

*1 submittal
2/11* 4

3670102 (3)

PD-AAD-033-A1

CAPITAL ASSISTANT PAPER

46p.

Proposal and Recommendations
For the Review of the
NESA Advisory Committee

Nepal - Institute of Agriculture
and Animal Sciences

Part I	-	<u>Summary & Recommendations</u>	.....	1
Part II	-	<u>Background</u>	.....	2
		A. Country Setting	.....	2
		B. Agriculture Sector	.....	4
Part III	-	<u>Project Evaluation</u>	.....	7
		A. Background	.....	7
		B. Project Description	.....	10
		C. Project Justification	.....	11
		1. Manpower Requirements	.....	11
		2. Building Requirements	.....	14
		D. Project Analysis	.....	24
		1. Technical Analysis	.....	24
		2. Financial	.....	28
		3. Implementing Agency	.....	31
		E. Project Implementation	.....	35
		1. Implementation Plan	.....	35
		2. Financial Plan	.....	39
		3. Monitoring/Evaluation	.....	41
Part IV	-	<u>Annexes</u>		
		1. Section 611(e) Determination	.....	42
		2. Grant Authorization	.....	43
		3. Map	.....	44

Summary and Recommendations

Grantee: His Majesty's Government of Nepal

Grant Amount: Rs 37,489,500.00

Total Project Costs: Rs 49,986,000.00

Project Description: The construction of classroom and administrative complexes, hostels, staff quarters, farm buildings, and supporting student and staff community facilities at Rampur, Nepal for the Institute of Agriculture and Animal Sciences.

Mission Views: The Mission endorses the proposed grant.

Statutory Criteria: Since this is a local currency grant, the Statutory Criteria are not applicable.

Issues: None

Recommendations: That a grant in the amount of Rs 37,489,500.00 Nepalese Rupees be authorized.

USAID/Nepal Capital Assistance Committee

Capital Projects Development Officer: B. Donald Reese

Engineer: James E. Gardner

Economist: ~~Edward B. ...~~

Program: Jacob L. Crane

Education Advisor: Burton C. Newbry

Part II - Background

A. The Country Setting:

The Kingdom of Nepal is a land-locked nation bordering on China in the north and India in the east, south, and west. Nepal is roughly 800 km long and 170 km wide encompassing a total land area of approximately 54,362 square miles. The country is divided into three distinct physical regions: (i) the Terai, an extension of the Gangetic Plain stretching across the southern portion of Nepal; (ii) the central hills, an intermediate range of mountains running in an east to west direction; and (iii) the Himalayas, the world's highest mountains, in the north. Nepal is dissected by deep river valleys running generally in a north to south direction.

The population of Nepal is currently estimated to be approximately 11.5 million with an annual growth rate estimated to be 2.2 percent. Over 90% of the population is engaged in agricultural activities. The population is unevenly distributed with about 42% of the people living in the Terai which comprises only 27 percent of the total land area of Nepal but contains 67 percent of its total cultivated land. Approximately 58% of the population is concentrated in the central hills area and Kathmandu Valley with only 30% of the country's arable land. Consequently, the population pressure in the hills has resulted in a southward migration. In recent years economic growth has approximated the growth in population. Even so, Nepal has one of the lowest per capita incomes (estimated at \$70-\$80 equivalent) of any of the relatively lesser developed countries in the world today.

The Nepalese economy is largely based on subsistence agriculture with rice, corn, wheat, millet, oil seeds, sugar cane, tobacco, jute and pulses

as the major crops. Industrial activity which is mainly concentrated in the Kathmandu Valley, is of minor economic significance, as are mining and metallurgy.

It is estimated that more than 90% of Nepal's foreign trade is with India and trade with other foreign countries, except mainland China, must transit India. Exports consist primarily of food grains, timber, hides and skins, vegetable and animal oils, and jute, Imports, primarily from India, are comprised of manufactured consumer goods, food products, and petroleum products.

Nepal's economic development has been severely hindered by its physical characteristics, poor internal communications, and a modern history of almost total isolation. Up until 1951 contacts with the outside world were restricted as a matter of Government policy. The Himalayas in the north and malaria forests in the south enhanced the Government's ability to preserve its self-imposed isolation. Internally, Nepal's topography and resultant poor internal communications has precluded the emergence of an integrated economy. The nation is composed of many loosely linked valley economies physically compartmentalized and isolated by numerous rivers and intervening mountain ranges. Nepal's topographic characteristics are a major handicap in addressing Nepal's development problems which will require many years of resolute effort to resolve.

B. Agriculture Sector

Agriculture is the predominant economic activity in Nepal. It is estimated that agriculture accounts for approximately 70% of GDP, provides 80% of Nepal's export earnings, and employs 94% of the labor force. Between 1960 and 1970, agricultural output increased at about 1.8% p.a., largely due to an expansion of cultivated land. This increase in agricultural production was more than off-set by population increases -- approximately 2.2% during the same time frame. Increasing the efficiency and productivity of Nepalese agriculture is perhaps the most important task facing Nepal today, both to feed its growing population and to serve as a "leading edge" to overall economic development.

