrity yet have the inbuilt capacity to change their structures to accommodate new thrusts.

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B-3.0 Learning and Leadership for Social Transformation:

UPLB - A System in Transition

Richard Bawden

During the symposium/dialogue on the UP Presidency, on April 28th 1987, Dr. Jose Abueva concluded his address with the following statement:

The future of UP is not a place we are going to, but a place we shall be making together.

Not a path to be merely discovered but one to be made consciously and purposively.

And the activities we shall together do will change all of us as makers, and our destination - the U.P. dedicated to learning for social transformation and the lasting betterment of all Filipinos."

Here is a call for those within the University of the Philippines to transform themselves as a prerequisite for transforming the whole University itself as an integral part of the process by which it will help in the comprehensive transformation of Filipino society. As the university at Los Baños is an integral part of the system of which Dr. Abueva is now President, it makes sense to review just what is being done by those who constitute it, to transform UPLB as "a place, a path, and a destination."

A major concern here are the processes which are in place to create visions and conceptualize frameworks and models for the development of strategies designed to lead to desirable and feasible changes in the people within the university, in the whole university itself and in the environments with which the university interacts.

A logical starting place for an analysis of the present is to examine reviews of the past.

B-3.1 Past Reviews.

UPLB has been reviewed on a number of occasions over the past decade, both internally and externally.

The World Bank published its first impact evaluation of the University in 1983 following a four person mission of review in January/February 1980. This mission took the form of an ex post assessment eight to nine years after the First Education Project was physically completed and five to six years after the audit of performance.

A further brief review has just been completed by a member of the OED Office of the World Bank (July/August, 1989) although no report is as yet available.

Early in 1987 Chancellor de Guzman launched a series of Program Review activities within UPLB which included evaluations of individual academic units and which culminated in the release of a report summarizing the findings and presenting the recommendation of an External Review Team for the entire University, chaired by Dr. Marcos Vega. The teams responsible for these reviews, drew on reports of program review committees, development plans, annual reports, faculty planning workshops and interviews. The summary report synthesizing the individual unit reports included more than 200 recommendations.

As an *ex post* evaluation, the World Bank's 1983 report focused almost exclusively on a review of achievements.

It concluded *inter alia*, that:

"UPLB has become not simply an outstanding Philippine university; it is an outstanding Southeast Asia university serving an appreciable number of foreign students."

Highlighting the areas of academic standards, research programs, contribution to national research capability and extension, the report went on "... the achievements of UPLB in these selected areas have been remarkable; in particular, the influential role of UPLB in national policy in agriculture." And it emphasized the fact that alumni "... hold key positions in the Philippine bureaucracy such as the Bureaus of Plant Industry, Fisheries and Aquatic Resources, Vocational Education, Prisons, Animal Industry, Forest Development, Cultural Minorities, Constabulary, Internal Revenue, Public Works, Philippine Army, Fiber Inspection Service, PNB, DBP, CB, NEDA and the provincial and municipal governments." It is significant that only nine years later, the general impression gained by the present evaluation panel was that the graduates of UPLB were NOT commonly encountered in positions at the highest level of Government or in Bureaucracies. This may be a difference in perception associated with the distinction between policymaking and policytaking - between government and bureaucracy! It might also be a function of the rural sociology in the Philippines. It is one thing to accept the prevailing social order and provide leaders who can reinforce the *status quo*; it is quite a different situation to train a cadre of leaders who will critique the state of society and be influential in changing it. It is often stated that agricultural universities reflect the basic conservatism of the sector in whose tradition they are born. In the present context the following social hypothesis is suggested: the agrarian sector in the Philippines has yet to rid itself of the traditions of servitude, and to substantively direct the institutions that most influence it. A related hypothesis is that UPLB, in and of the rural sector, reflects the reticent, deferential character of its constituency. And this is further affected by the university's own tradition in

technology. In the past, science and technological development have been regarded as "value free" and objective, and not bound by concern for any impacts that were beyond those anticipated. Influencing policy in science and technology has therefore been historically considered a relatively safe strategy. This situation has seen a dramatic turnaround in recent years as rural development has called into question both social and environmental impacts of technology as the responsibility of everyone including those who generated them. The education of the conventional technologist does little to prepare him or her for these new and complex situations.

The specific focus on agriculture is most significant in the Bank's report: "... the development of the Los Baños campus with the aim of creating a national center of excellence in teaching, extension and research in agriculture," bearing in mind that the project was completed in 1973 and the report compiled between 1980 and 1983. . For it was during this ten year period that there were a number of most significant events in the political economy and climate of the country which impacted grossly on the rural sector. Indeed it was in 1973 that UPLB was actually granted the status of an autonomous institution in a context which included the need to establish "...an agricultural center that will effectively mobilize and totally, realistically and directly apply its academic and technical expertise and physical resources to achieve the purposes of the New Society." That New Society was to be based particularly on the twin pillars of:

- agricultural and rural development as the foundation for industrialization and social and economic progress

and

- the proclamation of the entire country as a land reform area to emancipate tenant farmers from the bondage of landlordism as a pre-requisite to the development of a strong and viable economy.

Agrarian reform then, would be the cornerstone of the social transformation sought by President Marcos - and UPLB was mandated to be the institution to "... achieve the purposes of the New Society". With this covenant, UPLB was given the opportunity to fundamentally review the nature of its essence as an institute of technology and its prevailing paradigm of positivist and reductionist science. The message was clear :- transform yourself and change the way you do things in order to extend your focus from agricultural production to comprehensive agrarian reform . In some senses this was equivalent to ordering a revolution!

Given the magnitude and implications of this imperative, it is extraordinary that the World Bank review should make virtually no mention of this need for an internal reform by the university nor of any of the transformations or their outcomes, that did occur.

B-3.2 An Extended Vision - An Essence under Review.

From being merely a center of teaching, research and extension essentially in technical agriculture and forestry, UPLB was now envisioned, at least by those in Malacañang Palace, in the much broader context as the critical resource center for comprehensive agrarian reform and multi-faceted rural development. A new mission had been mandated from the President of the nation that gave license to UPLB to shift its strategic focus from being an agricultural university to being a more comprehensive university for rural development. This represented a most significant imperative, yet surprisingly the Bank's Impact evaluation had little to say specifically of such a mission, and virtually ignored this larger dimension in its review, completed 10 years after the decree. Accordingly it is very difficult to assess the reasons for the apparent lack of rigorous transformation of what we might term the essence of the university as well as of the prevailing paradigm of technology generation and transfer. While there is no doubt whatsoever that technology development is a crucial element in any strategy for rural development, there are other crucial dimensions which must be incorporated into the activities of any university that wishes to extend its mandate - and its paradigms!

Perhaps even more surprising was the lack of any rigorous analysis in the Bank's report, of the state of the environment in which the university was operating at the time. It did not refer, in any meaningful way to the state of agriculture in the nation or the role that UPLB graduates might be perceived to be playing in its presumably improving state. There was no mention of the state of the natural resource base in which agriculture was being conducted; no mention of the degree of population pressures on land or on markets and other infrastructures; no mention of any outstanding technologies that UPLB had developed which had impacted on Philippine agriculture in any significant way. Such technologies however, must have been available for it was noted that "...the utilization of UPLB research findings had been limited." The reasons, for this as cited in an early comment released by the Bank in 1975 were :

- (a) a shortage of both government funds and trained manpower for extension services and (b) that the planned reorganization of agricultural services under the Loan Agreement had not materialized although a new department of agrarian reform had been created.

In its report of 1983, the Bank expanded on the subject of extension in this manner: "The UPCA/UPLB role in the nation's agricultural extension effort and the internal organization of the University for implementing its own extension function underwent some evolution throughout the 1960's and 1970's ... while UPLB never lost sight of the importance of extension, there was seldom any long-term unanimity among the leadership, whether on the scale of effort needed and its co-ordination and focus or on a priority in extension; nor was there ever a budgetary commitment to extension which matched the verbal commitment."

And tellingly it added "... Nevertheless, despite the fact that UPLB eventually did not accept the idea of involvement in extension in terms of direct "grass roots" responsibility ... UPLB was deeply involved in activities which must be classified as extension. This concept of a broader and differentiated cultural impact was valid in the context of its very image which, with some justification, was not that of regional or district university but rather that of a natural and international institution." (emphasis added).

