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INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT
INTERNATIONAL DEVELOPMENT ASSOCIATION

APPRAISAL OF
THE DEVELOPMENT PROGRAM
OF THE
UNIVERSITY OF THE PHILIPPINES' COLLEGE OF AGRICULTURE
AT LOS BANOS

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Appraisal of the Development Program
of the University of the Philippines'
College of Agriculture at Los Banos.

REPUBLIC OF THE PHILIPPINES

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APPRAISAL OF THE DEVELOPMENT PROGRAM OF THE
UNIVERSITY OF THE PHILIPPINES
COLLEGE OF AGRICULTURE
REPUBLIC OF THE PHILIPPINES

SUMMARY AND CONCLUSIONS

(i) In January 1963 the Philippine Government requested an IDA credit to help finance the buildings and equipment required for the Five-Year Development Program of the University of the Philippines' College of Agriculture at Los Banos. The Government later agreed to proceed on the basis of a Bank loan, and an appraisal mission visited the country in July and August 1963. Further discussions were held in Manila in February 1964.

(ii) Improvement and some expansion of the teaching and research activities of the College and an increased output of well-trained graduates are essential for the further development of agriculture in the Philippines. In particular, they will give much-needed support to the Government's agricultural services. The unsatisfactory condition of these services and production supports, especially with respect to their organization, has long been a source of concern to the Bank. The Government has now taken the initiative and begun to introduce far-reaching changes in the organization of these services, particularly in conjunction with the implementation of the land reform program which the Philippine Congress approved in 1963. It is still too early to judge whether the measures now being taken or considered will eventually produce a satisfactory organization of agricultural services. However, they are steps in the right direction and are in marked contrast to the inaction that long prevailed in this field.

(iii) The University of the Philippines' College of Agriculture at Los Banos was founded in 1909. It is the oldest and best of the country's 18 agricultural colleges. The College has a well-established reputation not only in the Philippines but also in several neighboring countries which have sent to it many of their agricultural students. In recent years the Ford and Rockefeller Foundations have singled out the College as an institution of special importance and promise. Together, they have pledged \$6 million in grants to finance important non-construction elements of the Program.

(iv) The main objective of the College Program is to improve the quality of agricultural education and research. Some expansion in enrollment is also planned. These objectives will require a doubling of staff, the upgrading of staff qualifications, an improvement in the terms and conditions of employment (particularly for senior staff), a strengthening of the curriculum, stronger support for agricultural research, and a major construction and equipment program. The proposed Bank loan would finance approximately 50% of a construction and equipment program that will cost about \$12 million equivalent and take five years to complete.

(v) The project appears justified and feasible. It presents a suitable basis for a Bank loan of \$6.0 million carrying a 30-year term, including a 10-year grace period. The loan would be made to the Republic of the Philippines, which would pass to the University of the Philippines the proceeds of the loan as a grant. The Government would further undertake to provide the University of the Philippines with whatever additional funds are necessary to finance the project, also on a grant basis.

Appraisal of the Development Program of
the College of Agriculture at Los Bancos

I. INTRODUCTION

1. In January 1963 the Government of the Philippines approached IDA for a credit to help finance the Five-Year Development Program of the University of the Philippines' College of Agriculture (U.P.C.A.). The Government was informed that the Philippines was not eligible for an IDA credit since the country was economically strong enough to borrow from the Bank. The Bank would, however, consider easing the financial burden of servicing the debt by making a loan for a term somewhat longer than had been customary and arranging for repayment to begin only after substantial benefits begin to accrue from the program. The Government agreed to proceed on this basis.
2. The College's Five-Year Development Program was appraised by a Bank mission which visited the Philippines in July/August, 1963. In February 1964, another Bank Mission conducted further discussions in Manila to clarify some aspects of the Program.
3. The academic and physical development needs of the College have been studied by the Ford and Rockefeller Foundations and Cornell University. In 1962 a team of experts from these three institutions published a report that has been relied on heavily by College authorities in drawing up the Development Program. Ford and Rockefeller Foundations view the College as a promising center of higher agricultural education and research in Southeast Asia and have made major commitments. They have already helped to establish on College property the International Rice Research Institute. This Institute is rapidly becoming the most important center of rice research in Asia. There are several advantages of proximity for both the College and the Institute, e.g., many of the 50 - 60 foreign trainees brought to the Institute are expected to register at the College for graduate studies. Similarly Cornell University (whose relations with the College go back to 1952) has entered into a close working relationship with the College, designed to benefit both institutions. The United Nations Special Fund recently chose the College as the place to establish a Dairy Training and Research Institute to serve not only the Philippines but Southeast Asia as well. The Philippine Government has also singled out the College as a key center for assisting the government in its agricultural programs. Within the past five years, for example, the Government has established at the College a Community Development Training Center and an Agricultural Credit and Cooperatives Institute. These examples reflect the past achievements of the College and the confidence in its future held by other important organizations interested in agriculture in the Philippines and Southeast Asia.
4. This report is based on the findings and recommendations of the Ford and Rockefeller Foundations and Cornell University; on submissions from the University and the College; and on the investigations of the Bank missions.

II. AGRICULTURAL BACKGROUND

5. The U.P.C.A. Program is closely linked with the development needs of agriculture in the Philippines which has fallen far short of fully realizing its potential. It is designed to make possible an enlarged and more effective development effort for agriculture by supplying graduates with higher qualifications and in larger numbers, and by expanding and improving agricultural research. These are both areas in which serious deficiencies exist to the detriment of the level and rate of growth of output.

6. Whereas export agriculture, producing coconut products, sugar, abaca and timber, has on the whole been performing satisfactorily, domestic crops, principally rice and corn, have suffered from generally poor yields which are among the lowest in the Far East. As a result, per capita income in the rural areas, in which about two-thirds of the population live, is equivalent to only one half the national average and one quarter of per capita income in the urban centers.

7. Poor agricultural yields in the Philippines are caused by a multiplicity of factors, including insufficient irrigation and other facilities of infrastructure as well as the disincentive effects inherent in share tenancy under which about one fourth of the farm area under cultivation is farmed. However, the most striking deficiency was in the quality of the Government's agricultural services. Extension services failed to bring to the farmers information about improved techniques and better farming practices to the extent necessary to encourage greater productivity. Production supports such as fertilizers, improved planting materials and credit were not available in sufficient quantities and when needed. Research has been unable to give strong impetus to the diversification of present cropping patterns, better plant and animal disease control, improvement in irrigation and drainage, effective erosion control and better means of forestry exploitation and protection.

8. Shortage of personnel with high professional qualifications was one important cause of the inability of the Government's agricultural services to lend effective support to the development of agriculture, and it set limits to the possibilities of expansion well below the desirable level. However, even existing talent was utilized much below capacity because these services were not organized effectively. The Department of Agriculture and Natural Resources (D.A.N.R.), which had major responsibility in this field and had some 16 bureaux and corporations under its jurisdiction with a staff of over 8,000, was rendered largely ineffective by fragmentation, division of functions, and duplication of effort. The number of agencies concerned with extension work expanded rapidly, but all their efforts were badly coordinated.

9. In view of the importance of agriculture in the Philippine economy -- it accounts for one-third of national product and two-thirds of export earnings -- and of the large potential for further agricultural development, the Bank had been concerned for some time about the unsatisfactory condition of the Government's agricultural services. Thus, when asked to help finance the U.P.C.A. Program, the Bank was already aware that without a major reorganization of government services agriculture could not be expected to

benefit to the full extent possible from the better training and increased number of graduates as well as the research work which the Program is designed to produce. It was therefore intended that appraisal of the U.P.C.A. Program would include, as an integral part, a review of agricultural services, directed towards recommendations on a feasible approach to their improvement.

10. However, by the time the Appraisal Mission arrived in the Philippines, the Government had already begun on its own initiative to embark on a major reform of agriculture. In August 1963, legislation was enacted committing the Government to a far-reaching land reform program. Concurrently, the Government undertook a review and began a reorganization of all agricultural services with particular emphasis on the needs arising out of land reform. In addition, the Government established a high level Rice and Corn Authority, to formulate and administer a long range food production program and establish a national land-use policy to serve the objectives of the program.

11. The changes which preparation for land reform and establishment of the Rice and Corn Authority have brought to the organization of agricultural services are described in Appendix I. In effect, they amount to the reorganization of some key agencies and, above all, to providing in the National Land Reform Council and the Rice and Corn Authority two institutions armed with all necessary power to utilize and coordinate the activities of all Government agencies whose services are required in the execution of their functions.

12. Too little time has passed since enactment of these measures to be able to judge by their results whether they can be relied upon to provide the effective, well coordinated agricultural services which the Philippines need. The first, small land reform district has only recently been declared. The Rice and Corn Authority has concentrated on an emergency rice production program throughout the principal irrigation areas of the country. At the same time, a review of the need for further reorganization is continuing. Thus it is clearly premature now to attempt to assess the adequacy of the emerging new organization of agricultural services. However, the Appraisal Mission was satisfied that the organizational structure as now envisaged would meet the needs. This judgment has recently been confirmed by the Bank's Resident Mission in the Philippines. The Appraisal Mission was also impressed by the earnestness and vigor with which the problems were attacked by the Government and which were in marked contrast to the long period of inaction. The Bank's Resident Mission in the Philippines is collaborating closely with Philippine authorities in working towards a final solution.