However, it is a gross simplification to refer to the agricultural sector; there are rather two agricultural sectors, that of the hills and that of the Terai. While they have several characteristics in common, they are also strikingly different. Historically the hills have been a subsistence economy. In recent years, however, economic and agricultural conditions have been deteriorating. This is primarily due to increased population pressure which has destroyed the previous equilibrium between people and resources. Approximately two-thirds of Nepal's population resides in the hills -- yet only one third of the cultivated area is in the hills. To sustain its increasing population, people have had to cultivate more and more marginal lands, thereby increasing erosion and decreasing productivity per unit of land. This, in turn, has meant more and more people short of food and money to purchase even the basic

necessities (salt, cloth, etc.). Because the land is not at this time able to support them, approximately one fourth of the hill population migrates to the Terai and India in search of employment during the coldest winter months. Many of these migrants have also tried to settle permanently in the Terai, illegally moving into previous virgin forests, cutting down trees and generally creating ecological, political and social difficulties.

In contrast to the hills, the Terai is an agricultural surplus region. It has approximately 70% of the country's cultivated land and produces about two-thirds of total agricultural output, yet has only one-third of the population. As a surplus region, its role is to produce sufficient foodgrains and cash crops to export to the food-deficit hills and to India. (Note: exports of foodgrains and other agricultural products to India are Nepal's major earner of Indian currency which is used to cover its heavy imports of basic consumer goods). However, in recent years, this surplus has been declining, partially due to increased population pressure. In addition, and even though it is a surplus region, yields are generally low and multiple cropping is limited due to the irregular supply of water.

Foodgrains dominate agricultural production. They comprise approximately 90% of the total. On the basis of incomplete (and perhaps questionable) data, foodgrain production is increasing at less than 2% p.a. From

1964/67-68/69 to 1970/71-72/73, paddy production increased at 1.8% p.a., maize at 0.9% p.a., wheat at 5.0% p.a., and millet at 2.7% p.a. Most of these even limited increases are due to increased area under cultivation. As such, there are indications that yields per hectare might be decreasing. During the above years, area under foodgrain cultivation increased by 1.8% p.a., while production increased at only 1.2% p.a.

Nepal's long term development objectives can not be achieved without substantial and sustained growth of agricultural out put. Since new land is limited, this can only be accomplished through higher productivity which means Nepal must undergo a transformation from traditional to modern agriculture by developing the requisite infrastructure such as institutions for research, extension, credit, and marketing as well as a mechanism for transmitting technology to the farmer.

Part III - Project Evaluation

A. Background

The Institute of Agriculture and Animal Science (IAAS) was created in July 1972 as one of the newly designated "institutes"* operating under Tribhuvan University. At this time, the University was given the responsibility for all post high school training -- whether it be of a traditional academic variety or of a technical variety. Prior to 1972 this latter training (e.g., for Auxiliary Health Workers, Overseers, and Agricultural Extension Workers) had been provided by the relevant Government ministries.

The IAAS was originally the Ministry of Agriculture's College of Agriculture, a small training institution housed in Kathmandu and responsible for the training of agriculture extension agents (Junior Technicians, JT's, and Junior Technical Assistants, JTA's). Prior to the transformation of the old College of Agriculture to Institute status, HMG had requested USAID assistance in the development of an agricultural institution of higher education. USAID responded through a contract with the Midwest Consortium of Universities for International Agriculture (MUCIA), which followed earlier "feasibility" studies by FAO and the University of Illinois. MUCIA was asked to study Nepal's needs for an agricultural college in cooperation with Nepalese agriculturalists during the summer of 1972. It resulted in the report entitled Higher Education in Agriculture in Nepal: a Report of a Pre-Feasibility Study.

*All Institutions of higher learning are now designated as institutes rather than colleges, and all are under the administration of Tribhuvan University.

The MUCIA Report supported the need for an agricultural institution of higher education in Nepal. HMG gave its approval of the Report with some modifications in cost and capital projections and has moved ahead to develop a skeletal Institute of Agriculture. It thus moved the IAAS out of the Kathmandu Valley to a rural site, in the Inner Terai (Rampur in the Rapti Valley), on a 320 acre campus immediately adjoining a well developed research station which will serve as a complementary facility to the Institute.

In June, 1974 a PROP was approved by Washington to provide technical assistance to Nepal's newly created Institute of Agriculture and Animal Sciences (IAAS). The PROP also briefly discussed the projected capital elements consisting of administrative and learning complexes, hostels, staff quarters and community facilities. The PROP stated further study of the capital elements would be required in order to more precisely define the physical requirements.

In August and November, 1974 Mr. James Miller, a campus planner on the faculty of the University of Illinois, visited the IAAS campus and devised a preliminary building program and estimated costs for construction. Finalization of the proposed building program is contingent upon approval of the academic plan by the institutional contractor which has yet to be selected. The contractor is expected to be selected and an academic planner fielded by the July, 1975.

In order to avoid further delays in the development of the plans for the capital input for this project, it is the Mission's intention to seek approval with this document to proceed with a staged approach to the Project's development. The first stage will consist of design, preliminary site preparation, and the stock piling of identifiable construction materials. The first stage is estimated to cost approximately Rs 5,500,000 N.C. or \$530,000 equivalent. Upon completion of the first stage which will result in completed designs and firm cost estimates, the data will be reviewed and a decision made as to the technical and financial desirability of proceeding with the second stage which consists of construction.