This issue of self-image lies exactly at the heart of the debate about UPLB's strategic future and the mechanisms that it is using to create it. It is our submission that the self-image that has guided UPLB in its development to date, and which continues to prevail, is that of a successful university in the "land grant" mold.

B-3.3 UPLB in the Land Grant Mold.

By the late seventies, it is clear that UPLB had developed into a successful, sophisticated agricultural university in the American "land grant" tradition. The technologically powerful Colleges of Agriculture and Forestry were both focused on, and indeed structured around, the classical trinity of functions - teaching, research and extension (although as we have pointed out, considerable ambivalence surrounded the concept and practices of extension).

The Philippine version of the land grant university (LGU) model however, differed in a number of very important aspects from its American counterpart:

- Far from being part of a co-ordinated national network of campuses and research stations spread across the geo-political and/or agro-climatic zones of the country, UPLB was a highly centralized institute
- Whilst there had been some attempts to broaden the focus of the university, the overwhelming imperative remained agricultural (and forestry) technology as grounded in the natural sciences with their pervasive philosophies of reductionism and positivism. The social sciences remained but weakly established.
- Where the linkages with, and the policy influence over the national research agenda in agriculture and forestry were particularly strong, the same could not be stated for agricultural education nor for extension; nor could it be claimed for macro-agricultural or agrarian policy.

- The organization of the national extension service was such that vital feedback mechanisms, linking the process with research, was essentially absent. Such was the lack of influence of provincial governments on national institutions, there was no way that legislative pressure could be brought to bear to influence research directions.

The University was apparently aware of many of these limitations and attempts were being made to address them. Concerned by the apparently unregulated proliferation of regional colleges and universities offering sub-standard agricultural baccalaureates for instance, UPLB had been prominent in the initiation of the Technical Panel on Agricultural Education. It had also established a Center for Policy and Development Studies (in 1974) and mobilized the resources of the Agricultural Credit and Co-operatives Institute for a major research project (1973-1979) into the new co-operative development program. In 1975 it had introduced a Masters Program in Agrarian Studies to assist in its new mandate for agrarian reform. The Institute of Human Ecology, and the College of Sciences and Humanities were both founded in 1973 as part of the vision to strengthen UPLB as it became an autonomous university within the University of the Philippines system.

These initiatives were launched to help UPLB become a different kind of institution from that which had thus far developed. The intent was to broaden the scope of the university's activities to better accommodate a more comprehensive model of rural development set in a new and critical context of radical land reform. UPLB would now be seen as key center for agrarian reform in the context of the nation needing new patterns of land holding, new patterns of production, new technologies to enhance productivity, and new infrastructures to support all of this. From a relatively straightforward goal of increasing the production of a number of crucial crop and livestock species, the university had been handed a series of very complex issues with which it now had to deal. We would now recognise, with the benefit of hindsight, that key to the success of such a change in mission was the need to establish new models for thinking about these complex and interrelated issues. What was urgently needed was the development of paradigms, more appropriate than that which prevailed. It appears in historical review that whilst elements of this process of transformation in prevailing paradigms did occur, a total transformation in ways of thinking and acting to embrace the new mission, was not pervasive.

We speculate that the widespread and the fundamental debates and creative discourse that would have been necessary to sustain this momentum, did not occur. Although new organizational structures were formed to accommodate the new role of the university as an autonomous institution, it seems that no major challenge was mounted on the way the university conceptualized either the challenges ahead nor the way it went about addressing such challenges.

Thus although the College of Sciences and Humanities (now Arts and Sciences), included crucial foci on the humanities as well as both social sciences and basic natural sciences, the paradigm of technology and applied natural sciences remained paramount in guiding the activities of UPLB. Similar comments can be made about the apparent lack of influence that the initiatives taken in the other new academic units were to have. This was in spite of the fact that much of what was occurring within them was of enormous potential significance within the context of the development of paradigms highly appropriate to the newly recognized interdependence between the farmer, his farm, the market place and the natural resource base upon which it all depended. If such opportunities were lost however, the foundation of these units did set in motion a number of internal forces which would inevitably create tensions around the issue of the mission of UPLB - of just what "business the University should be in." and "how it should conduct that business." It also set in motion concerns about the essence of UPLB - of just what "kind of place the University should be".

In all of this UPLB was not alone for similar momentums were being launched at the same time in many different places of the globe.. It is extremely disappointing to see no mention of any of this in the World Bank impact evaluation of that time!

As is revealed below and in the appendices attached, much has happened at Los Baños over the intervening ten years since the World Bank evaluation impact. And it was therefore timely that the Chancellor initiated a whole new process of internal and external reviews as he took office. It is to the reports from these reviews, that we now turn.

B-3.4 A Review of Current Reviews

As mentioned previously, the latest approach to evaluation was *ex ante* and the summary report contained more than 200 specific recommendations spread across 14 of the university's academic units. In a different section of this report, we address in some detail, a number of the recommendations that arose from that review process. Here we will confine ourselves to some generalities about the major outcomes and about the process itself.

In their summary, the reviewers recorded that "...the operational highlights, problems, and recommendations relative to the problems of the structures under study, were varied. They were peculiar to the mission/function/activity/staffing/leadership/view of the future of every structure concerned. However, commonalities were discerned with regard to specific problems."

These commonalities were then addressed under the four categories of :

- management
- programs

- physical facilities and equipment, and
- financing.

The purpose of the *ex ante* review was summarized in the report of the team chaired by Dr A Gomez which reviewed the College of Agriculture. As stated there, it was to "...appraise past and present activities...and correspondingly identify its future directions...as bases for evaluation, the Committee identified the future outlook of Philippine agriculture, the role that UPLBCA should play in this prospective outlook and, consequently, the types of programs that UPLBCA should focus on." This was both an awesome, if not presumptuous task. By our definition, strategic planning is a process of decision making and taking by those people whose destinies are affected by the outcome of those decisions. Review reports in this context therefore can only ever be presentations of possible scenarios; vehicles for debating desirable and feasible changes and not vehicles which prescribe changes that should be made.

Much of the criticism levelled at the World Bank reviews for essentially missing the more profound issues associated with the way by which UPLB was or was not dealing with its new context of rural development in concert with radical agrarian reform, are even more more pertinent here. Not only have tensions between those who subscribe to different paradigms, built up in the interim, but there have been many changes which have occurred in both the university and in the environment beyond. Too often it seems from the current reports, these two sets of developments have occurred independently of each other. UPLB does not seem to have been in as close a contact with its manifold environments as it could have been. As a result we can hypothesize that opportunities have been lost to establish vitally needed relationships between the university and many domains which would have resulted in mutually beneficial influence. within the university and in the environments beyond.

In not exploring these more profound dimensions, the *ex ante* reviews have lost the opportunity of facilitating debate around these notions, so critical in the strategic development process.

While it is true that in most instances the Review Committees had access to previously generated College and Institute plans, and had fairly extensive conversations with personnel from the respective academic units, there is little evidence that they explored the processes by which each unit was planning its future; nor was there evidence of significant exploration of the grounds upon which the respective missions were developed. Neither of these issues rated any mention at all in the "commonalities" section. Even more surprising perhaps was the lack of reference to the World Bank Review and to changes that might have occurred in the interim, in both the university and in its environments.

In spite of these deficiencies however, there were many issues highlighted which the present Panel have subsequently also rated as most significant in the context of UPLB planning future strategies which were aimed at more closely aligning it with its changing environments.

The most substantial criticism in addition to the points raised above, was that the review failed to give any evidence that it had addressed the issues basic to differences in visions, missions, and strategies along with any paradigmatic significance that this might represent. In other words, the reviewers tended to accept the model of the university as given, looking only at what adjustments could be made to make it more effective. This present evaluation review intends to redress this deficiency.