13. Despite the promising beginnings that have been made it would be unrealistic to disregard the possibility of failure of the present efforts. In particular, it must be recognized that much of the reorganization is tied to land reform. It will only be as effective as execution of the land reform program which in view of its substantial demands on the human and financial resources of the country may proceed more slowly than the Government now plans. It would therefore be appropriate to obtain assurances from the Government that it will continue reorganization of its agricultural services with the aim of increasing their effectiveness.

III. THE EDUCATION SYSTEM

General Education

14. Since World War II the country has made impressive gains in school and college enrolments. Quantitatively, there are few countries of comparable income levels that have as high a proportion of their children in schools and universities, or which devote as high a proportion of their national budgets and incomes to education. The strength of the Filipino's desire for education is reflected in the fact that more than two-thirds of all secondary and university students attend private institutions, most of which are run for profit. However, as the system has expanded, quality has fallen behind so that today the general standard of education, at all levels, leaves much to be desired.

15. The table below summarizes the present size and structure of the education system:

Enrolment at Primary, Secondary, and University Levels (1962)

<u>Education</u>	<u>Number of Years</u>	<u>Enrolment Public & Private</u> ^{1/}	<u>% in Private Institutions</u>	<u>% of Total Enrolment</u>
1. Primary	6	4,400,000	5	80
2. Secondary	4	760,000	65	14
3. University	4	318,000	87	6
	<u>14</u>	<u>5,478,000</u>	<u>18</u>	<u>100</u>

The 4.4 million children in the six primary grades represent the achievement of nearly universal free primary education. The proportion in secondary schools is low by western standards but not for countries at similar income levels. The number in colleges is very high, being over 40% of the number in secondary schools. The 6-4-4 structure of the system means, of course, that students enter university at an earlier age, and with less preparation, than in most other countries. This fact necessarily affects the standard of university work.

16. Education is much the largest single item in the national budget, accounting in FY 1963 for about 27% of the total. Appropriations for education have increased rapidly in recent years, rising from P236 million in 1959 to P449 million in FY 1963. By FY 1968 appropriations are expected to rise another P337 million, giving education about 29% of the anticipated

^{1/} Includes all schools, general and vocational, recognized by the Department of Education.

budget. Ninety per cent of the national funds for education are spent on primary and secondary schools (the former are supported entirely by national funds: most government secondary schools are financed by provincial funds, but an increasing number are being designated "national" secondary schools and are being transferred to the national budget). Primary and secondary schools come under the authority of the Department of Education, which spends 96% of the national appropriation for education. The remaining 4% is divided among the country's 12 independent chartered universities (2% to the University of the Philippines, 2% to the 11 other universities).

Agricultural Education

17. Agricultural education is conducted in 83 agricultural secondary schools, 5 chartered public agricultural colleges, 9 unchartered agricultural colleges run by the Department of Education, and 4 private agricultural colleges. The agricultural secondary schools are not so much technical institutions as rural high schools with considerable agricultural material in their curriculum. In 1962 there were about 20,000 students enrolled in the 83 secondary schools and 8,235 in the 18 agricultural colleges. (See Appendix II, Table A, for a list of agricultural colleges and their enrolments.) College enrolments are not distributed evenly over the system; of the 70% attending the 5 chartered public colleges, about 25% are at the U.P.C.A.

18. In recent years the network of agricultural high schools and colleges has expanded rapidly and without careful design. Knowledgeable observers are now worried that the system is becoming larger than the country needs or can support at reasonable standards. The policy of the Department of Education is to consolidate and upgrade the existing agricultural schools and colleges rather than to establish new ones. However, political pressures may again make it difficult to hold to this policy. Whenever a high school is designated a national high school, or is converted into a college by authorizing the addition of extra years to the curriculum, the institution is transferred from the provincial to the national budget, a measure that has obvious appeal to local political representatives.

19. All of the country's agricultural colleges except the U.P.C.A. have been established since 1946. These other institutions have already become quantitatively more important than the college in supplying agricultural graduates at the bachelor's level. However, the standard of instruction in these colleges is extremely low and research is almost non-existent. The comparatively high standards of the U.P.C.A. have won it recognition as a leading agricultural college, not only in the Philippines but in other countries of Southeast Asia, from which many students have come.

The University of the Philippines (U.P.) and its College of Agriculture (U.P.C.A.)

20. The U.P. is the oldest and largest of 19 state institutions of higher learning. Established in 1908, the U.P. now has a staff of over 1,300 with 15,000 students in some 15 colleges and a number of Institutes, Schools and Centers (see Appendix III). Its activities are conducted at 5 different locations. The main site is at Diliman, 10 miles north of Manila where a spacious campus has been developed since 1943.

21. The U.P. is an independent institution operated under its own charter and governed by a Board of Regents consisting of 5 ex-officio members and 7 members appointed by the President of the Republic with the consent of the Commission on Appointments of Congress. The Regents elect the President and approve all basic university policies, administrative rules and regulations, faculty appointments and promotions and the University budget. Annual appropriations from the national budget provide about half the University's revenues. The other half comes mainly from student fees and certain revenue-producing assets. All accounts of the U.P. are subject to auditing by the Auditor General.

22. The U.P. is one of 7 universities in developing countries that have been singled out by the Rockefeller Foundation for special assistance in the next few years. It has good control of its administration and budget, and has developed a tradition of independence from national political influence. The major goal of the University for the next several years will be the progressive development of graduate studies and research to build up the nation's supply of professional manpower. The Development Program of the College, which the proposed Bank loan will help finance, is part of this objective of the U.P.

The College of Agriculture

23. The U.P.C.A. was founded in 1909 in Los Baños, some 40 miles south of Manila. It is the second oldest college in the University. At present it has 2,050 students and a faculty of 400 members; three-quarters of the latter are engaged on instruction and one-quarter on research and administration. The campus and college land contiguous to it contain 825 hectares. The College has another 3,500 hectares in land reservations at other locations (several Philippine state colleges and universities have land reservations, which are intended to support revenue-yielding activities).

24. Although not part of the U.P.C.A., several other related institutions have their buildings on College land in the town; the U.P.'s College of Forestry, the U.P.'s Forest Products Research Institute, the Community Development Administration Training Center, the Agricultural Cooperative and Credit Institute and the International Rice Research Institute. An International

Dairy Training and Research Institute is being established on the campus. The existence of these agricultural improvement institutions on College land at Los Banos emphasizes the importance of Los Banos as a center of agricultural education and research.

25. Although certain aspects of the College's academic standards, its overall budget, its salary schedules and business procedures are governed by University-wide regulations, the Dean of the College and his faculty enjoy considerable autonomy in the operation of the College's instructional and research programs. College officials may complain about certain of the controls exercised from Diliman (particularly about unnecessarily tight financial controls) but these sources of friction seem minor. The administrative and personal relationships between the University and the College are generally good.

26. The College offers the following undergraduate and graduate degrees:

Undergraduate Degrees (after a minimum of 4 years)

Bachelor of Science in Agriculture (B.S.A.)
Bachelor of Science in Sugar Technology (B.S.S.T.)
Bachelor of Science in Agricultural Engineering (B.S.A.E.)
Bachelor of Science in Home Technology (B.S.H.T.)

Graduate Degrees

Master of Science (with specialization in one technical department)
Master of Science in Community Development (M.S.C.D.)
Master of Agricultural Education (M.Ag.Ed.)
Ph.D. (the first such degree was awarded to a Pakistani in 1963)

The College also awards a special Teachers Graduate Certificate of Agricultural Education (T.C.A.E.) and a special post-graduate 10-month course for people intending to take up work as Farm and Home Development specialists (specially trained rural credit advisors and extension workers).

27. The academic courses are offered by the 14 departments into which the faculty and curriculum are divided as follows:

Agricultural Botany
Agricultural Chemistry
Agricultural Economics
Agricultural Education
Agricultural Engineering (including the divisions of
Mathematics, Physics and Statistics)

Agricultural Information and Communications
Agronomy
Animal Husbandry
Home Technology
Languages
Entomology
Plant Pathology
Soils
Physical and Military Education

The general organization of the curriculum is reasonable, although there is room for improvements as the Dean and senior faculty members are fully aware.

28. Admission to the College is non-selective, which is the general practice in all Philippine colleges. The only admission requirements are a diploma from a recognized four-year secondary school plus a satisfactory physical examination upon arrival at the College. The College maintains an active recruitment program, but it never knows how many incoming students it will have until they arrive on registration day. As a result of this system, much of the selection process occurs during the first and second years of undergraduate work. All students are required to take some tests immediately after registration; these uncover deficiencies (usually in mathematics and English) and determine assignments to remedial courses. Until such courses are passed, students are not admitted to second-year status. Further selection is achieved by a heavy offering of professional courses during the first two years.

29. The number of first-year students has increased in each of the last five years. This suggests that the recent development of many new agricultural colleges in the country is not seriously interfering with the supply of secondary graduates who wish to attend U.P.C.A. The 1962/63 first-year students still came from all parts of the country. Socially, the student body can be described as middle and lower-middle class in origin, with many coming from rural backgrounds. Between 10-15% usually are women.