What are the
merits of final
design + site
preparation - ?
Positive decision
is not made
in the 2nd
Phase?

B- Project Description:

The Project as used herein shall mean to construction of classroom and administrative complexes, hostels, staff quarters, farm buildings, and supporting student and staff community facilities at Rampur, Nepal to accommodate an estimated population of 750 students and 89 staff families.

*Project is project
purpose*

C. Project Justification

1. Manpower Requirements

It is difficult to conceive of development in Nepal without significant advances in agricultural production, yet it is also difficult to conceive of these advances without resolving the serious shortages of trained manpower in the agricultural sector. Other major inputs (fertilizer, seeds, water) are not sufficient in themselves. Trained manpower is also essential. Major shortages exist for two main categories of workers: (1) agricultural extension agents, and (2) vocational agriculture teachers and supervisors. The major purpose of the IAAS is to relieve these shortages.

but where do you get the manpower?

In the first category, the Junior Technical Assistant (JTA) and Junior Assistant (JT) are the major links between the farmer and government agencies and are supposed to be the main activating force in the development of Nepal's agriculture. As a rule, the JT and JTA have had only one or two year's training beyond secondary school. This agricultural training is presently received at the IAAS (formerly the College of Agriculture) following matriculation. As stated by the IBRD, "...the most urgent need is, in order of priority, (a) to improve the effectiveness of JTA's through in-service training programs, and (b) to strengthen the base by increasing the number of qualified JTA's". The IAAS will address this in three ways: (1) through

an improved "upside down"* curriculum for pre-service training; (2) through extensive inservice training programs for the Ministry of Agriculture, and (3) through the expansion of the number of qualified JTA's.

At the present time, the ratio of extension workers to farm households is about 1 to 4,000. If the ratio were to be calculated on the basis of effective extension agents (i.e., those who know more about agriculture than the farmers whom they service and who are able to transmit new technologies), the ratio in Nepal would probably be closer to 1 to 8,000. Clearly, even the best circumstances would make it impossible to lower this ratio for many years. Although qualifications for JT's and JTA's are very low (roughly 1 and 2 years training beyond secondary school), there is a current shortage of about 1,000 trained middle-level agriculturists in these and related fields within the Ministry of Agriculture. This shortage is likely to become much more severe in the future as the Extension Service attempts to staff the new development regions.

Besides the middle-level extension worker vocational agriculture teachers are urgently required. In spite of the importance of

**"Upside-down" curriculum refers to an agriculture education program first popularized at the California Polytechnic Institute which requires practical work at the I AAS as preliminary to academic studies or theorizing.

the agricultural sector, Nepal has had no agriculture education in its secondary schools, with the exception of a few small programs in 25 "multipurpose" schools, and has no trained agriculture teachers. The recent National Education System Plan (NESP) recognized this shortcoming and stated one of its objectives as the consolidation of higher education and the redirection of it toward Nepal's manpower requirements, especially toward the output of technical personnel trained in agriculture. All secondary schools except a few Sanskrit schools are to have a vocational component, with 70% of these being in agriculture.

It is difficult to define future manpower requirements in macro terms, although one can get a sense of basic needs from the following table reflecting 1985 manpower requirements for the Ministry of Agriculture and related Government corporations:

	<u>Present</u>	<u>Additional Expected by 1975</u>	<u>Additional Required by 1985</u>
Ph.D.	14	3	13
M.Sc.	106	11	100
B.Sc.	249	40	600
B.Sc. (Ag.Eng.)	17	15	50
B.VSc.	30	6	40
B.Sc. (Irrig.)	47	10	60
JT/JTA	1,310	300	3,000
Overseers	300	65	300
Food Quality/Mktng.	25	20	50
Co-op. Managers	140	50	1,700

While rough, the above figures do point out a significant factor in Nepal's quantitative requirements for trained agricultural manpower: i.e., that the prevailing need at this time is for middle-level manpower, such as JT's, JTA's, Co-op. Managers, and overseers. This will be an important factor in phasing the development of the IAAS. Attention in the early years is being devoted to certificate level training, which B.Sc. training being phased in more slowly. The following is the projected output of the Institute during the next five years.

<u>Course</u>	<u>FY 75</u>	<u>FY 76</u>	<u>FY 77</u>	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>
1 year Certif.	150	200	200	200	200	200
2 year Certif.	42	40	40	40	40	40
I.Sc. (Ag.)	-	-	-	-	-	-
Diploma (Ag.) B.Sc.	-	-	20	20	20	20
Diploma (Ag.Ed.)	120	100	100	100	100	100
Degree (Ag.Ed.)(M.Sc.)	-	14	14	14	14	14
In-Service	<u>50</u>	<u>95</u>	<u>95</u>	<u>95</u>	<u>95</u>	<u>95</u>
	362	449	469	469	469	469

2. Building Requirements

The Institute of Agriculture and Animal Sciences (IAAS) is the only existing institution producing the trained middle level manpower which is so urgently needed in the agriculture sector. The main inhibiting factor to meeting the stated objective of increasing the number of qualified JTs and JTAs to serve the rural agricultural population is the lack of training facilities. The Institute now occupies an existing complex, which was built for an entirely different purpose, consisting of one hostel; one administrative building with several classrooms; a small auditorium with some connecting classroom space, and twelve small buildings used as staff quarters. These facilities are vastly inadequate to accommodate the present enrollment of 300 students and 30 professional staff members. If the Institute is to achieve its goal of a student enrollment of 750 students and 89 staff members by 1980, immediate attention must be given to meeting the physical requirements needed to accommodate these students and staff.