In this regard, we can enter the debate by suggesting that there are some serious underlying tensions at UPLB which reflect some significant differences in perspectives and beliefs about the nature and "business" of the university. We also posit that these issues must be urgently addressed, for the situation in the agrarian sector in the Philippines is steadily worsening and UPLB is not being encouraged to play a central role in the new, post Marcos "New Society." Once again the needs for the sector are being articulated in terms of rural development as a significant process of social and environmental transformation. Once again, radical land reform initiatives have been initiated as part of the desired transformation although on this occasion, the legislation is being effected by a democratically elected Government. The situation has become even more complex with serious degradation of the natural resource base now so severe that in some cases it seems almost irreparable. So once again, the challenge is for UPLB to facilitate the development of paradigms which will enable these issues to be addressed in all of their complex interdependencies. There are those on campus who already believe that they have approaches which are appropriate in this context. But they face the momentum of the inertia of convention, and this is creating tension!

B-3.5 The Tensions of Difference

It is probable, that until recently, these concerns and tensions associated with differences in opinion about the essence and mission of the University have remained unaddressed, as faculty and administrators have dealt with other more obvious concerns. Different ideas concerning the mission of the university and some of the tensions associated with differences in interpretation of just what kind of place UPLB should be however, are now surfacing, albeit often in ways as indeterminate as a pervading sense of unease or a depression in personnel morale. These issues are appearing on the agenda as UPLB begins to grapple with its future. Debates about the future of the university and about issues associated with changes in its strategic directions are occurring and reference can be found to them in the plethora of reports, reviews, plans and interviews available to this panel.

However as an issue central to their immediate future and to the "*path, place and destination*" of their long term societal role referred to by President Abueva, it is our observation that the debate lacks focus, quality and scholarly commitment. It does not appear to be a pervasive current within the the ambience of the system nor does it seem to attract persistent participation.

Rather than there being a prevailing sense of excitement about the desirability of "creating brave new futures", the panel encountered a prevailing sense of frustration about the "inadequacies of the present." There was certainly a widespread recognition of the need for UPLB to change much of what it did, but with rare exceptions, there was a strong commitment to incrementalism - of marginal adjustments to the existing model (of the university as an agricultural university in the land grant mold) - rather than to more radical reform through internal transformation of the institution and its component parts. This is in spite of a commonly expressed sentiment that "...UPLB has somehow lost its way and is no longer in top favor with the policymakers in Manila. "

It is true that in the eyes of many observers both within and without the institution, UPLB remains the central national research facility for technological development in agriculture and forestry. Its graduates have established reputations of high scientific and technical merit as would be expected of a conventional technological culture. It is seen as being fairly passive about its own future, and fairly inactive in advocating better futures for those who live and work in rural communities. It is seen as having accepted a role to service society rather than to transform it and it is seen as being comfortable with that role, although expressing the desire to have more resources to play the part more effectively.

This passive role, if generally accepted, could have very serious consequences for UPLB. There is for instance a feeling that, in a number of important quarters, the continued growth in agricultural productivity is no longer central to the national development strategy of the Philippines. Such a sentiment needs to be severely refuted, given the scenario of rural poverty and population pressure that has been presented. If comprehensive rural development through agrarian reform is to be successful in transforming the lives of those rural Filipinos caught in the poverty trap, then the farms to which they gain access, must be capable of being productive. In its quest to become a newly industrialized country by the turn of the century, the Philippines is in danger of neglecting its vital agricultural base.

And it is this threat above anything else which might now provide a vital impetus for a fundamental re-appraisal of the future of UPLB. Now is the time to openly and frankly discuss the many different worldviews and perspectives which are held by individuals and within different groups and units across the university. Now is the time to admit the presence of paradigms other than that which has prevailed to date; to accept them as not only legitimate but as potentially extremely relevant to the development of a new essence for the university.

The fact of the matter is that although one dominates over all others, at least four paradigms are recognizable on campus as revealed in details of course curricula, research agendas and publications, and in details provided of "social action projects". Perhaps more significantly, they are also revealed in discussions about different scenarios for future strategic directions considered desirable and feasible for UPLB to take.

Although statements of strongly held opinions about the future were often encountered, they were rarely articulated as differences in underlying beliefs about the changing role of universities in society or as fundamentally different beliefs about the nature of respective paradigms. In this regard, we suggest that four major scenarios for the future of UPLB currently find favor amongst different people who care about the future of the university. Thus there are constituencies for support for the following propositions that UPLB should:

1. Maintain its focus on agricultural (including forestry) technology whilst improving its delivery systems via education in one form or another, in the name of more productive agriculture. This we might refer to as the discipline-based, or agro-technology paradigm.
2. Extend the focus on technology beyond the farm, to embrace broader application in agro-industry, agri-business and non-agricultural application of biotechnologies, electronic technologies and perhaps even super-conductors, in the name of comprehensive development towards being a Newly Industrialized Economy. This we might call the multi-disciplinary or high technology paradigm.
3. Change the focus from technology-centered development to people-centered development through a strong emphasis on social sciences and humanities and their integration with the natural sciences in the name of social transformation. This represents an inter-disciplinary, or social transforming paradigm.
4. Change the emphasis from both technology and people as the central focus for development and turn to a systemic or (social)ecological view which puts the relationships of people with their environments at the center of the model. This we might refer to as the trans-disciplinary, or systemic paradigm.

We would suggest that far from merely presenting different views on the future, subscribers to each of these respective paradigms hold very different views and beliefs on a whole range of issues. When such differences are left unexplored they can lead to tensions which markedly reduce the quality of the relationships which exist within the university as well as those which link the university with the environments beyond. In this manner, the

tensions of unaddressed differences in paradigm can result in many aberrations in the behaviour of the university which are then often diagnosed as symptoms rather than basic syndromes of malaise and treated as such. The profound causes of the dissatisfaction remain in place, continuing with their destructive influence.

The models for change above and their respective paradigms are not necessarily mutually exclusive: Indeed when managed creatively, there can be extremely potent synergies that are released by their synthesis. So we are certainly not advocating that UPLB should adopt one of the models at the exclusion of the others.

Yet what so often happens is that one paradigm tends to dominate over all of the others thus seriously suppressing genuine attempts to introduce a new and more appropriate order of things into the institution. It is the dominant paradigm that dictates the major research agendas, the nature of curricula and of the various types of outreaching activities in which the university participates. It is even in large part, responsible for the type and number of students who enroll, and for those who seek faculty positions. Finally it is in large part responsible for the quality of the external support it is able to garner.

In the case of UPLB it is quite clear that the dominant paradigm to date has been that of the positivism and reductionism of model 1 - a view of the world that holds that the nature of the objective world can be discovered to reveal those truths that will be needed to solve its problems, and that the only way to really discover these truths in a world as complex as it is, is to break it up into its component parts and study them in isolation. A brief review of the statistics on research projects in progress, confirms this with more than 90% clearly focused on technology and technical contexts. We can conclude that as an institute of technology, UPLB remains the premiere institute lauded and well patronized by Departments of Science and Technology, Agriculture and Environment and Natural Resources. There are those within the current Department of Education Culture and Sports who would see it given a more central role in a National Agricultural Education System - and there is a macro-plan to that effect currently before the legislature.

It is NOT regarded however, as the premiere institute for effecting comprehensive agrarian reform or integrated or systemic rural development, nor is it yet widely regarded as a central vehicle for the social transformation of the nation. The positivism and reductionism of the technological paradigm is less relevant in this regard; indeed in some senses they are a definite impediment. The world, especially with its human components, no longer seems to be explicable in terms of ultimate truths. It now seems more advantageous to talk about interpretations or "constructions" rather than positive truths. Furthermore, there also seems to be advantages to viewing the world and issues within it with a sense of their wholeness - hence constructivism and holism.

So if UPLB is to become a resource central to the higher order events of comprehensive national reform, it is most probable that it will have to develop its alternative paradigms very significantly while not losing the power of those which have guided its past. Of equal importance in the next phase of its strategic development, is for UPLB as a system attempting to realign itself with dynamic environments, to carefully listen to and interpret the "noise" in its environments.

B-3.6 The Environment of the System.

The signals from the environments around UPLB are as confusing as they are ambiguous (if not downright contradictory).