30. The composition of staff of U.P.C.A. is at present unbalanced, with many young and underqualified individuals. It has also suffered in recent years from serious losses of a number of highly-qualified senior staff. Two-thirds of the staff have only a bachelor's degree; a quarter hold a master's degree; only 10% have doctorates. Faculty turnover has averaged 10% per annum over the past five years. The development of enlarged and more effective programs of graduate study and research would be impossible without a major effort to upgrade and retain the more promising faculty members.

IV. THE PROJECT

31. The project which the Bank has been asked to help finance is the construction and equipment sector of the College's Five-Year Development Program. This Program has been conceived as a means of strengthening the College's role as the country's leading source of high-quality professional personnel for agricultural services, for research scientists in public and private employment, and for agricultural higher education. This objective requires a coordinated program of several parts.

32. The Program has seven main sectors:

- (a) Expansion of the student body from the present total of approximately 2,000 to 2,500 of whom 2,000 would be undergraduate and 500 graduate.
- (b) Upgrading of the academic qualifications of the teaching staff, through a carefully planned program of overseas study for doctoral degrees.
- (c) Improvement of faculty salaries and amenities, particularly at the senior grades, so as to attract and hold highly qualified people in academic life.
- (d) Strengthening of the program of undergraduate and graduate instruction, especially in certain professional fields now recognized as weak. It is proposed to develop textbooks, course syllabi, and other teaching materials specifically adapted to the needs of the country and the region.
- (e) Expansion of the research program, with particular emphasis on applied research related to the production of foodstuffs. This orientation means concentrating on corn (maize), livestock, and poultry. Research on rice, the country's largest crop, will be left mainly to the nearby International Rice Research Institute.
- (f) Construction of physical facilities and the procurement of equipment necessary to carry out the Program at the desired scale and standards.

33. The Program is soundly conceived. It has been prepared with the help and advice of men from Cornell University experienced in university administration and agricultural education who are also knowledgeable about the country and Southeast Asia. It is a comprehensive program which should be considered in its entirety, of which the construction and equipment form an integral part. The University's program provides for 100% salary increases between 1963 and 1968; the first 33% of this became effective in July 1963. A second increase is due to come into effect this year. The Program has been assured of financial support from the Ford and Rockefeller Foundations for advanced graduate work abroad by staff members and for the

supply to the College of several Cornell University faculty members. The other sectors of the Program (items a, c, d and e) will be financed by Government contribution. During negotiations assurances should be obtained from Government that the operating budget of U.P.C.A. will be adequately increased to meet these requirements.

A. The Project

34. The College's physical facilities were severely damaged at the end of World War II. They were rebuilt to minimum postwar standards and are today inadequate for the proposed improvement and expansion of teaching, research and extension training. Classrooms are crowded, poorly lighted and ventilated, and lack basic teaching aids. Teaching and research laboratories are deficient in space, equipment and services. Student housing is poor and scarce. The absence of adequate housing facilities is adversely affecting the attraction and retention of qualified College staff. Public roads traverse the campus. Service facilities (the telephone, water, power and light and sewerage systems) are old, inadequate and, in the case of sewage disposal, unsafe.

35. The College's construction and equipment program consists of new buildings, the renovation of some existing ones and, in some cases, the addition of annexes (Appendix IV). Nine of the new buildings are for teaching and research purposes; and five are for administrative or general services purposes including student housing, auditorium and infirmary. Also included are new houses for the faculty staff. In each new building, renovated buildings and in some of the existing buildings new equipment will be brought in; equipment represents about 18% of the total cost of the project, which also includes the necessary site utilities.

36. When the project was first submitted to the Bank, it was somewhat larger than it now is. A few new buildings, renovated buildings and some equipment had to be omitted in order to fit the project within the financial limits set by legislation enacted for this project (RA 3854). However, the project as it now stands will substantially correct present deficiencies and will adequately support the academic objectives of the U.P.C.A. program. The projected space and utilization standards for classrooms and laboratories are acceptable. The proposed academic facilities as most recently revised are adequately suited to the curriculum. The non-academic facilities now meet reasonable standards of what is required to sustain a productive university community under Philippine conditions. Construction is phased over five years and first priority is given to the most urgently needed buildings, i.e., starting with the Physical Science and Biological Science buildings in the first year, followed by students' facilities and the administration building in the second and third. The remaining academic buildings will be built in the latter part of the construction program.

37. Maintenance of University buildings, equipment and services is at present inadequate. University administrators are aware of this problem and as a result of recent discussion with the Bank mission in Manila, attention is now to be given to this important problem. For the next five fiscal years the College's financial plans include additional operating expenditures which should be sufficient to ensure adequate maintenance of the buildings and replacement of equipment (See Appendix V, Table L). Assurances should be obtained from Government and the U.P. that adequate financial provision will be made in the future.

B. Design, Construction and Procurement

38. A master plan of the campus was prepared by a Manila architect under an agreement with, and financed by, the Ford Foundation. It was modified to improve the relationship of academic buildings and to effect corollary savings in utility and road costs. An adequate description of the type, size, and use of each space and a list of the necessary equipment have been prepared by the College, which indicate that the standards of construction will be simple and economic. Detailed plans and specifications can only be prepared after the U.P.C.A. and the Bank have agreed on schematic plans, outline specifications and the cost estimate for each building, major utility and road item.

39. In this project, as in all major works carried out by U.P., private architects and engineers are commissioned by the President of the University to prepare designs and construction documents. Plans are approved by the University Committee on Development Construction and forwarded to the Committee on Bids, which solicits bids from pre-qualified contractors. Recommendations for award of contracts are made by the Committee on Awards. The Board of Regents authorizes the President to enter into contracts after approval by the Government's General Auditing Office.- Standard construction contracts are acceptable provided an arbitration clause is added.

40. The College staff (as distinguished from the University staff at Diliman) does not have adequate experience to administer a complex major construction program. Therefore, the University will have to establish a special administrative and technical unit at the College during the construction period. The unit should consist of three sections:

- (a) architecture/engineering,
- (b) procurement, and
- (c) accounting, reporting, and audit.

It should be headed by a project manager who should be responsible to the Dean of the College and, at the same time, should be the head of the architecture/engineering section. In addition executive architects should be appointed for the major buildings. (See Appendix VI).

41. As a result of recent specific legislation the U.P. is exempt from import duties for all articles, material or supplies imported for use in the Program; contracts for civil works and procurement of equipment will be awarded on the basis of international competitive bidding, without any restrictions or preferences.

C. Summary of Project Costs

42. The initial application grossly underestimated the total cost of the construction and equipment program, and was referred to U.P.C.A. for a more accurate estimation. In the course of the revision of costs, the Bank questioned the unit cost of buildings and the ratios of the net to the gross area for each building as they were established by the College's architect. They have now been reviewed by the Bank and the College and modified by mutual agreement where necessary. The College has confirmed that the net areas have been revised without detriment to their program. The unit costs of buildings used in the final estimates appear adequate and based on costs of similar buildings recently constructed.

43. As finally revised, cost estimates are considered realistic. They bring the total cost to about \$12 million. Identifiable foreign exchange outlays directly related to the project are only a small portion of total cost. Indirect foreign exchange outlays associated with the project are believed to be considerable, but cannot be readily identified. It is proposed that the Bank loan should cover 50 per cent of the total cost. In order to facilitate administration of the loan, disbursements would be made on the basis of a percentage of the cost of agreed goods.

44. The estimated cost of each building includes allowances for unforeseen changes and minor alterations which may be encountered in the implementation of the project. Provision has also been made in the total cost of construction and equipment for a possible rise in labor wages, local materials, and in the cost of imported materials and equipment. This is calculated on the basis of about 15 per cent of the estimated cost.

45. The total estimated cost consists of the following:

(See table on following page.)

Estimated Cost

<u>Categories</u>	<u>New</u> (in million pesos)	<u>Renovations and Annexes</u> (in million pesos)	<u>Total</u> (in million pesos)	<u>Equivalent</u> (in million US dollars)
<u>I. Construction</u>				
a - Academic	12.5	0.4	12.9	3.22
b - Facilities for Students	7.7	-	7.7	1.93
c - Administration	1.2	-	1.2	0.30
d - Faculty Housing	<u>3.6</u>	<u>-</u>	<u>3.6</u>	<u>0.90</u>
Sub-total	25.0	0.4	25.4	6.35
II. Site Utilities			4.0	1.00
III. Equipment			8.7	2.17
IV. Architects & Engineering fees & Project Administration			2.5	0.63
V. Contingencies			<u>6.1</u>	<u>1.53</u>
TOTAL			<u>P 46.7</u>	<u>\$ 11.68</u>

46. Under RA 3854 Government has appropriated P21 million for this project. It has also indicated its willingness to provide additional funds as needed to cover the cost of the project as given above. In any case, it will be necessary to obtain from the Government assurances that it will provide to the University on a grant basis for use by U.P.C.A. funds to cover the total cost of the project, including the proceeds of the Bank loan.

V. ECONOMIC JUSTIFICATION

47. U.P.C.A. has supplied the Philippines with the majority of its present agricultural technologists and officials holding important key posts; about 55% of the College's graduates are employed by the Government's agricultural service agencies, another 40% are in agricultural education.