The following are the projected building requirements to meet those needs:

Year 1

1. Complete academic plan with assistance of foreign consultant.
2. Commission Nepalese architectural and engineering to begin design.
3. Upgrade and improve the road from the campus to the intersection with the East-West Highway.

4. Begin stockpiling construction material to counteract inflationary prices.
5. Drill tubewell.
6. Begin site development such as land leveling, drainage, etc.

Year 2

1. Complete final building design.
2. Remodel existing administration building, student hostel, and mess facilities.
3. Complete the farm workshop, poultry building, and other farm buildings now under construction.
4. Begin construction of first new hostel w/cafeteria for 200 students.
5. Begin construction of first new academic building - 400 student capacity.
6. Begin construction of initial new staff facilities - 80 units.
7. Begin construction of 20,000 SF (approximate) of community facilities.

Year 3

1. Complete first new hostel w/cafeteria.
2. Begin construction of second new hostel unit - capacity also 200 students.
3. Complete first new academic building.
4. Begin construction of second new academic building - capacity 300 students.

5. Complete initial 80 unit staff facilities.
6. Begin construction of second phase of 80 units of staff facilities.
7. Complete first 20,000 SF of community facilities.
8. Begin construction of second phase of community facilities.
9. Begin construction of library, auditorium, student center, etc.

Year 4

1. Complete second/hostel unit. Open for student use.
2. Complete second academic building. Students begin classes.
3. Complete second phase of 80 units of staff facilities.
4. Complete second phase of community facilities.
5. Complete library, auditorium, student center, etc.

Year 5

1. Complete furnishing and equipping all building.
2. All academic buildings and hostels in full usage by beginning of semester in February.

Who finances equipment?

Staffing

In order to produce the required number of trained manpower and meet the Institutes objective of a 10/1 student/teacher ratio, the estimated number of professional staff required is 89 for a student enrollment of 750 students. At present the Institute has a professional staff of only 31. Therefore, an additional 58 professional staff members are required in the categories as shown in the following table:

Administrative

	<u>Present</u>	<u>Projected</u>	<u>Additional Required</u>
Dean	1	1	0
Assistant Deans	1	2	1
Campus Chief	1	5	4
Assistant Registrar*	0	1	1
Property Mgt. Officer	1	1	0
Procurement Officer	1	1	0
Accountants & Assistants	3	3	0

Library

Librarian	0	1	1
Assistant Librarians	0	2	2

Teaching

Professors	0	2	2
Assistant Professors	0	7	7
*Readers	4	5	1
Lecturers	6	20	14
Assistant Lecturer	10	28	18
Assistant Farm Staff	<u>3</u>	<u>10</u>	<u>7</u>
	31	89	58

*does teaching as well

One of the major problems facing the IAAS has been one of attracting and retaining quality staff at the Rampur Campus. The major reasons for this difficulty have been the following: (1) Salaries at the University have not kept pace with the IMG increases; (2) Rampur is isolated without the amenities of Kathmandu and without special allowances; and (3) the IAAS is a new institution without a solidly developed credibility which automatically attracts young agriculturalists. The first of these reasons has been resolved, i.e., the University has been granted a revised pay schedule which is now in force.

With regard to the broader issue of obtaining staff, the IAAS is addressing this in several ways. In order to meet its short term needs, the Ministry of Education has agreed to release to the IAAS 15 of the 45 B.Sc. graduates who have just recently returned from India. For the long term, the IAAS proposes to send approximately 20 participants abroad during the next 5 years for training in specialities designed to meet its future professional staff requirements. In the interim, under the technical assistance component of this project, USAID will provide six expatriate advisors to the IAAS who will assist in teaching classes until the Nepalese staff is sufficiently large to assume this responsibility. (The reader is referred to the PROP for more detailed information on the technical assistance component of the Project.)

This reference!

Curriculum Design

The projected building projections as outlined above are based on the training the Institute is expected to provide. The training will be action and service based and will include both classroom theory as well as practical and applied farming. The Institute will offer a one-year and a two-year course in agricultural extension; two two-year courses in agricultural education, one for a degree and the other for a diploma; a three-year course in general agriculture; and in-service training programs of approximately three months duration.