- The Philippines is intent on becoming a Newly Industrialized Economy by the turn of the century. (Industry's contribution to the nation's balance of payment has already outstripped that of the rural sector by a factor of 2.7 in gross value terms).
- Agriculture is vital to the nation's economy as a means of livelihood for millions, a secure source of food for all Filipinos, and as a major contribution still to the nation's serious balance of payment problems.
- Comprehensive agrarian reform is the cornerstone of the new, post Marcos "New Society" founded from the People's Revolution of 1986 with several million rural families to benefit from the redistribution of land.
- The inter-related factors of poverty, population pressure and environmental degradation are so active and pervasive that they threaten the whole momentum of development - whatever its source - and continue to feed the cause of the dissidents.
- It is argued that the only way by which these extremely complex matters can be equitably resolved, is for there to be a fundamental regionalization of power and responsibility.
- Globalization of agriculture, internationalization of trade, new geo-political alliances and the inter-connectedness of environmental issues highlight the importance of national government's framing policies in international contexts.
- The burgeoning of new, powerful and non-site specific technologies, especially bio-technologies and electronic informatics, present both opportunities and challenges to all nations especially those of the Third World.

- The development of integrated agri-business corporations is providing opportunities for graduates with entrepreneurial skills plus a sound knowledge of technical agriculture.

With all of these messages in its environment UPLB must be as puzzled as it must be disappointed at the slow rate of development of the rural sector of the Philippines. It must be difficult to remain optimistic when, as Gustav Ranis (1989) submits "...the Philippines had in the 1970s - and still has today - one of the worst income distributions in all of Asia, as well as the largest percentage of its population in absolute poverty in South East Asia." This Yale economist continues "... let us also recall that the Philippines, in spite of land reform efforts which can only be characterized as half hearted, sports one of the worst land tenure systems, the largest mass of land less rural workers and the most pronounced urban bias."

To these daunting claims must be added the view, articulated by Porter and Ganapin (1988) of the World Resources Institute that "... the Philippines economic and political crisis is related to a larger ecological crisis: the erosion of the resource base by environmental mismanagement, the greed of some politicians, and population pressure." They continue "... whether the Philippines avoids a collapse of free institutions will depend on the country's ability to orient its growth to sustainable development and, in some cases, to restore and rehabilitate the resource base, and to distribute more equitably the people's access to productive resources."

In the face of these issues in its environment, UPLB has its own crisis - whether to maintain its focus and essential efforts in maintaining its position as the national center for technological development in forestry and agriculture, or to broaden its mission and change its very essence!

B-3.7 A Turning Point

It was suggested above that the four models or paradigms that were proposed as being recognizable at UPLB, were profoundly different from each other. Another perspective would be provided by suggesting that each represents a phase along a path of evolution already traveled by UPLB, with each phase growing out of its predecessors while retaining their essential attributes. In other words it possible to view UPLB as a system already in evolution. Yet to complete this metaphor, we would have to suggest that at certain key moments, or points along the line, the system is able to mutate: To change some of its aspects and behave in a profoundly different way. To provide another metaphor, this is equivalent to taking a jump to a new level of complexity which demands a reconceptualization of its affairs. Thus while plans might be made to do some things differently, they will not flourish unless there are those who are prepared to take the "quantum leap" and explore new ways of thinking and new ways of doing things. This is what we mean by paradigmatic shifts.

An example of elements of this is provided by the College of Agriculture.

The strong discipline base which was evident in UPCA before autonomy, remains to the fore at the present. This is reflected in the research projects, the curricula and even the structure of the College of Agriculture as it exists today, albeit finding itself strongly under challenge. Thus Dean Villareal's call for a re-examination of "... the content of the agriculture courses in the BSA, BSDC, BSAC and BSFT programs with a view to integrating these into farming-systems type of courses, problem and issues-related, instead of the current discipline-oriented courses" is a clear example of such a challenge to the prevailing model as far as curricula are concerned. And similar sentiments are found in his claim that already "... our collaboration with other UPLB units has covered such interdisciplinary fields as pest management, genetic resource conservation, crop post-harvest, farming systems, food engineering and science education." For the future "... we need to expand into other new and pioneering areas... where together with those from other Colleges we can more effectively address the problems of rural development through teaching, research and extension programs."

This commitment to realignment is most significant and is strongly endorsed by the external review committee chaired by Dr. Arturo Gomez. Both the need for "... more emphasis on experimental curricula" and the strong pursuit "... of the problem-oriented type of research" is clearly supported.

Within the Gomez report there is a most important insight into the nature of science as a pervasive way of behaving; one to which we shall return later. Suffice it to say at this stage that it heralds a particular view of the university as a researching or learning system characterized as much by the search for new ways of knowing as for new knowledge. Thus as far as extension is concerned the review report contains the recommendation that "... the current emphasis on countryside development programs should be continued, but that more emphasis should be given to experimental and new development strategies that could later on be the basis for the government's extension programs." A link for this call for research into the methods and methodologies of the processes of extension, is also found in the sections on curricula and on research itself.

B-3.8 Strategic Redirection and Paradigmatic Change

The preceding elaboration has been by way of exemplifying the general thesis that there is an evolution going on at UPLB that is much more than a change in attitude towards disciplinary science. What we posit here is that these movements:

- (a) reflect an awareness of the importance and possibilities of changing the nature of UPLB's basic "business"

- (b) represent fundamental shifts in paradigms - in knowledge about knowledge, and about ways of knowing about ways of knowing.
- (c) allow for profound reconceptualization of the role of universities in general and UPLB in particular.
- (d) will cause conflict and tension which can be destructive, if left unaddressed, but incredibly creative if harnessed through vigorous and scholarly debate about paradigmatic shifts.

Rather than following a process of evolution through slow natural selection as responses to external mandates, we are arguing strongly for the need for more comprehensive transformation, to allow the mutation of a "*paradigmatic shift*". For in this way one can convert otherwise negative criticism and the intolerance born of confusion, into constructive creation thus leading to enduring transformation. Incremental evolution does tend to lead to an insidious sense of unease, of unresolved tensions of difference, and of eventual reinforcement of the conventional when innovations are abandoned through lack of support.

There are probably plenty of examples in the recent history of UPLB of forays into new paradigms. Indeed one can posit that at the moment, one can find examples of all four models existing in varying states of academic health, and existing as outcomes of curricular and/or research and/or extension activities. For the purposes of debate we might suggest the examples in the list below. It is probable that each of the units shown has had to "*fight*" to sustain its difference in the face of those who do not either (a) understand that difference or (b) accept that difference as legitimate academic endeavor.

Many of the different initiatives flowed from Presidential Decree when the University was re-organized in such a way that its new structures could support the development of new paradigms.

<u>Model</u>	<u>Focus</u>	<u>Unit</u>
I	Disciplinary	College of Veterinary Medicine Institute of Math, Science and Physics Colleges of Agriculture and Forestry Institute of Chemistry
II	Multi-disciplinary	National Institute of Biotechnology National Crop Protection Center Farming Systems and Soils Resources Institute College of Engineering and Agro- Industrial Technology
III	Inter-disciplinary	Institute of Development Communication Department of Social Sciences Department of Humanities College of Economics and Management Center for Policy and Development Studies
IV	Trans-disciplinary	Institute of Environmental Science and Management Department of Social Forestry College of Human Ecology

These developments have occurred despite the apparent lack of significant, participative debate on the profound questions relating to essence and future strategic directions of UPLB and in the probable lack of discussion of the differences as paradigms. It is perhaps surprising that changes in organization of the university could occur without any change in its tripartite structure based around teaching, research and extension. These three functions reflect their firm grounding in the positivistic and reductionistic traditions of technological agriculture and are far less appropriate to the sort of developments represented by :

- The establishment of a College of Sciences and Humanities (1972)
- The launch of "The Research and Evaluation of the New Co-operative Development Program" by the Agricultural Credit and Co-operatives Institute in 1973
- The establishment of Human Ecology as an Institute, and Policy and Development Studies as a Center (both in 1978)
- The foundation of an Institute of Agricultural Development and Administration in 1975
- The offering of a Masters program by the Agrarian Reform Institute (1975)

These initiatives are all in the tradition of constructivism rather than positivism; of the entertainment of different interpretations of the same event rather than the search for the right one! They also all transcend the single-discipline model.