48. The objective of the College's Development Program is primarily to improve the quality of agricultural education and research. However, some expansion in enrollment is also planned and by 1970 the Program will have increased the annual output of four-year graduates from about 260 in 1964 to around 350 and of post-graduates from about 20 to 50 or 60. The country will need these additional numbers of U.P.C.A. graduates. The four-year graduates will contribute mainly to the upgrading of the Government's agricultural services, which will continue to expand for the foreseeable future. Such expansion is important to the effective exploitation of the Philippines' potential for increasing the output of agriculture. The post-graduate degree-holders will contribute primarily to the expansion and improvement of research, and to the improvement of agricultural education. The economic justification thus rests on both qualitative and quantitative grounds. Although the Program is intended also to increase the role of the U.P.C.A. as a regional institution for Southeast Asia, it is mainly justified by its prospective contribution to Philippine agriculture.

49. The major qualitative benefits of the Program are the following:

(i) Improvement of the quality of administrative and professional leadership in the Government's agricultural services.

(a) The quality of administrative and professional leadership in the Government's agricultural services makes a critical difference to the effectiveness of those services. In the long run the existence of a first-class educational institution is the main instrument by which a country recruits and trains its scientific and professional leaders for any productive sector. No educational institution other than the U.P.C.A. will be capable of supplying the Government service with significant numbers of the leadership personnel needed. Other institutions do not have the quality of faculty, the physical facilities, the research capabilities, nor the degree of Government support necessary to produce graduates comparable in quality to those from the U.P.C.A. This is already recognized now in the Philippines and will be even more as the Program is implemented.

(b) The value of having a country's agricultural services and research institutions led by high-quality staff takes the form of higher rates of growth in agricultural output. Even small differences in the agricultural growth-rate produce large changes in economic values. The need for better quality services has already been stressed (Chapter II); the role of these services will increase with the implementation

of the Land Reform program, because Government services will have to substitute for the former landlords in giving technical advice and guidance to the farmers.

- (ii) The improvement of research capabilities, both at the U.P.C.A. and throughout the system of public and private research institutions.

There is every reason to expect that, as a result of the Program, research at the U.P.C.A. will be more productive in the future than it has been in the past. This result is a reasonable expectation in light of the contribution of the Program to reduction of faculty turnover, the increased number of graduate students and the improvement of buildings, equipment and library facilities.

50. The quantitative justification of the Program rests on the country's need for additional high-quality agricultural manpower. A study of future needs for agricultural graduates entering Government service in 1970 suggests that overall supply and demand will be in approximate balance. This assessment is based on an estimated number of 1900 agricultural graduates in 1970, an assumption that about 400 of these will enter private employment (leaving about 1500 to enter Government employment), and an estimated demand of about 1700 from the agricultural services, excluding agricultural education (see Appendix II). Both the supply and demand figures are subject to large uncertainties. The supply figure assumes that the Government will be successful in resisting pressures for the indiscriminate expansion of agricultural colleges. The demand figure assumes a relatively rapid continuing expansion of the agricultural services (mainly to support the Land Reform program). However, the rate of growth for these services has been assumed no higher than the Government's administrative and financial absorptive capacity.

51. 75 to 80 per cent of the 1970 graduates will be supplied by institutions other than the U.P.C.A., i.e., by institutions whose standards of instruction and research are far below those of the U.P.C.A. In view of the importance of well-trained leadership to the Government's professional cadre, and in view of the U.P.C.A.'s almost exclusive role in supplying such personnel, a Program which will permit the U.P.C.A. to supply 20-25 per cent of the total requirement by 1970 seems necessary to provide a reasonable proportion of higher-quality personnel.

52. In summary, the Program is considered of high value to the long-run improvement of Philippine agriculture, provided the Government's agricultural services are effectively organized, research activities are well co-ordinated, and the complementary inputs (e.g., fertilizers, seeds, vehicles, credit) are forthcoming in adequate quantities.

VI. CONCLUSIONS AND RECOMMENDATIONS

53. The primary aim of the U.P.C.A. Five-Year Development Program is to increase the effectiveness of the U.P.C.A. as the Philippines' leading center of agricultural training and research. Its ultimate objective is to help realize more fully the agricultural potential of the Philippines, primarily through supplying better-trained personnel to the Government's agricultural services and undertaking an improved and enlarged research effort. The project covers the construction and equipment sector of the Program. It is in line with, and necessary for the attainment of, the broad objectives of the Program.

54. The U.P.C.A. is a well-administered institution, led by a capable and dedicated Dean and his senior staff. Although further improvement is necessary, there is no better place in the Philippines where the training of high-quality agricultural leaders and research scientists can be conducted. Without these leaders, sustained increases in agricultural productivity cannot be achieved. It is certain that the U.P.C.A. can only attain the needed level if the Program is carried out in its entirety.

55. The Program is well conceived. It is supported by the Ford and Rockefeller Foundations and by Cornell University. Its implementation will not place an undue burden on the Government's resources. Economic returns do not lend themselves to precise measurement, but a rough estimate indicates that the benefits offer returns which make the project acceptable for Bank financing.

56. But substantial benefits can begin to accrue only if further reorganization of agricultural services, as now being planned, is implemented. The reorganization already effected appears, at this early stage, to have provided much improved administration of some agencies that are directly connected with land reform. The current review of other agencies is indicative of the Government's appreciation of the need for and its further intent of improving the efficiency and effectiveness of its agricultural services.

57. A review of the estimated supply and demand for agricultural graduates in the year 1970, after completion of the U.P.C.A. Program, shows that the market will be in approximate balance. However, the Government should be strongly advised not to authorize the establishment of any new agricultural colleges, public or private, before 1970 without first conducting a thorough study of the need for new facilities.

58. The proposed project, involving a total estimated cost of about \$12 million equivalent (or ₱47 million), provides a suitable basis for a Bank loan of \$6.0 million equivalent which would cover roughly 50 per cent of the total cost of the project. Because the economic benefits of educational projects of this kind are realized only slowly and because the development of the Philippine economy requires a large continuing capital inflow from abroad, it would be suitable that the loan be for 30 years, including a grace period which suitably could be 10 years. The loan should be made subject to the

following conditions and assurances:

- (a) Government should undertake to provide to the University for use by the U.P.C.A. funds to cover the total cost of the project, including the proceeds of the Bank loan. (Para.46)
- (b) The University should establish a technical unit satisfactory to the Bank to ensure adequate technical, financial and administrative supervision during the construction period. (Para.40)
- (c) Government should undertake to provide to the University for use by the U.P.C.A. the funds necessary for adequate maintenance of U.P.C.A. grounds and buildings. (Para.37)
- (d) Government and the University should give assurances that they will provide sufficient funds to the U.P.C.A. to operate on the basis of its Five-Year Development Program. (Para.33)
- (e) Government should give assurances that the reorganization of its agricultural services will continue along satisfactory lines, so that these services will fully benefit from the U.P.C.A. Program. (Para.13)

October 2, 1964

CURRENT INSTITUTIONAL REFORMS IN PHILIPPINE AGRICULTURE

1. In order to assess the impact that the U.P.C.A. Program might have on the economy, it is necessary to appreciate certain institutional developments in the agricultural sector. The organization of agricultural services and production supports is now under review, as previous Bank missions have urged. Major land reform legislation has been enacted and a special campaign for food production is being launched.
2. The Program Implementation Agency (P.I.A.) has in recent months been actively reviewing the agricultural services in the Philippines. The Bureaux and Agencies immediately affected by the Land Reform Act and the Rice and Corn Authority have been given top priority in the review.
3. Land Reform - Attempts at land reform were made in the past but programs were never implemented. The Act signed on August 8, 1963, however, has made satisfactory legal provision for these services, although officials recognize the difficulties of implementation. They look forward to whatever assistance the Bank's Resident Advisory Technical Assistance Mission may be able to give them.
4. The new Land Reform Code (Republic Act 3844) aims at establishing owner-cultivatorship and economic family-sized farms as the basis of Philippine agriculture and at providing a more vigorous and systematic program of land resettlement and public land distribution. In pursuit of the first objective, it is intended to convert all share tenancy into a system of leasehold or freehold agriculture. This change will eventually affect an estimated 1.2 million tenants who work about 26% of the country's farm area (plantation agriculture is specifically exempt from the land reform program). As for the second aim, about 2.2 million hectares exist of land suitable for settlement which could be used to relieve increasing pressures on land in Luzon.
5. In accordance with the Land Reform Code a Special Committee on Reorganization of Agencies for Land Reform was established. It has now completed the reorganization of the establishments and functions of the agencies directly concerned with land reform ("the incorporated agencies"). These agencies are described below. In addition, there remain unincorporated co-operating agencies in land reform districts such as the Bureau of Plant Industry, Soils, Animal Industry, Agricultural Economics, Community Development, and Irrigation. Their work is to be integrated into that of the other agencies through the Committee of Unincorporated Agencies. This organization is designed to provide over-all co-ordination of all agricultural services for land reform districts.
6. The six newly created agencies and their functions are as follows:
 - (i) The Land Authority is authorized under the Land Reform Code to initiate and prosecute expropriation proceedings for the acquisition of private agricultural lands for the purpose of subdivision into economic family units and resale

of these farm units to specified persons. In respect to public lands it is required to develop plans and initiate actions for the systematic opening of alienable and disposable lands for speedy distribution to and development by deserving and qualified persons or corporations for large scale agriculture. The authority is, however, not permitted to rehabilitate private land or to develop public lands other than by reclaiming swamps and marshes. It is intended, with regard to both classes of lands, that the development will be the responsibility of the purchaser. It is possible that some financial assistance will be extended for this purpose by the Agricultural Credit Administration and other Government credit agencies.