The one-year certification training course is designed to train mid-level manpower positions as Junior Technical Assistants (J.T.A.s) in extension work, with practical training to be received on research farms and agricultural experiment stations. This will be called, "Certificate Major in Agricultural Extension." The five important majors, at the moment, are as follows: (a) General Agriculture, (b) Agricultural Extension, (c) Veterinary Science, (d) Dairy Science and (e) Fisheries. The number of candidates allocated to each particular major field will be determined by the need for candidates in that field. In the two-year certificate course, candidates may select a major in one of the following: (a) General Agriculture, (b) Agricultural Extension, (c) Agricultural Engineering, (d) Irrigation, (e) Soil and Water Management, (f) Crop Protection, (g) Agricultural Economics and Farm Management, (h) Animal Science, (i) Veterinary Science, (j) Dairy Science and (k) Fisheries.

The two-year diploma course in agricultural education is designed to produce secondary school vocational agriculture teachers to implement

HMG's National Education System Plan, which aims to establish 400 departments of vocational agriculture in secondary schools and train the 600 teachers needed to staff them by 1977. It will add two-years of technical agriculture, and professional training (4 semesters) to the two-year certificate course. The two-year degree course in agricultural education is designed to train district vocational agriculture supervisors currently needed in the development of vocational agriculture in Nepal and staff members needed at the IAAS for teacher training. The date of its inception depends upon the availability of qualified candidates and adequate teaching staff and facilities.

The three-year diploma course in Agriculture is designed to develop higher level manpower for agricultural vocations. Actually this degree consists of a five-year training course. It will add three years of additional training (about six semesters) to the two-year certificate course.

Candidates may select from the following as their major fields of training:

(a) General Agriculture, (b) Agricultural Extension, (c) Agronomy, (d) Horticulture, (e) Animal Husbandry, (f) Crop Protection, (g) Farm Management, (h) Agricultural Economics, (i) Irrigation and (j) Fisheries.

The Institute will offer in-service training of approximately three-months' duration which will be designed to upgrade the technical "know how" and professional competency of field J.T.A.s. It will be offered for those J.T.A.s with five years of field experience as a J.T.A. The annual training target is 50 J.T.A.s. Those who complete this training successfully, are given a diploma (upgrading) and they are then

Recruitment

In keeping with policies established by Nepal's National Education Board, candidates will be recruited from each of the seventy five districts by district quota with differential requirements in recognition of the fact that students from outlying areas are likely to be less qualified. As in the case of other Institutions under the University system, a school leaving certificate (SLC-equivalent to a high school diploma) will not be a pre-requisite for admission for students who have other desired qualifications such as substantial practical work experience. As a part of this non-SLC program, the IAAS and user agencies will conduct research to evaluate the performance of the non-SLC and SLC student in the academic and field settings.

The Institute has a current enrollment of approximately 300 students and has not encountered any difficulty in meeting its enrollment requirements. There were approximately 550 applications for the 300 vacancies for last year's admission. As vocational agriculture is introduced at the secondary school level, more interest will be generated in pursuing careers in agriculture as well as providing better academically qualified candidates for the Institute.

D. Project Analysis

1. Technical Analysis

In August, 1974 USAID/Nepal entered into a P.S.C. with a campus development consultant, H. James Miller of the University of Illinois to conduct a technical review of (i) the existing and proposed institution the institutional development plans and developmental strategies for the Institute of Agriculture and Animal Sciences (IAAS), (ii) review and evaluate the development of a master plan for the construction of the physical facilities, and (iii) prepare a report projecting the physical needs of the IAAS and specify the means of implementation. He was also requested to investigate the use of indigenous materials and assess private A&E capabilities. Mr. Miller submitted his initial report in August 1974, and a second report in November, 1974. The Mission Engineering Division reviewed Mr. Miller's reports and the following are Mr. Miller's findings and recommendations and the Engineering Division's comments.

(a) Design, Materials and Standards:

It was beyond the scope of Mr. Miller's contract to prepare or even discuss in detail, any designs. However in general terms, the report stated that there should be two major centers which would be focal points for development of the campus. One would be an academic center which would contain core facilities like library, auditorium, administration, student center, classroom, laboratory, and office facilities, etc. The academic "Complex" would be singular in nature, with no identity given to any discipline. Compactness, logical juxtaposition of

activities, and efficiency of movement would determine the overall plan. The area now occupied by a hostel would be expanded by adding increments of 200 unit hostels so that a student hostel "complex" would be developed directly west of the academic complex.

The second major focal point would be the community center. All community service facilities like schools, shopping center, post office, bank, dispensary, etc. would be located in the center. The community center would be located conveniently to the residential development with pedestrian walkways connecting it to the major activity areas of the campus.

The existing administration building now used for classrooms is seriously inadequate as is an existing hostel and mess; the report recommends that they be remodelled.

In Mission briefings, Mr. Miller recommended that the use of indigenous materials be maximized. He also recommended that construction conform to the National Building Code of India because of the general applicability of its testing methods to the materials and construction availabilities in Nepal.

(b) Professional Services:

There are a very small number of architectural and/or engineering firms in Nepal. However, although these firms have personnel who are relatively well trained, they all lack experience in institutional design. Generally their experience is limited to hotels, residences, and a smattering of governmental buildings.

(c) Expatriate Advisor(s):

An expatriate architect, with experience in institutional building is initially required to supplement the lack of experience in the Nepali architectural firm. He would participate in design firm selection, scope of work delineation, and contract formulation. He would work with both the client and the A&E firm to advise and assist in the design process. Upon completion of the design and commencement of construction, an engineering advisor is needed to advise and assist the A&E firm in the proper supervision of construction. It is the Mission recommendation that this be a U.S. DH who will perform a similar service for other AID financed projects.