As with the major research initiative of ACCI, which was to extend from 1973 to 1979, the structural changes in UPLB were accompanied by a number of new research directions. Thus the conventional and ever-strengthening endeavors in disciplinary technological research and development in agriculture and forestry would now be strongly complemented by multi and inter-disciplinary work involving social sciences. Trans-disciplinary or systemic initiatives however probably had to await the marked reorientation of the Human Ecology paradigm and its structural transformation from an institute to a college, in 1983.

Through these major initiatives, UPLB has had to accommodate a new cultural pluralism. Perhaps the greatest weakness in the process of strategic development at UPLB so far, has been the isolation of each academic initiative from the others in terms of scholarship, and this had led in turn, to lost opportunities for intellectual interchange around the issue of paradigms. This independence in the place of interdependence has been further exacerbated by the physical separation which seems to follow every organizational innovation at UPLB. At the moment of writing, there are around 65 major academic organizational units listed at UPLB - not a bad thing in itself unless it represents a fragmentation of different ideas and resources, and a lack of cohesion as a whole system in evolution.

With the expansion of the activities of the university associated with all of these initiatives, has come an inevitable change in its academic and structural profiles. As far as educational programs are concerned, the significance of this is revealed in the following data. In 1979/80, the final year included in the World Bank Impact Evaluation, total enrollments stood at approximately 5,000, of whom, 20% were enrolled in the B.S. Agriculture program and roughly 10% in both Agricultural Engineering and Agricultural Business/Economics undergraduate programs. Slightly over 20% were graduate students with around three-quarters or more of all these, in agriculturally related programs.

By 1988/89, a decade later, the total enrollment at UPLB had risen to 7,000 of whom less than 800 were enrolled in the B.S. Agriculture program representing only 11% of the total. In contrast, the undergraduate enrollment in the College of Arts and Sciences has risen to around 1800 which gives it the largest undergraduate cohort of the whole university with 26% of the total enrollment.

Across the University there are currently 26 bachelor programs on offer, with 12 of these in the College of Arts and Sciences. Of the 42 masters and 19 Ph. D. fields on offer, the College of Arts and Sciences offers 9 and 5 respectively. CAS now boasts approximately 30% of the total university faculty population.

Clearly, UPLB has already evolved into a multi purpose, pluralistic university, yet its ethos and its organizational structure still reflect, to a large extent the essence of an agricultural university; a system dedicated to the transformation of levels of productivity of the farms and forests of the Philippines, through the generation (through research) and dissemination (through teaching and extension) of technologies which are essentially commodity and discipline specific.

This view is reinforced when the prioritization of research thrusts saw the following initial list :

- (1) Sustainable productivity.
- (2) Energy,
- (3) Appropriate processing industries,
- (4) Environmental management,
- (5) Technology assessment and policy studies,
- (6) Equitable socio-economic studies,
- (7) Philippine culture and social change,

amended to read:

- (1) Reforestation and agroforestry,
- (2) Coconut,
- (3) Environmental management,
- (4) Conservation and Management of Native Stocks of Plants and Animals,
- (5) Sugarcane.

As it approaches the 1990's, with issues on the national agenda such as a macro-plan for agricultural education (NAES), a comprehensive agrarian reform program, a national goal of becoming a newly industrialized country (NIC) by 1990, and a clear covenant from the people of the country for a "better deal" in the face of increasing poverty, increasing population pressure on an already impoverished natural resource base, and in a state of ever-increasing indebtedness, UPLB needs to readdress its role and philosophies, urgently if it is to respond to the vision of President Abueva of the University of the Philippines as a university "...dedicated to learning for social transformation and the lasting betterment of all Filipinos."

Through all of the reviews of the past two years or so, and through the present investigation, it is difficult to establish just how UPLB is responding to that vision and transforming itself into a system dedicated to ".new places, paths and destinations", through learning.

With this new imperative along with all the other changes that are occurring in its environment, now is the most opportune time for UPLB to reconceptualize itself as an effective and efficient *learning system*.

B-3.9 UPLB as a Learning System for Social Transformation.

Leaving aside for the moment the argument that UPLB should go ahead and transform itself into a fully fledged, pluralistic university for the region or even the nation, one can look at two opportunities that the university currently faces to assert itself as something much more than an institute of agricultural and forest technology: we refer to the Comprehensive Agrarian Reform Program, and the National Agricultural Education System proposals.

Both of these challenges offer the opportunity to the university to be proactive in addressing the effectiveness and efficiency of the three transforming functions one would expect to find in a learning system:-

- The manner by which it helps people to become more effective learners;
- The manner by which it learns about its environments and how it uses this learning to influence them;
- The manner by which it learns about itself and how it uses this learning to become more effective at the preceding two functions.

Perhaps the most obvious starting point in using this conceptual framework in thinking about its future, is for the university to consider just what it means by the process of learning. And to do this of course, it first has to institute mechanisms which will encourage widespread and scholarly debate.

Debates of this kind will reveal a plethora of views, opinions, and constructs. These will be drawn as much from personal experience as from the published literature. In exploring these two vital sources of knowledge then, those within the university are themselves modelling what is considered by many to be the essence of the learning process: the dynamic flux between practice and theory, or from the reflections on what one does in the concrete world and how one makes abstract meanings out of that. Such an experiential model of learning is one frequently eschewed by the academic community, especially in its curricula and its "extension" programs.

Too often it is assumed that knowledge is a commodity that is generated by the expert thinker to be then disseminated, often through an intermediary, to ever-grateful recipients be they students, farmers, businessmen, or policymakers. This so-called propositional view of learning is one firmly rooted in the positivism paradigm. It is a view of learning which reflects particular views about knowledge, beliefs, skills and attitudes, and it is a marked impediment to institutional reform! In its view, curricula are built around a "progression" of theories and principles derived from scientific exploration. Such "bodies" of knowledge are considered essential to our effective functioning in the world around. It is also considered that such bodies of knowledge are best acquired by transmission from "teacher" to "student".

Just as this is believed for curricula and for extension, so too does it set the conceptual framework for much, if not most, scientific research. And because this disciplinary, reductionist view does so often dominate, it also tends to dictate the way by which the university is organized and structured. Finally, it presents a serious barrier to the planning process, in at least two major ways: firstly it relies extremely heavily on objective data as the basis for decision making and for the analysis and interpretation of such data by appropriate experts. In the second place, it supports an extremely fragmentary approach with the belief that knowledge gained about a myriad of pieces, can be united into an explanation of the whole situation. There are many, who in subscribing to a quite different paradigm, reject this. Thus the systemic thinker believes that complex issues are not best handled by reducing them down to their component parts, but that they deserve exploration in all of their inherent complexity. More and more it is becoming apparent that there is an urgent need for there to be established what has been called "the science and praxis of complexity". There can be no doubt that national development is complex and comprises an enormous number of interrelated aspects. Indeed it is the need to examine and improve the quality of relationships that lies at the heart of emerging views on the process of development.

If UPLB is to be more effective in assisting in national, or regional, or even sectoral development, then it must be prepared to investigate ways by which complex issues can be investigated and associated problematic situations, improved: if the learning system is to be more effective in helping in the social transformation of the Philippines, it needs to learn how to develop a new approach to dealing with complexity.

There are a number of examples from initiatives that are currently happening in the university, that suggest that this process has already begun.

Certainly, many of the complex implications of a comprehensive agrarian reform plan are well recognized across the campus as evidenced by the internal review materials as well as the recent external evaluation reports. As Dean Villareal of the College of

Agriculture has recently commented "... considering the scenario of Philippine agriculture after the Comprehensive Agrarian Reform Program (CARP) is adopted, we need to refocus our research in order to be relevant to the small tillers of the land ... farms would become smaller and more compact and diversified."

Yet it is not just a matter of *designing and extending* technologies for smaller farmers. The re-allocation of land from relatively few large estates, to millions of previously landless or small tenant farmers will have enormous repercussions on all manner of issues, as events in countries such as India, Chile and Mexico have revealed.