- (ii) The Land Bank is intended to solve what is considered the major problem of the Land Reform Program, i.e., financing. This will include the payment of just compensation to owners of land acquired for redistribution and the re-sale of land to the beneficiaries under reasonable terms and conditions.
- (iii) The Agricultural Credit Administration (ACA). The ACA is a reorganization of the Agricultural Credit and Co-operative Financing Administration (ACCPA). The ACA is of special significance for the previous share tenants who are converted into lessees or new owners of land. Their new status will cut them off from their traditional sources of credit, their landlords. A sum of ₱ 150 million is appropriated for this purpose and authority given to re-discount and borrow from the Central Bank and other financial institutions. The ACA is directed to grant production loans and loans for the acquisition or construction of farm equipment, supplies and facilities especially to cooperatives to stimulate their organization and coordinate their production, marketing, management and service or facilities such as irrigation and transport. Individual loans not exceeding ₱ 2,000 may be extended to farmers on the basis of their repayment capacity or offered securities. Interest on these loans is limited to a maximum of 8% per annum.
- (iv) The Agricultural Productivity Commission (APC). The APC is a consolidation of the Bureau of Agricultural Extension (BAE) and the Agricultural Tenancy Commission (ATC). The purpose is to provide technical, educational and informational services through extension workers to the farmers, particularly lessees and new land owners who are beneficiaries of the land reform.
- (v) Office of the Agrarian Council. The Office of the Agrarian Council is a reorganization of the Tenancy Mediation Commission (TMC). Its specific purpose is to strengthen the legal assistance to agricultural lessees and owner cultivators. Land disputes are to be dealt with in the newly established Courts of Agrarian Relations to be established in the various regions of the country.

- (vi) The National Land Reform Council is to be composed of the Governor of the Land Authority (Chairman), the Administrator of the Agricultural Credit Administration, the Chairman of the Board of Trustees of the Land Bank, the Commissioner of the Agricultural Productivity Commission and another member appointed by the President. The functions of the Council include the designation of specific land reform districts and the formulation of detailed regulations governing the selection of land for acquisition and distribution, the selection of beneficiaries, and the determination of farm sizes. Regional Land Reform Committees, responsible to the Council, will be established in each region of the country. Government officials hope that political pressures will not force the council to designate land reform districts more rapidly than they can service effectively.
7. It is, however, clear that a reorganization of the agricultural services and land tenure will not in itself be sufficient to ensure increased agricultural productivity. There is urgent need to improve the supply of production supports, particularly fertilizer and improved seed.
8. The country now has one small plant manufacturing ammonium sulphate, another making superphosphate, two mixing plants, and a large urea plant under construction. Consumption of nitrogen fertilizers is estimated at 40,000 tons. This figure is expected to double by 1967, although a tripling is considered possible if certain unlikely assumptions should materialize. ^{1/}
9. Moderate tariffs are levied on imported fertilizers (two thirds of total supply) to protect local industry. An exception is made for fertilizer imported by the Agricultural Credit Administration (ACA) for supply to participants in the current "crash" rice production program. In this case the fertilizer is held either in ACA warehouses or under arrangement by private fertilizer distributors. It is disbursed to individual growers on orders from ACA. Payment is to be made from the proceeds of the crop which must be delivered to ACA designated warehouses. It has not yet been decided whether this crash program fertilizer credit scheme will be continued and expanded to the main rice crop later in the year. Sugarcane growers obtain their fertilizers mainly from their own co-operatives who buy in bulk and supply to their members. Other farmers can obtain limited supplies from the private fertilizer distributors operating at some of the main centers. Finance is available for its purchase through the private Rural Banks.

^{1/} See the study Projection of Fertilizer Usage in the Philippines sponsored by the International Finance Corporation. This study emphasizes the limited extent to which increased fertilizer use can lead to higher output unless it is accompanied by (a) many changes in cultural practices and (b) the development of new varieties more responsive to fertilizer than many native varieties now are. There is also great need for research on fertilizer applications and responses under Philippine conditions. The report tends to discount the contribution to be made by a greater availability of fertilizer alone.

10. The seed certification scheme for rice, at present the responsibility of the Bureau of Plant Industry (BPI), has not been successful. Quantities of certified seed produced annually are sufficient only to plant less than one per cent of the total rice acreage. During 1962/63, of some 90,000 cavans of seed produced by farmer co-operators for certified seed production, only 47,000 cavans were of an acceptable standard. This was principally due to the dispersion of selected co-operators with consequent insufficient supervisory service and to a rather unrealistically high standard adopted. In a futile endeavor to satisfy all demands for an opportunity to obtain a premium price for their crops, the BPI spreads the co-operators as widely as possible rather than locating them in concentrated areas so as to facilitate supervision. In order to improve the availability of good class commercial rice seed, CAP is instituting a controlled production program of recommended varieties in the various districts. Under this scheme selected seed will be bulked up by private growers under CAP supervision. If developed this would beneficially complement the seed certification scheme and generally improve the quality of seed available commercially.

11. Table I shows that the production increases of rice and corn over the past 15 years have been due almost entirely to expanded area rather than increase in yield. It is obvious that the fertilizer and seed situations, among other things, will need to be improved to permit any reorganized services to make a significant impression on the present agricultural position. A recognition of this fact is shown in the moves now being made to organize supplies of fertilizer for rice production and to provide credit for its purchase and in the commencement of a program for the bulking of selected rice seed of recommended varieties to meet the requirements of rice growers.

Changes in Area and Yield for Rice and Corn Consumption

1948/49 - 1961/62

<u>Area</u>				
<u>1,000 Hectares</u>				
<u>Crop</u>	<u>1948/49</u> <u>1952/53</u>	<u>1959/60</u>	<u>1960/61</u>	<u>1961/62</u>
Corn	969	1,646	2,045	2,014
Rice	2,350	3,306	3,198	3,179
<u>Yield</u>				
<u>100 Kg/Hectare</u>				
Corn	7.2	6.3	5.9	6.2
Rice	11.8	11.3	11.6	12.3
<u>Production</u>				
<u>1,000 Metric Tons</u>				
Corn	696	1,165	1,210	1,266
Rice	2,767	3,739	3,705	3,910

Source: Food and Agriculture Organization Production Yearbook, 1962

THE MANPOWEE OUTLOOK:
Requirements and Supplies in the Year 1970

1. Appraisal of the present project does not depend crucially on overall estimates of the future demand for and supply of agricultural graduates throughout the economy. However, it is useful to try to derive some notional figures for annual requirements and supplies in the future. Supply and demand estimates have been made for 1970, treated as a benchmark year.

2. In 1970 the U.P.C.A. will be only one among perhaps 20 agricultural colleges supplying graduates to the labor market. There are too many variables to permit a confident judgment as to whether or not there will be sufficient openings to absorb all the graduates of agricultural colleges. The best estimate, however, is that there will not be any serious surplus of graduates. Regardless of the overall market situation in 1970, adjustments in enrolments at U.P.C.A. alone cannot make any major contribution to the closer gearing of the total supply to requirements. The only remedy is a more controlled expansion of the total system of agricultural education than is now occurring.

3. A picture of future requirements can be developed by:

- (a) comparing the present density of such graduates against international standards, or
- (b) asking the main employers about their plans for expanding employment, or
- (c) working forward from a base-line figure for the present stock of agricultural graduates by applying arithmetic factors covering growth and replacement of this stock.

These three approaches serve as checks on each other. Together they lead to a judgment on the annual requirements for new agricultural graduates. Requirements can then be compared with the estimated annual supplies.

4. Table A lists all agricultural colleges and universities in the country, the dates of their founding, their estimated enrolments in 1963, and the assumed number of graduates in 1970. Until 1948 when the first graduates began to come from Araneta, the U.P.C.A. had been the only domestic source of agricultural graduates. Entirely apart from its past monopoly, however, the College enjoys a position of strong market preference among many employers because of the superiority of the education which they feel its graduates receive.

5. In 1963 the U.P.C.A. conducted a questionnaire survey of all living graduates to determine, among other things, their present employment. At the time of the appraisal mission's visit, returns from nearly 45 per cent of the alumni had been received. Their distribution by four major

classes of employment is shown hereunder:^{1/}

	<u>Number</u>	<u>%</u>
1. Dept. of Agriculture & Natural Resources	879	45
2. Education	632	32
3. Office of the President	315	16
4. Private employment	<u>131</u>	<u>7</u>
	1,957	100

When these figures are adjusted to allow for known distortions in the coverage of the returns received, they suggest that about 55 per cent of the graduates are employed by the government's agricultural service agencies, another 40 per cent are in agricultural education, and the remaining 5 per cent are employed by four large private employers.

6. There are no published data on the distribution of public employment of agricultural graduates and the unpublished data are poorly organized and difficult to locate. At the end of 1963 the Program Implementation Agency (PIA) was finishing an inventory of agricultural graduates in government employment. Preliminary results from the PIA survey showed that the central government employs about 10,000 university graduates of whom 6,400 hold agricultural degrees (including degrees in agricultural education). Table C presents the best estimates available on the composition of this 6,400 population now in government service.