*Note to have direct supervision
consider (d)*

(d) Private Sector Contracting Capability:

It is the Mission's intention to utilize Nepali private construction contractors and as a by-product, to stimulate and upgrade the contractors capability through the assistance and advice of the expatriate advisor. Although not specifically tasked with evaluating the private sector, Mr. Miller agreed with the both the Mission's assessment and objective.

(e) Completion Schedule:

Mr. Miller's study envisaged the academic plan being completed by November, 1974. However, since the report was issued, some slippage has occurred and it does not appear that this will be completed until mid or late August, 1975. As little meaningful design can commence until the academic plan is completed, the final design and the final

estimate can not be projected until the end of February, 1976.
Completion of construction is now estimated to be January 1979.

(f) Environmental Impact:

This was not addressed in Mr. Miller's report however as the construction will be on the existing Institute campus which is essentially bare unused farm land, there will be little or no ecological disturbances. There will be no disruption of the present ecosystem and there will be little effect on land-use patterns, wildlife habitat, or on migration routes.

2. Financial

Estimated Project Cost

The Miller study was based upon the assumption that major construction would begin in the Spring of 1975. This, however, is not possible and construction is now scheduled to begin almost a year later. Since Miller's estimate was proposed there have been very serious and very major increases in the cost of construction materials. Consequently, the estimate has been revised to include costs for an additional one year's construction and add the costs of some items which were not included in Miller's estimate.

The following is the revised cost estimate encompassing the changes and additions. The total cost of the project is now estimated at Rs 49,936,000 or \$4,756,571 equivalent.

IAAS Project Estimate

Phase I

Topographical Survey	Rs 88,000
Hostel w/Cafeteria for 200 students	2,400,000
Academic Building - 400 student capacity	4,794,000
Staff Facilities - 80 units	3,776,000
Farm Buildings (15,000 SF)	450,000
Community Facilities (20,000 SF)	1,200,000
Remodel Existing Admin. Bldg., Hostel, & Mess	800,000
Building Services, Equipment, & Furniture	1,200,000
Site Development, (roads, walkways, landscaping tubewell & distrib. system, generating plant, etc.	1,500,000
Surface drainage system	1,000,000
Upgrade Bharatpur to Rampur road - 12 km	720,000
Architect and Engineer Fee - 6%	2,193,000

Phase II

Hostel w/cafe:eria for 200 students	2,800,000
Academic Building - 300 student capacity	4,494,000
Staff facilities - 80 units	4,416,000
Community Facilities	800,000
Library, Auditorium, Student Center, etc.	4,000,000
Building Services, Equipment, & Furniture	1,600,000
Site Development	600,000
Land	7,500,000
Contingency	3,655,000

Rs 49,986,000
(US \$4,760,571)

HMG Contribution

The total costs of the capital element of this project, which includes the cost of new construction and the value of land, are estimated to be Rs 49,986,000 N.C. (See Financial Section, page 28). The U.S. contribution will be Rs 37,489,500 N.C., but in no event shall exceed 75% of the project costs. HMG will be responsible for all other project costs.

3. Implementing Agency

Institute of Agriculture and Animal Sciences

In accordance with the new national education system which was initiated in 1971, Tribhuvan University was reorganized and the various educational institutions were consolidated under the University's administration. The IAAS was created in July, 1972 as one of the newly designated "institutes" operating under Tribhuvan University. (See Figure 1). At present the staff of the IAAS consists of 31 administrative and teaching personnel. The administrative staff consists of the Dean, Assistant Dean, Property Management Officer, Procurement Officer, and Accountants. (See Figure 2). As the Institute develops a total of 48 administrative positions are envisioned.

The Dean of the Institute is the administrator for both administrative and academic affairs. The present Dean, Dr. Kamala B. Rajbhandary, received his under-graduate and graduate training at Banaras University in India, and his doctorate in Agronomy at the University of Adelaide in Australia. Dr. Rajbhandary has been the Dean of the IAAS since its beginning in 1972, having been Principal and Dean of the IAAS predecessor School and College of Agriculture.

The Dean will have the overall responsibility for the Project's implementation. In order to assist the Dean with the implementation of the construction element of the project, a "Project Director" will be assigned to the Dean's staff. The "Project Director" will have the primary responsibility for implementing the construction program. He will be an engineer but his role will be primarily administrative. He will be a member of the Dean's staff and report directly to the Dean informing him of progress and problems. The University has already interviewed a number of candidates for the position and final selection is expected in the very near future.