- The design and management of multi-enterprise small farming systems present many difficulties to the productivity-oriented technologist educated in a monoculture tradition.
- New challenges are raised for infra-structure engineers as the needs for irrigation systems, farm to market roads and communication networks change.
- New small scale machinery is needed as are inventories and distribution networks of inputs such as credit, fertilizers, seeds and fuels.
- New marketing mechanisms and processing plants will be needed; co-operatives will flourish.
- New policies, especially for tenure rights will be needed, but so too will there be needs for policies in other areas, especially prices and for environmental protection.
- New, regionally strong but nationally co-ordinated services like education, research and extension and other outreaching functions, will be needed.

And so on. The implications for the whole structure of Philippine agriculture and its rural sector as a whole, are simply enormous. Perhaps the over-riding feature will be the change in the political economy of the Filipinos, as previously powerless people are empowered through access to resources. But fragmentation of estates can often lead to distortions in previous trade patterns. It can also lead to reduction in productivity per unit area, although this need not follow.

The issue is crucially important however, for at risk is:

- the food security of all Filipinos, especially those in urban areas
- the income of farmers and the welfare of their dependents
- the tax revenue of the government from farmers and the traders of farm inputs and produce

- the 14% or so rural products contribution to the nation's export income (down from the 64% level of 1975)

At risk too, is the quality of the natural environment which is supporting agriculture as its resource base. Environmental degradation, especially in the upland areas of the country is already severe and widespread. With the competition for such resources continuing to increase in the face of a net population growth rate which exceeds 2.5 per cent and an insidious growth in rates of unemployment and underemployment, this situation will be extremely difficult to improve.

The need for a profound look at the concept of agrarian reform was highlighted recently from within the university. In discussing the future of the Institute of Agrarian Studies, the committee chaired by Ledevina Cariño urges a "...consideration of agrarian reform in the context of the vision and process of development". This recommendation, it was emphasized, "... comes from our understanding that agrarian reform is not a technique as much as a change in systems, or even a way of life."

As for agrarian reform, so for agrarian reformers; setting new strategic directions for UPLB is not a technique, but a change in systems. To be optimally useful as a *key strategic center* for the transformation of rural Philippines, UPLB needs to mobilize its human resources in such a way that the tensions of difference about all sorts of issues can be addressed in creative ways. This must include opportunities for the subscribers to all of the extant paradigms within the university to bring their theories and experiences to bear on these highly complex issues. By sharing details of those paradigms with their colleagues, new views and strategies should emerge which cannot help but provide a host of new constructs that will guide future initiatives relating to the ways the University conducts its business.

There will need to be clear enabling mechanisms to allow for such exchanges to occur. Academics, administrators and staff from within the university will need to engage in purposive and committed discussions about their differences. These debates must transcend the more obvious issues concerned with conditions of employment, although it must be recognized that these are real and that they must also be part of the dialogue.

Trans-institutional groups must be organized around themes such as:

- innovative curricula in the face of the emerging needs for new competencies for professionals skilled in dealing with complexity as well as in dealing with specific issues within the overall situation.
- new strategies for social action which embrace the view of everyone as a learner with contributions to make in the generation of ideas for action for the transformation of the situations they face.

- new strategies and agendas for research which embrace different paradigms of disciplinarity, multi-disciplinarity, inter-disciplinarity and trans-disciplinarity.
- new mechanisms for monitoring the changes in the multitude of environments in which the university exists and new mechanisms for allowing and encouraging wide and participative debate about possible implications of these changes from as many perspectives as possible.
- desirable and feasible changes in organizational structures within the university which would reflect and support any of the academic initiatives in the design, management and evaluation of curricula, research programs and projects, social action programs and projects, policy initiatives, and a host of other functions which will become evident with time.

And so on. In essence what is being suggested is for UPLB to reconstrue itself as a critical learning system which is in a sensitive and dynamic co-evolution with its varied environments. This reconstruction process must be as pervasive and persistent as possible if it is to result in effective transformations of those people who come to learn at the university, of those who are beyond the university but who are influenced by all that it does, and of those who work at the university and indeed comprise it.

As has been consistently emphasised, there are a number of opportunities for UPLB to grasp a vital initiative to transform itself and all that it does in the name of development. One of the very best of these situations is the potential for influencing the future of the whole national flavor of higher education in agriculture and for all other agrarian issues through the proposed National Agricultural Education System. The scheme as proposed at the moment deserves further rigorous conceptualization as well as promulgation, such that its premises and complex implications can be subjected to critical and participative debate. If this is not done there is considerable room for concern that it will result in the transformation of a messy situation into a fragmented series of uncoordinated fiefdoms rather than the creation of a cohesive system focused on the full range of complex and dynamic issues which characterize the rural situation of the Philippines.

B-3.10 Some Pragmatic Recommendations

The learning systems model focuses discussions in three general areas:

- the state of the external environments.

- the internal state of the system.
- the quality of the relationships between them.

In this paper we have presented some of our interpretations in each of these three areas. Our reason for doing so was to introduce the context as well as to provide some speculations and assertions as vehicles for debate around our interpretations. We are no longer here to expand or defend these views. But that is not really the issue. The relevant questions have to do with the mechanisms that the university has in place to conduct their own debates around issues such as these; strategic debates about its futures. As we have suggested, this is an on going process that must transcend parochial interests. As we have also stated, it is a process that is usually laden with conflict. To this end we suggest that UPLB could establish a small group or forum of people from across the campus who would be committed to exploring the process and facilitating a series of "rolling debates" throughout the university. As individuals, they would need to have a high tolerance for controversy. They would need to be persistent, and above all else, they would need to be open minded.

Amongst their tasks, this forum would need to examine just how information about environmental forces relevant to the university, is gathered. They would need to assess the extent and quality of the networks of which UPLB is a part. These networks would need to cover a wide variety of domains which might include : the state of the bio-physical environment in the Philippines, or in the local region; the state of a variety of socio-cultural and socio-economic environments which are relevant to the university's activities; the "state of the art" in functions that reflect the activities of UPLB, such as curriculum design, extension and research methodologies, philosophies of science, of knowing and of the ethics of practice in addition to developments in all of the discipline areas represented on the campus etc.

Much if not most of this sort of information is already being gathered at UPLB, but there must be questions about its quality as well as how it is being used to help the university as a whole to align itself closely with its changing environments.

The forum would need to establish answers to such questions. It would also need to establish the manner by which the information extends throughout the system of UPLB itself. In other words it is not enough to merely establish environmental monitoring functions; these must be closely linked with mechanisms which assure its dissemination across the campus. The next step is for this information to be transformed into useful intelligence. It needs to be used as fuel for continuing debates about the activities of the university. And these debates must move to profound levels of discourse where issues such as paradigmatic and ideological differences, are confronted.

Strategic planning as a process must ensure that the difficult and sensitive issues which reflect personal values and beliefs, are

addressed. To do this, a climate of trust and cooperation must be created. Just as the university creates networks beyond its walls, so too should networks be established within. These networks must be based on appreciative relationships; individuals must learn how to respect those with whom they might hold fundamental differences. An essential quality of networks is that they are non-hierarchical. This has particular ramifications for the role that UPLB has tended to play in establishing linkages with other organizations in the past. These have tended to have been based on dis-equal partnerships or on loosely affiliated groups and individuals rather than as cohesive and coherent systems or as system/environment complexes. The relationship of UPLB with Cornell University and with other agricultural universities and colleges in the Philippines are both examples of the former type, albeit with UPLB in a different position in the hierarchy in the two situations. The loose and weak linkages with public extension services, on the other hand are more characteristic of the latter. It is suggested that these forms of hierarchical relationships should be rethought in favor of networks and this has particular relevance given the CARP and NAES schemes both of which will involve the need for UPLB to develop new kinds of networking relationships based on partnerships rather than patronage.

Crucial too in this networking function is the identification of key individuals, resources and centers who can respond to emerging needs as they are identified.

Curriculum design experts, organizational theorists, researchers interested in meta-research and the development of new research methodologies, project designers and managers, counsellors, and a host of other specialists are already present on this campus. They will all need to be mobilized in the cause of the evolution of the whole university. And central to the whole campaign of course, is the willingness of all to express their visions, and beliefs, their dreams and the missions that they believe are appropriate to the future of their university.

To conclude we could do no better than quote again from George Keller's book "Academic Strategy: The Management Revolution in American Higher Education." (1983).