7. Table C shows that two-thirds of the public employees with agricultural degrees are employed in the agricultural services, one-third work in agricultural education. Sixty per cent of those in the agricultural services are extension workers of one kind or another including Home Economics workers. With 1.6 million farmers in the country there is one extension agent for every 1500 - 1600 farmers. This ratio compares with 1/650 in Japan, 1/1,500 in Taiwan, 1/2,500 in South Korea, 1/5,000 in Malaya, 1/15,000 in Thailand.^{2/} Thus the present density of extension workers in the Philippines is considered satisfactory as measured by crude international comparisons. Growth of the agricultural services during the next decade should be slower than in the recent years of very rapid expansion.

8. We may estimate the annual government demand for agricultural graduates in 1970 by (a) applying a range of growth-rates to the present stock

^{1/} - Table B gives more detail on the distribution of employment by employing agency. Although extension workers constitute the largest single occupational group among U.P.C.A. graduates in the sample, they account for only one graduate in every five. College authorities believe that graduates employed by the Bureau of Public Schools, teaching in agricultural high schools and colleges, constitute the largest occupational group of alumni.

^{2/} - Taken from the U.N. publication "Decentralization for National and Local Development" (ST/TAG/M/19-1962), P.132. The ratios refer to 1959.

of university graduates in the agricultural agencies (including agricultural education), (b) adding an allowance for replacement, and (c) making assumptions about the proportion of graduates who will hold agricultural degrees. Table D begins with the present estimate of 10,000 in the agricultural services and education, applies a range of growth and replacement rates to arrive at figures of gross annual requirements and then applies five assumptions as to the proportion of newly-hired people who will hold agricultural degrees. Table D is not cumulative; it refers only to the year 1970.

9. The low-column estimates seem unlikely on two grounds, (1) an important set of government services that has recently been expanding rapidly cannot suddenly be assumed to slow down its growth to the expected growth-rate of the farm population, and (2) a 2 per cent growth rate is only one-fifth of the projected annual increase of DANR expenditures for the next five years. At the other end of the scale, the high-column estimates would (if the present distribution pattern continued) give the country one extension agent for every 260 farm units. This matches the Netherland's present ratio, the highest in the world. A figure of about 1700 (+ or - 600) is as accurate an estimate of new recruits in 1970 as can be hoped for now. This figure can be compared with the probable output of agricultural graduates in 1970 shown in Table A.

10. Table A gives us an estimated figure of 1,900 agricultural graduates in 1970. Not all these will seek government employment. If we apply the present factor of about one-quarter who do not choose government, we have a net figure of 1,425 as the number of domestic graduates likely to seek public employment in 1970. The number returning from foreign study is unlikely to increase this figure significantly (perhaps by 50-100). An estimated supply figure of about 1,500 compared to the estimated demand figure of about 1,700 suggests that there will be a reasonable balance in the system. However, both the supply and demand figures are subject to wide margins of error.

LIST OF AGRICULTURAL COLLEGES

<u>Name and Location</u>	<u>Date of Founding</u>	<u>Approximate Enrollment 1962/1963</u>	<u>Estimated Number to be graduated in 1970</u>
1. UP College of Agriculture College (Los Baños)	1909	2,050	350
<u>Other Chartered Agr. Colleges (Public)</u>			
2. Central Luzon Agricultural College Minoz, Nueva Ecija	1950	1,400	250
3. Mindanao Agricultural College Musuan, Bukidnon	1953	1,000	200
4. Mindanao Institute of Technology Kabacan, Cotabato	1954	1,000	250
5. Samar Institute of Technology Cataraman, Samar	1958	<u>300</u>	<u>100</u>
Sub-Total - Chartered:		5,750	1,150
<u>Public Colleges (under Bureau Public Schools)</u>			
6. Mountain Agricultural College Trinidad, Benguet Mountain Province	1952*	235	100
7. Visayas Agricultural College Baybay, Leyte	1952*	300	100
8. Camarines Sur National Agricultural School Pili, Camarines Sur	1956*	200	75
9. Roxas Memorial Agricultural School Guinobatan, Albay	1956*	200	75
10. Negros Occidental Agricultural School Kabangkalan, Negros Occidental	1962*	50	25

APPENDIX II
Table A (Page 2)

<u>Name and Location</u>	<u>Date of Founding</u>	<u>Approximate Enrollment 1962/1963</u>	<u>Estimated Number to be graduated in 1970</u>
11. Iloilo National Agricultural School Lamounac, Iloilo	1962*	50	25
12. Tarlac National Agricultural School Camiling, Tarlac	1962*	50	25
13. Bulacan National Agricultural School San Ildefonso, Bulacan	1962*	50	25
14. Zambales National Agricultural School San Marcelino, Zambales	1962*	<u>50</u>	<u>25</u>
Sub-Total - BFS:		1,185	475
<u>Private Colleges</u>			
15. Araneta University Victoneta Park, Rizal	1946	1,000	100
16. Central Philippine University Iloilo City	1954*	100	50
17. Diliman University Dumaguest, Negros Oriental	1954*	100	50
18. Xavier University Cagayan de Oro Misamis Oriental	1954*	<u>100</u>	<u>25</u>
Sub-Total - Private:		1,300	225
Grand Total:		<u>3,235</u> =====	<u>1,850</u> =====

* Year when collegiate courses started to be offered.

Note: Some other schools under the BFS such as the schools in Aklan province and Cagayan are in the process of conversion into agricultural colleges

Employment Distribution of UPCA Graduates in 1962/1963

(based on questionnaire returns from 1788 graduates)

<u>I. Department of Agriculture and Natural Resources</u>		
Bureau of Agricultural Extension	369	
Bureau of Plant Industry	279	
Bureau of Soils	103	
Bureau of Animal Industry	6	
Philippine Sugar Institute	55	
Irrigation Service Unit	10	822
<hr/>		
<u>II. Office of the President of the Philippines</u>		
Agr. Credit Administration	36	
Forest Products Research Institute	13	
Presidential Assistant for Community Development	39	
Emergency Employment Administration	102	
Program Implementation Agency	8	
Development Bank of the Philippines	42	
Philippine Virginia Tobacco Administration	5	
Philippine Coconut Administration	19	
National Economic Council	13	
National Science Development Board	6	283
<hr/>		
<u>III. Educational Institutions</u>		
Bureau of Public Schools	303	
Central Luzon Agricultural College *	24	
UPCA * (includes some graduate students)	258	585
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<u>IV. Private Employers (four only)</u>		
International Rice Research Institute	10	
Shell Oil Company	12	
Canlubang (sugar complex)	26	
San Miguel Brewery	20	98
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	Total	1,788

* Chartered colleges: not responsible to the Department of Education.

Source: UPCA, July 25, 1963. These returns cover only about 40% of the estimated 4500 graduates still in employment. Since the questionnaires were mailed out on a non-random basis the above returns cannot be taken as representative of the whole alumni body.

Table C

Public Employment of Agricultural Degree Holders (1963)

<u>I. Agricultural Services</u>		<u>Number</u>	<u>Per Cent</u>
1. Extension officers		2,482	40
	Agricultural extension officers	1,380	
	Home Economics Officers	616	
	Rice and Corn Authority	300	
	Abaca Development Program	<u>186</u>	
2. Others			
	Bureau of Plant Industry	350	
	Bureau of Animal Industry	300	
	Bureau of Soils	250	
	Community Development	200	
	Bureau of Agricultural Economics	60	
	ACA	50	
	Coconut Institute	50	
	Philippine National Bank, Central Bank	40	
	Several other agencies	<u>300</u>	
	Sub-Total	<u>1,600</u>	25
		<u>4,082</u>	<u>65</u>
<u>II. Agricultural Education</u>			
Bureau of Public Schools		1,784	28
Classroom teachers:	1,415		
Chartered agricultural colleges		500	7
	Sub-Total	<u>2,284</u>	<u>(35)</u>
	<u>GRAND TOTAL</u>	<u>6,366</u>	<u>100</u>

Government Requirements for New Agricultural Graduates in 1970

Relevant Comparisons:

1. Assumed rate of population growth to 1970: 3.0% p.a.
2. Government's projections for increases in overall expenditures, FY 1963-68: ave. 8.5% p.a.
3. Government projection for increases in expenditures of Dept. of Agriculture and Natural Resources, FY 1963-68: 10.3% p.a.
4. Beginning stock of university graduates in government departments servicing agriculture: 10,000 (1963)
5. Approx. ratio of agricultural graduates to all university graduates in government departments servicing agriculture: .64 (1963)

I. Positions to be filled by University Graduates

	<u>Low</u>	<u>Intermediate</u>	<u>High</u>
1. Size of stock (end 1970)	(11,487)	(15,036)	(19,487)
2. Growth in stock	230(2%)	902(6%)	1,949(10%)
3. Replacement of wastage	345(3%)	752(5%)	1,374(7%)
Total: 2 + 3	575	1,654	3,323

II. Agriculture Graduates

(assumed portion of total intake of university graduates)

Percent

50	288	827	1,662
60	345	992	1,994
70	403	1,158	2,326
80	460	1,323	2,658
90	518	1,489	2,991

Average of the minimum and maximum figures is 1,640.
"most reasonable range": 1100 to 2300 (or 1700 + 600)

LIST OF COLLEGES AND SCHOOLS IN THE UNIVERSITY OF THE PHILIPPINES

(Arranged in the order of their founding)

1. College of Medicine
2. College of Agriculture - Los Banos
3. College of Architecture and Fine Arts
4. College of Arts and Sciences
5. College of Engineering
6. College of Veterinary Medicine
7. College of Law
8. Graduate College of Education
9. College of Pharmacy
10. Philippine General Hospital School of Nursing
11. College of Forestry
12. University High School
13. Conservatory of Music
14. College of Dentistry
15. Summer Institute
16. Institute of Hygiene
17. Rural High School
18. College of Business Administration
19. University Elementary School
20. Iloilo College
21. College of Nursing
22. Graduate School of Arts and Sciences
23. Extension Division, Manila
24. Institute of Public Administration
25. University Preparatory School
26. Statistical Center
27. Asian Labor Education Center
28. Clark Air Base Branch
29. Institute of Asian Studies
30. College of Fisheries
31. Institute of Economic Development and Research
32. Agricultural Credit and Cooperatives Institute
33. University College
34. U.P. College, Baguio City
35. Institute of Library Science
36. College of Home Economics
37. School of Allied Medical Professions

Source: General Catalogue, U.P., 1963/64, pp. 7-11.