Figure 1

TRIBHUWAN UNIVERSITY

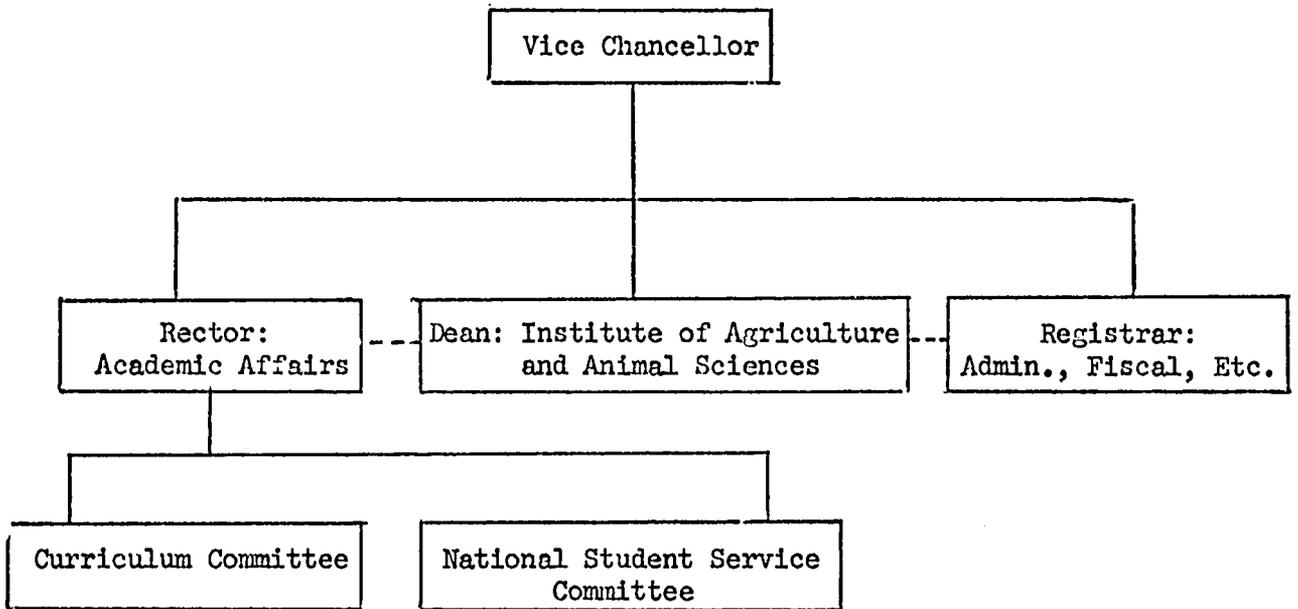
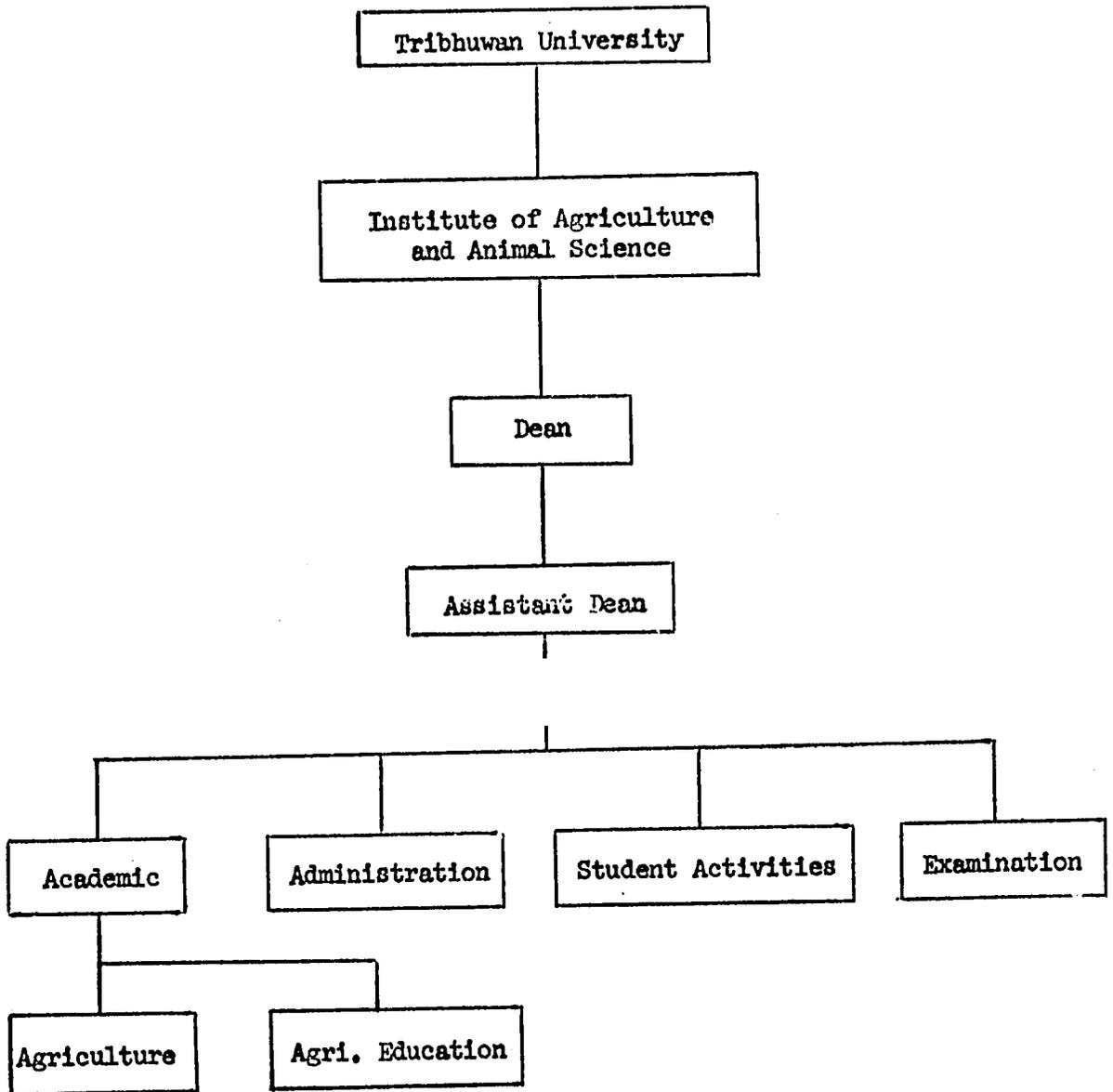