"...Strategic planning is NOT any of the following:

- the production of a blueprint.
- a set of platitudes.
- the personal vision of the president or board of trustees.
- a collection of departmental plans, compiled and edited.
- a substitution of numbers for important intangibles.
- a form of surrender to market conditions and trends.

- something done on an annual retreat.
- a way of eliminating risks.
- an attempt to outwit the future and
- strategic decision making is not done by planners.

In contrast:

- Academic strategic decision making means that a college, school, or university and its leaders are active rather than passive about their position in history.
- Strategic planning looks outward and is focused on keeping the institution in step with the changing environment.
- Academic strategy making is competitive recognizing that higher education is subject to economic market forces and to increasingly strong competition.
- Strategic planning concentrates on decisions, not on documented plans, analyses, forecasts or goals.
- Strategy making is a blend of rational and economic analysis, political maneuvering, and psychological interplay. It is therefore participatory and highly tolerant of controversy.
- Strategic planning concentrates on the fate of the university above everything else."

C -

Schedule For The USAID Review Panel

Panel Members

Dr. Richard Dawden
 Dr. Edwin Price
 Dr. E. T. York, Panel Leader

FIRST WEEK

<u>Date</u>	<u>Place</u>	<u>Time</u>	<u>Resource Person</u>	<u>Remarks</u>
16 August Wednesday	USAID Manila	a.m.		To do administrative work
	Agric. Training Institute, Q.C.	2:00 p.m.	M. Ordillo Deputy Director	Confirmed
	UP Diliman Quezon City	4:00 p.m.	Dr. J.V. Abueva President, University of the Philippines	Confirmed
	Greenhills Residence	7:30 p.m.	Chan. & Mrs. R. P. de Guzman	Reception
17 August Thursday	Dept. of Educ. Culture & Sports Manila	9:30 a.m.	Dr. C. B. Perez USec, Dept. of Education, Sports and Culture	Confirmed
	Dept. of Agric. Quezon City	2:00 p.m.	Asst. Sec. M. Lantin Asec, Dept. of Agriculture	Confirmed
18 August Friday	Dept. of Sci. and Technology	8:00 a.m.	Sec. C. Follosco Undersec. R. M. Lantican Dept. of Science and Technology	Confirmed
	Dept. of Environ. and Natural Resources Quezon City	3:00 p.m.	Dr. C. Roque Undersecretary Dept. of Environment and Natural Resources	Confirmed
	Arrive UP	7:00 p.m.		Proceed to UPLB Guest House

<u>Date</u>	<u>Place</u>	<u>Time</u>	<u>Resource Person</u>	<u>Remarks</u>
19 August Saturday		a.m. & p.m.		Review Panel Meeting
20 August Sunday		F R E E		

SECOND WEEK

<u>Date</u>	<u>Place</u>	<u>Time</u>	<u>Resource Person</u>	<u>Remarks</u>
21 August Monday	Operations Room Administration Building	8:00-8:30 a.m.	-	Slide showing
		9:00 a.m.	Dr. Raul P. de Guzman Chancellor, UPLB	Confirmed
	CF Conference Room	10:00 a.m.	Dr. A. A. Villaflor OIC, College of Forestry Executive Committee	Confirmed
	CAS Conference Room	2:00 p.m.	Dr. Edelwina C. Legaspi Dean, College of Arts and Sciences Executive Committee	Confirmed
22 August Tuesday	CEM Conference Room	8:30 a.m.	Dr. Tirso B. Paris, Jr. Dean, College of Economics and Management Executive Committee	Confirmed
	CHE Conference Room	2:00 p.m.	Dr. W. Rola OIC, College of Human Ecology Executive Committee	Confirmed
23 August Wednesday	CEAT Conference Room	8:30 a.m.	Dr. Wilfredo P. David Dean, College of Engineering and Agro-Industrial Technology Executive Committee	Confirmed
	CA Conference Room	2:00 p.m.	Dr. Ruben L. Villareal Dean, College of Agriculture Executive Committee	Confirmed
	Executive House	6:00 p.m.	UPLB Foundation, Inc.	Dinner & Briefing

165

<u>Date</u>	<u>Place</u>	<u>Time</u>	<u>Resource Person</u>	<u>Remarks</u>
24 August Thursday	GS Conference Room	9:00 a.m.	Dr. Dolores A. Ramirez Dean, Graduate School Executive Committee	Confirmed
	Vet Med	2:30 p.m.	Dr. Virgilio C. Esguerra Dean, College of Veterinary Medicine Executive Committee	Confirmed
25 August Friday	SEARCA	8:30 a.m.	Dr. Sam-Ang Srinilta Deputy Director, SEARCA	Briefing
	CPDMO	10:00 a.m.	Engr. Abella Chief, CPDMO	Meeting with Dr. Price
	DAERS	10:00 a.m.	Dr. P. Depositario OIC, DAERS	Meeting with Dr. Bawden
	IESAM	10:00 a.m.	Dr. E. Pacardo Director, IESAM	Meeting with Dr. York
	Operations Room	2:30 p.m.	Representatives of: 1. Faculty 2. Reps 3. Administrative	Deliberations
26 August Saturday			REVIEW PANEL MEETING	
27 August Sunday			FREE	

THIRD WEEK

<u>Date</u>	<u>Place</u>	<u>Time</u>	<u>Resource Person</u>	<u>Remarks</u>
28 August Monday	Administration Building	8:00-9:00 a.m.	Dr. W. Padolina Vice Chancellor for Academic Affairs	Confirmed
	PCARRD	9:30-10:30	Dr. R. Valmayor Executive Director PCARRD	Confirmed
	Administration Building	10:30-11:30	Dr. D. Lantican Vice-Chancellor for Administration	Confirmed
	-do-	2:00-3:00	Dr. E. Bello Vice Chancellor for Planning & Development	Confirmed
	-do-	3:00-4:00	Dr. C. Azucena Director of Extension	Confirmed
	-do-	4:00-5:00	Dr. Gil Divinagracia Director of Instruction	Confirmed
29 August Tuesday	ACCI Auditorium	8:30-10:00	Representatives: Undergraduate Students	Meeting
		10:00-11:30	Representatives: Graduate Students	Meeting
	CPDS	1:30-3:00	Dr. J. F. Sison Executive Director, CPDS	Confirmed
	Library	3:00	Miss L. Gregorio University Librarian	Confirmed

167

<u>Date</u>	<u>Place</u>	<u>Time</u>	<u>Resource Person</u>	<u>Remarks</u>
30 August Wednesday	PHILRICE	9:00-10:30	Dr. M. R. Vega Consultant, PHILRICE	Confirmed
	Office of the Director of Research	10:30-12:00	Dr. C. Lamug Director of Research	Conference
	Biotech NCPC, IPB CES	P. M.	Biotech, NCPC, IPB	Visit
31 August Thursday	Metro Manila	Whole Day	Private Sector Reps.	
	USAID	10:30 a.m.	Director M. Butler USAID/Manila	Confirmed
	RFM 3rd Floor Pioneer St. Mandaluyong, MM	2:30 p.m.	Mr. Agosto de Leon President Republic Flour Mills	Confirmed
	DOTC Philcomcon Bldg. Pasig, MM	3:00 p.m.	Mr. Leopoldo de Guzman Undersecretary, DOTC and Alumnus	Confirmed
	PHILAMLIFE Auditorium	5:00 p.m.	Magsaysay Foundation Awards	Confirmed
Sept. 1 Friday	CEM Conference	7:30 p.m.	Ms. Nelia T. Gonzales President, UPLB Alumni Association	Confirmed
Sept. 2-10 Saturday to Sunday	CEM Office	Whole Week	Report Writing	
Sept. 4 Tuesday	UPLB Guest House	12:00 nn	Dr. E. Rosario President MADECOR	Luncheon Meeting
Sept. 8 Friday	CHE Conference Room	9:00 a.m.	Dr. V. Sandoval Faculty Members College of Human Ecology	Meeting with Dr. Bawden
Sept. 14 Wednesday	USAID Manila			