APPENDIX IV

UNIVERSITY OF THE PHILIPPINES
COLLEGE OF AGRICULTURE, LOS BAÑOS

Estimated costs of new buildings, renovation,
equipment, utilities and other costs^{1/}

<u>New Buildings</u>	<u>C O S T</u>	
	<u>Pesos</u>	<u>\$ Equivalent</u>
1. Physical Science	2,702,100	675,500
2. Biological Science	3,735,700	933,900
3. Dept. of Agricultural Information and Communications - Farm & Home Development	710,600	177,700
4. Agronomy/Soils	2,329,000	582,200
5. Physical Plant	653,400	163,400
6. Agricultural Engineering	797,700	199,400
7. Biological Science Greenhouse	246,600	61,700
8. Agronomy/Soils Greenhouse	275,000	68,800
9. Food Science and Technology	974,400	243,600
10. Students Union	2,304,800	576,200
11. Men's Dormitories	1,686,900	421,700
12. Women's Dormitories	1,380,100	345,000
13. Administration	1,227,600	306,900
14. Infirmary	913,500	228,400
15. Auditorium	1,435,600	358,900
16. Faculty Housing	3,600,000	900,000
 <u>Renovation</u>		
17. Library	200,000	50,000
18. Rural High School	100,000	25,000
19. Humanities	100,000	25,000
	<u>Sub-total</u>	<u>6,343,300</u>
20. Equipment	8,732,500	2,183,100
21. Site Utilities	3,969,500	992,400
22. Architectural and Engineering Fees	1,830,000	457,500
23. Administration	599,000	149,700
	<u>Total</u>	<u>10,126,000</u>
24. Contingencies	<u>6,196,000</u>	<u>1,549,000</u>
	<u>GRAND TOTAL</u>	<u>\$11,675,000</u>

^{1/} Subject to revision during negotiations.

FINANCE

1. This appendix contains data and explanations that bear on the University's and the Government's ability to finance the Project. Four tables follow these explanatory paragraphs.
2. Table 1 shows the University's total cash income and expenditures for the seven years FY 1957 - FY 1963 plus tentative projections for the five-year period of the Program, FY 1964 - FY 1968. In five of the seven most recent years the University has realized an overall surplus despite an increase of 45% in expenditures over the period. The cumulative net surplus for these seven years was P2.7 million. Annual surpluses remain the property of the University; they do not revert to the National Treasury.
3. The sources of University income in FY 1963, and estimated sources for each of the next five years, are given in Table 2. By FY 1968 the overall income is expected to rise from P20.6 to P34.2 million, an increase of P13.6 million, or two-thirds. This is exactly the amount by which the Government contribution is assumed to increase. The net changes assumed for the five other sources of income are zero.
4. It is useful to compare the projected five-year expansion in Government expenditures for the University with the projected expansions for:
 - (a) eleven other chartered educational institutions not under the Department of Education,
 - (b) the Department of Education,
 - (c) the total expenditures of the National Government, and
 - (d) the National Government's financial resources.

Five-year estimates for all these items are summarized in Table 3. The main points of interest are these:

- (i) Although no estimates are given for the expansion of total financial resources, income from General Fund (which regularly accounts for 80-85% of Government resources) is expected to grow by P821 million, or 53%.
- (ii) Total expenditures of the National Government are expected to rise by P927 million, or 49%.
- (iii) Total expenditures for education by agencies of the National Government (the sum of lines 3, 4 and 5) will rise by P337 million, or 70%. This total exceeds the budget appropriations needed by the amount of the University's expenditures that are financed from sources other than the national budget (cf. Table 2).

- (iv) In FY 1963, 96% of National Government funds for education went to the Department of Education; less than 2% went to the University of the Philippines while just over 2% went to the 11 other chartered universities not run by the Department of Education or financed through its budget.
- (v) Although expenditures for the University and the 11 chartered universities are expected to rise at considerably faster rates than those of the Department of Education, the latter will still be spending 91% of the Government's education funds in FY 1968. About 88% of the total increase in educational outlays will go to the Department. The increase in this item alone will account for about 32% of the total increase in all Government expenditures. The result would be to raise the total proportion of education expenditures in the Philippine budget from 26% in FY 1963 to 29% in 1968.
- (vi) The absolute increase projected for the University is less than 10% of that for the Department of Education.

5. The projected additional operating expenditures for U.P.C.A. resulting from the implementation of the Five-Year Development Program have been prepared by U.P.C.A. and have been approved recently by the Government's Program Implementation Agency. They are shown in Table 4 broken down into divisions and individual items. According to U.P.C.A.'s estimates, the increase in operating expenses would be spread over four years, rising from ₱3.4 million in FY 1964 to ₱7.9 million in FY 1968; thereafter they would level off at about ₱8 million. The annual increase over the first four years of the Program is slightly over ₱1 million as can be seen from Table 4. These projections will be discussed during negotiations in order to ensure that projected operating expenditures will adequately meet the requirements of U.P.C.A.'s Five-Year Development Program.

University of the Philippines
Projection of Income and Expenditure^{1/}
(in thousand pesos)

<u>Fiscal Years</u>	<u>I N C O M E</u>		<u>E X P E N D I T U R E</u>	
	<u>Actual</u>	<u>Projection</u> ^{2/}	<u>Actual</u>	<u>Projection</u> ^{2/}
1957	12,638.1		11,544.1	
1958	13,957.3		13,634.9	
1959	14,977.7		15,710.7	
1960	16,222.2		15,511.2	
1961	18,377.5		17,689.0	
1962	16,483.1		16,618.9	
1963	<u>20,524.2</u>		<u>19,763.5</u>	
	113,180.1		110,472.6	
1964		23,960		23,960
1965		26,190		26,430
1966		28,630		29,150
1967		31,290		32,150
1968		<u>34,200</u>		<u>35,460</u>
		144,270		147,150

^{1/} - Does not include capital expenditures of the Five-Year Development Program.

^{2/} - Rates of increase of income, 9.3 per cent, and expenditure, 10.3 per cent.

Source: University of the Philippines, Certified Statement of the Chief Accountant.

APPENDIX V
Table 2

University of the Philippines
Five-Year Projection of Income by Source of Income
(in thousand pesos)

<u>Fiscal Years</u>	<u>Actual</u> <u>Income</u>		<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
	<u>1963</u>	<u>%</u>					
1. Tuition and other fees	4,177.9	20	5,000.0	5,000.0	5,000.0	5,000.0	5,000.0
2. National Government contribution	7,212.4	35	12,371.0	13,987.8	16,043.1	18,311.1	20,821.0
3. NEC-AID Program & Lump Sum and Counterpart Funds	1,865.4	9	1,198.0	1,047.6	858.9	625.8	342.0
4. Endowments (Foreign and Local)	762.1	4	1,797.0	2,488.0	3,006.1	3,598.3	4,275.0
5. Miscellaneous	<u>6,506.4</u>	<u>32</u>	<u>3,594.0</u>	<u>3,666.6</u>	<u>3,721.9</u>	<u>3,751.8</u>	<u>3,762.0</u>
<u>T O T A L</u>	<u>20,624.2</u>	<u>(100)</u>	<u>23,960.0</u>	<u>26,190.0</u>	<u>28,630.0</u>	<u>31,290.0</u>	<u>34,200.0</u>

Source: Budget Office, University of the Philippines.