<u>Date</u>	<u>Place</u>	<u>Time</u>	<u>Resource Person</u>	<u>Remarks</u>
Sept. 15-17 Friday to Sunday	Field Trip to CLSU, DHMSU and BSU		Proposed Schedule Attached	Confirmed
Sept. 18 Monday	Departure, Dr. Richard Bawden			
Sept. 18	External Review Office, CEM			Report Typing
Sept. 19 Tuesday	UPLB Executive Hall	7:00 a.m. 7:00 p.m.	Dr. E. Q. Javier Former Chancellor SEARCA Gov. Board and Guests	Breakfast Meeting Dinner Hosted by Chancellor & Mrs. R. P. de Guzman
Sept. 20 Wednesday	SEARCA Guest House	7:30 a.m.	SEARCA Governing Board Meeting	Confirmed
	OC Conference Room	10:00 a.m.	STARDEC	Confirmed
	Operations Room	1:30 p.m.	UPLB Executive Committee Special Meeting	Confirmed
Sept. 19-20 Tuesday and Wednesday	CEM Office		Redrafting Report	
Sept. 21-22 Thursday & Friday	USAID Manila			
Sept. 23 Saturday	Team Departure, Dr. Price and Dr. York			

I. Publications of the University of the Philippines at Los Baños

1988 Annual Reports of the following Colleges, Institutes and Centers:

College of Arts and Sciences
College of Economics and Management
College of Human Ecology
College of Veterinary Medicine
Agricultural Credit and Cooperative Institute
National Institutes Biotechnology and Applied Microbiology
Institute of Plant Breeding
Research Management Center
Museum of Natural History
Regional Training Programme on Food and Nutrition Planning

A Mid-Term Report of the Chancellor (January 1979-April 1981)

A Review of the Center for Policy and Development Studies, UPLB

Administrative Support Services, UPLB

Agricultural Economics and Development Thesis Research 1977-1982; 1982-1985

Agricultural Mechanization Development Program: Workplan and Proposal for the Establishment of an Agricultural Mechanization Center.

Agricultural Mechanization Testing and Evaluation Center:
Summary of Accomplishments (January-August 1989)

An Evaluation of the Environmental Studies Program of the University of the Philippines at Los Baños

Brief Report of the Department of Agricultural Mechanization Engineering and Technology, College of Engineering and Agro-industrial Technology

Brief Report on the National Institutes of Biotechnology and Applied Microbiology

Brief Report on the UPLB College of Forestry

Brochures of the following:

College of Agriculture
College of Arts and Sciences
College of Economics and Management
College of Engineering and Agro-industrial Technology
Graduate School
Institute of Biological Sciences
Institute of Chemistry

170 -

Center for Policy and Development Studies
Office of the Director of Extension
Regional Training Programme for Food and Nutrition Planning
Environment Education Network of the Philippines
Short Courses for International Participants, 1987
Different Crop Varieties, Institute of Plant Breeding

Center for Policy and Development and Development Studies (CPDS)
Working Papers

Charting the Course of a Flagship (Internal and External
Developments Impacting on the UPLB)

Developments Impacting on UPLB, UPLB in the 1990s

Evaluation Report on the UP Los Baños College of Engineering and
Agro-industrial Technology

External Review Committee, The

External Review of UPLB 1989, The

Final Report of the Program Review Committee for the following
Colleges, Institutes and Centers:

College of Agriculture
College of Arts and Sciences
College of Human Ecology
Agricultural Credit and Cooperative Institute
Institute of Agrarian Studies
Dairy Training and Research Institute
Institute of Plant Breeding
Center for Policy and Development Studies
National Crop and Protection Center

Five Year Development Plans and Programs of the following units:

College of Arts and Sciences (1989-1994)
College of Engineering and Agro-industrial Technology
(1987-1992)

Graduate School Catalogue 1984-1988

Graduate School: Policies, Organization, Rules and Regulations

Honoraria for UPLB Academic and Administrative Personnel:
Policies and Practices

Inception Report on the UPLB Water Supply System

Institute of Agrarian Studies (IASt) Occasional Papers Series

Inventory of UPLB's Physical Facilities

IASt Quarterly

171-

Institute of Plant Breeding (IPB) Variety Releases 1985-1989

IFB and Other Institutes/Departments of UPLB: Cooperation Among
Equals

Management Review Committee Report: Campus Planning, Development
and Maintenance Office

Philippine Agriculturist, The (Several Volumes)

Philippine Journal of Veterinary Medicine, The

Philippine Plant Breeding

Progress Report on the UPLB Water Supply and Sewerage System

Research at the University of the Philippines at Los Baños: Its
Impacts on National Development

Report of the UPLB Management Review Committee (MRC)

Second-class Citizens in a "Great" University: The Social
Sciences at UPLB.

Selected Papers of the College of Engineering and Agro-Industrial
Technology

State of Property Management at UPLB

Summary of Abstracts of Operational Highlights and
Recommendations for Colleges/ Developments/ Centers/
Institutes Under Review

Three Decades of Agricultural Economics and Development Thesis
Research 1948-1978

UPLB Comparative Income Statements, 1986, 1987 and 1988

UPLB Agricultural Policy Research Program Working Papers

UPLB Catalog of Academic Programs 1989-1991

UPLB College of Agriculture Bulletin of Information 1989

UPLB Information Release to Mass Media

UPLB Internal Operating Budget for Calendar Years 1988 and 1989

UPLB Foundation, Inc.
Policy Guidelines
Second Quarter, 1989 Report

172

II. Publications of the World Bank

Impact Evaluation Study of the First Education Project
Questionnaires (Loan 393-PH).

Impact Evaluation Report on the Philippines: First Education
Project (Loan 393-PH). May 1983.

III. Publications of the US Agency for International Development, Manila

Strategy Paper I - Diversification and Profitability of the
Rural Economy

Strategy Paper II - Decentralization

The Philippines, The Brady Plan and the PAP: Prognosis and
Alternative

Brief Comments on a Brief Visit to the Philippines, March 1988

Sector Operations Review: Agricultural and Rural Development
Program in the Philippines

Fiscal Year 1990 Action Plan USAID/Philippines

The Philippines: The Challenge of Poverty

The Philippines: An Agenda for Adjustment and Growth

The Philippines: A Review of External Development

IV. Other Publications

Abueva, J. V. Learning and Leadership for Social Transformation: A
Vision for the University of the Philippines. Speech delivered
at the Symposium/ Dialogue on the UP Presidency. 1987.

_____. The First Sixteen Months: The President's Report on
the University of the Philippines (September 1, 1970 to
December 31, 1988). 1989.

Angara, E.J. Executive Order No. 4 - On the Reorganization of the
University of the Philippines. 1983.

Benguet State University Planning and Development Office. Benguet
State University Facts and Figures. 1989.

Blejer, M.I. and I. Guerrero. Stabilization Policies and Income
Distribution in the Philippines. Finance and Development.
December 1988.

Philippine Agricultural Economics and Development Association, Inc.
Journal of Agricultural Economics and Development. Vol. XV.
Nos. 1 & 2. 1985.

173

Philippine Council for Agriculture, Forestry and Natural Resources
Research and Development. Highlights from the Philippine
Agriculture, Environment, and Natural Resources Research and
Development Network 1988. June 1988.

_____. The PCARRD Monitor. Vol. XVII, No. 4. April 1989.

_____. The PCARRD Monitor. Vol. XVII, No. 6. June 1989.

_____. The PCARRD Monitor. Vol. XVII, No. 8. August 1989.

_____. PCARRD What It Is, What It Has Done. Information
Bulletin Series No. 15. 1987.

_____. The Regional Research and Development Consortia in
Agriculture, Forestry, Fisheries and Natural Resources.
Information Bulletin No. 18. 1989.

Presidential Task Force on Science and Technology. Report on Science
and Technology Development. March 1989.

Technical Panel for Agricultural Education. Don Mariano Marcos
Memorial State University-University of the Philippines at Los
Baños Institutional Assistance: A Detailed Implementing Plan.
1988.

United Nations Development Programme. Development Co-operation
Report of the Philippines for 1987. 1988.

World Resources Institute. The Philippines Education Sector Study:
Part I (Overview and Summary). December 1988.

World Resources Institute. The Philippines Education Sector Study:
Part II (Technical Chapters and Annexes). December 1988.

World Resources Institute. Resources, Population, and the
Philippines' Future. October 1988.