National Government
Projected Growth of Resources, Total Expenditures,
and Expenditures for Education, FY 1963-1968
(in million pesos)

<u>Fiscal Years</u>	<u>1964</u>		<u>1965</u>		<u>1966</u>		<u>1967</u>		<u>1968</u>		<u>Five-Year Growth</u>	
	<u>P</u>	<u>%</u>	<u>P</u>	<u>%</u>	<u>P</u>	<u>%</u>	<u>P</u>	<u>%</u>	<u>P</u>	<u>%</u>	<u>P</u>	<u>%</u>
<u>Resources and Expenditures</u>												
1. General Fund Revenue	225	15	63	4	163	9	178	9	194	9	823	53
2. Total Expenditures	300	16	124	6	156	7	168	7	179	7	927	49
<u>Education Expenditures</u>												
3. Department of Education	82	18	46	9	43	7	41	7	124	20	295	65
4. University of the Philippines <u>1/</u>	5.3	23	12.7	45	2.0	5	3.6	8	2.9	4	(25.6)	(110)
5. Eleven other chartered universities <u>1/</u>	3.1	30	6.3	63	3.7	28	2.4	23	1.0	4	<u>16.5</u>	160
											<u>337.1</u>	

1/ - These increments refer to the total budgets of the institutions, not to the Government's contributions to those budgets. The University of the Philippines budget estimates used here are somewhat higher than those used in Table 2, which represent later estimates. Table 2 shows that the University is anticipating an increase in the Government's contribution of P13.6 million (P20.8 million minus P7.2 million). If Table 2 figures are used, the last two figures in row 4 become P13.6 million and 190 per cent. Figures are not available to make similar adjustments for the 11 other chartered universities.

Source: Computed from Tables 4 and 6, and Annex A, The President's Budget Message to the Fifth Congress of the Republic of the Philippines.

UNIVERSITY OF THE PHILIPPINES' COLLEGE OF AGRICULTURE
Requirements for Additional Operating Expenses under the Five-Year Development Program
(in thousand pesos)

APPENDIX V
Table 4
Page 1

<u>Fiscal Years</u>	<u>Total in 1964</u>	<u>Yearly Increase in Operating Expenses</u>						<u>Proposed Budget at the end of 6 Years</u>
		<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	
<u>Division and Item</u>								
<u>Administration</u>								
Salaries	405	28	30	33	35	38	40	609
Wages	60	5	--	--	5	5	10	85
Travel	22 a/	--	--	--	--	5	5	32
Supplies & Materials	215 a/	--	--	10	10	15	15	265
Equipment	40 a/	--	--	--	--	--	40	80
Sundry	40 a/	--	--	--	--	5	10	55
Sub-Totals	782	33	30	43	50	68	120	1,126
<u>Instruction</u>								
Salaries	1,009	71	76	81	86	91	96	1,510
Assistantships, Fellowships and Scholarships	163	25	25	50	50	50	--	363
Wages	42	--	10	15	15	17	27	126
Travel	Under Adm.	--	5	5	10	10	20	50
Supplies and Materials	20	--	30	40	40	30	40	200
Equipment	Under Adm.	--	--	--	--	40	100	140
Sundry	Under Adm.	--	3	3	4	5	10	25
Sub-Totals	1,234	96	149	194	205	243	293	2,414

Fiscal Years	Total in 1964	Yearly Increase in Operating Expenses						Proposed Budget at the end of 6 Years
		1965	1966	1967	1968	1969	1970	
<u>Research</u>								
Salaries	439	31	33	35	67 <u>b/</u>	69 <u>b/</u>	45	719
Wages	145	--	15	15	20	30	35	260
Travel	45	--	10	10	10	10	20	105
Supplies & Materials	120	5	10	10	10	10	10	175
Publications	15	--	5	3	2	2	3	30
Equipment	23	--	--	--	--	60	100	183
Sundry	20	5	15	15	15	15	15	100
Sub-Totals	807	41	88	88	124	196	228	1,572
<u>Extension</u>								
Salaries	30	2	2	2	3	3	3	45
Wages	9	1	1	2	3	3	3	22
Travel	15	2	10	10	5	5	9	56
Supplies and Materials	20	--	5	5	3	5	10	48
Field Day Fund	6	--	1	1	1	1	--	10
Equipment	12	--	--	--	--	10	20	42
Publications	5	--	2	2	1	1	2	13
Sundry	8	--	2	2	5	5	7	29
Sub-Totals	105	5	23	24	21	33	54	265

Fiscal Years	Total in 1964	Yearly Increase in Operating Expenses						1970	
		1965	1966	1967	1968	1969	1970		
<u>Service & Maintenance Division</u>									
Salaries	168	12	13	14	15	96 <u>c/</u>	22		340
Wages	140	15	25	25	30	30	30		295
Travel	Under Adm.	3	--	--	--	--	2		5
Supplies & Materials	12	15	50	50	70	70	53		320
Equipment	Under Adm.	--	--	--	--	40	30		120
Sundry	Under Adm.	5	20	20	25	30	35		135
Sub-Totals	320	50	108	109	140	266	222		1,215
<u>Special & Auxiliary Services</u>									
Salaries	79	5	5	5	6	6	33 <u>d/</u>		139
Wages	11	--	2	5	5	5	7		35
Supplies & Materials	38	--	5	5	5	6	7		66
Equipment	7	--	--	--	--	--	20		27
Travel	1	--	1	1	--	--	--		3
Capital Outlay	9	--	--	--	--	--	--		9
Sundry	18	--	2	2	4	4	2		32
Sub-Total	163	5	15	18	20	21	69		311
GRAND TOTAL	3,411	230	413	476	560	827	986		6,903

a/ - Lumpsum for the administration and all academic departments (Instruction) and service units. These will be relieved ultimately for administration alone.

b/ - Including about 8 new key positions for Food Science and Technology.

c/ - Including 20 new positions to correct in part the present weaknesses of this division.

d/ - Including about 5 new important positions for the Infirmary.

NOTE: (1) Salaries increase each year by 7 per cent for selective promotions and a few additional positions.

(2) Original provision for general salary adjustment is omitted here.

SUMMARY BY ITEMS OF ADDITIONAL EXPENSE
(in thousand pesos)

Item	Total in 1964	Yearly Increase in Operating Expenses						Proposed Budget at the end of 6 Years
		1965	1966	1967	1968	1969	1970	
Salaries	2,130	149	159	170	212	303	239	3,362
Wages	407	21	53	62	78	90	112	823
Assistantships & Scholarships	163	25	25	50	50	50	--	363
Travel	83	5	26	26	25	30	56	251
Supplies & Materials	425	20	100	120	138	136	135	1,074
Equipment	82	--	--	--	--	150	360	592
Publications	20	--	7	5	3	3	5	43
Field Day	6	--	1	1	1	1	--	10
Capital Outlay	9	--	--	--	--	--	--	9
Sundry	86	10	42	42	53	64	79	376
Totals	3,411	230	413	476	560	827	986	6,903

NOTE: The original provision for general salary adjustment is omitted here.

Sept.15/64

ORGANIZATION AND PROPOSED DUTIES
OF U.P.C.A. TECHNICAL AND ADMINISTRATIVE UNIT

1. A technical unit (see below for details) should be established at Los Banos to secure detailed information about requirements of buildings and equipment, review them and transmit them to the architects and engineers. This unit should review plans and specifications for compliance with these requirements; check them against applicable standards of design and construction; effect all appropriate economies; secure estimates from the architects and engineers; reconcile these with established budgets; procure equipment; and prepare all necessary reports.
2. The technical unit should consist of three sections: (a) architecture-engineering, (b) procurement, (c) accounting, reporting and audit. It should be headed by a Project Manager responsible to U.P.C.A.'s Dean. He should be the head of the architecture-engineering section, be trained and experienced in architectural practice and have a working knowledge of accounting practices. He should have an assistant trained and experienced in mechanical and electrical engineering. An additional technical assistant and clerical support should be adequate.
3. Procurement services should be provided by an experienced person assigned to the Project. This person should be responsible to the Project Manager but bear a line relationship to the Business Manager. Clerical pool services should be made available as the demand indicates.
4. Accounting and reporting should be provided by an experienced person assigned to the Project. He should be responsible to the Project Manager. Line relationship and supporting services should be as for procurement.
5. Project Manager should have as his advisor the assistant to the Cornell University project leader 1/ and should:
 - a. Act as advisor to U.P.C.A.'s Dean on all technical matters related to the project and, when so authorized, act as U.P.C.A.'s representative in these matters.
 - b. Collaborate with U.P.C.A.'s academic and administrative staff in the preparation of data on space and equipment requirements of the building program.
 - c. Advise on the relative feasibility of renovations, annexes and new buildings and propose schedules.
 - d. Transmit to the architect the surveys, data on utilities and standards of design on construction as applicable.

1/ A member of the Cornell University advisory unit to U.P.C.A.

- e. Effect all practicable economies in space utilization, design and construction.
- f. Secure estimates of cost and schedules from the architect and reconcile these with the overall plan.
- g. Secure complete and competent professional services from the architect in compliance with the agreement for such services.
- h. Coordinate the procurement of equipment with the building construction schedule.
- i. Review and submit accounting and other reports and advise on the scheduling of expenditure of construction funds.
- j. Advise on a program of maintenance and operation of the buildings and equipment included under the Project that would ensure the continued effectiveness of the capital improvements.

6. A supervising architect should be appointed to ensure adherence to the basic principles and objectives of the campus plan and to keep it current as the program progresses. It is assumed that the supervising architect would be appointed executive architect for one or more of the major buildings.

7. In addition to the appointment of the supervising architect and his additional appointment as executive architect for initial major buildings, other executive architects for early major buildings should be appointed. The executive architect should be responsible for all matters related to the design of the building and should supervise construction as part of his services. Inspection of the work should be by inspectors who are part of the technical unit, compensated from Project funds, and are responsible to the executive architect for the compliance of construction with the contract documents.