Figure 2



E. Project Implementation

1. Implementation Plan

As indicated earlier, project implementation will proceed according to a staged approach. The first stage will include design, site development, and stockpiling. The second stage will consist of construction. During the first few months plans for the capital requirements will be very closely coordinated with those for the technical assistance element since the two are mutually dependent. By July, 1974 the institutional contractor who will provide the technical assistance to the IAAS should have been selected and a team fielded. One member of the team will be an academic planner who will assist the IAAS finalize its academic plan. Upon completion of the academic plan Mr. James Miller, a campus Planner on the faculty of the University of Illinois, will visit Nepal and prepare a master campus plan on which the building requirements will be based. A topographic survey of the campus has been completed in order to facilitate the work of the campus planner. After the master campus plan has been agreed upon, a local A&E firm will then be selected and an expatriate architect commissioned to prepare the designs for the proposed buildings.

With the preparation of a master campus plan, the first stage of the Implementation Plan will be as follows:

(A) Commissioning of Local Architectural and Engineering Firm

The selection of a local A&E firm will be done by the Institute of Agriculture in collaboration with USAID. The A&E firm is likely to remain in service to the IAAS for many years - not only for the design and supervision of construction but also for possible future modifications and any new construction.

There are several A&E firms in Kathmandu, all having extremely limited experience in institutional building of this type, but being generally well balanced in terms of architectural and engineering skills. The older firms, having more experience, have good engineering personnel, but generally lack architectural capabilities. The selection and contracting with a local A&E firm should be completed by August, 1975.

(B) Commissioning Expatriate Architect

As indicated above there are certain professional capabilities, however, the professional environment and present lack of experience is not supportive of those capabilities. An expatriate architect will be commissioned to help create a situation wherein available, responsible, professional service may be enhanced.

The architectural consultant would advise and assist the local A&E firm with the preparation of designs and act as an interface between the Institute of Agriculture and A.I.E. He would work directly with the local A&E firm and as counterpart to the IAAS's Development Project Coordinator. The recruitment, selection, and contracting of an expatriate architectural consultant should be completed by August 1975 to coincide with the selection of a local A&E firm.

U S or
Indian

(C) Preliminary Site Development

Certain preparatory site improvements should be undertaken in order to address immediate needs as well as to avoid delays in initiating construction at the appropriate time. These improvements are:

- (a) Road improvement - there is an existing 12 km road connecting the Institute with the East-West Highway and the nearest urban area. However, this road is in disrepair and must be upgraded.
- (b) Water and Electricity - the eventual quantity of electricity which will be required is not known and will initially have to be provided by a new Institute generating plant. For water, it will be necessary to drill a deep well as the existing shallow wells are insufficient for expansion. Well-drilling will be undertaken before construction since water availability on construction sites is essential and transportation of water is time consuming and expensive.
- (c) Drainage - the existing 300 acres on which the campus is located is more than sufficient for the planned enlargement of the campus. However, the south west portion is low-lying which results in standing water during the monsoon season and an adequate surface drainage system must be installed in order to make the land suitable for building construction.
- (d) Stockpiling - Given the recent and expected increases in the cost of construction materials in Nepal and in order to avoid future price escalations, basic materials such as brick, re-bar, and cement should be procured in reasonable quantities even though exact requirements will not be known for some time.

2. Financial Plan

Disbursement Schedule

In accordance with the Implementation Plan and staged approach to the Project's development, the first disbursements will be for further project development purposes i.e. a contract for local A&E services to prepare preliminary and final designs; site preparation; and the stockpiling of some identifiable construction materials. These costs are estimated at approximately Rs 5,500,000 N.C. and will be disbursed by February, 1976. Funds to finance the construction stage of the Project will not be released until final designs and cost estimates have been completed, reviewed and approved.

*Non-Interest
acc't*

A.I.D. funds will be deposited in an account in the state bank which shall be used exclusively for carrying out the Project. Initially, A.I.D. will release funds sufficient to finance 75% of one quarter's estimated costs. Subsequently, releases will be made quarterly upon submission of documentation accounting for the previous quarter's expenditure and an estimate of funds required for the current quarter.

The anticipated disbursement schedule is as follows:

IAAS Campus at Rampur - USAID Contribution Disbursements

(Rs 00,000)

Quarter	1st Stage								2nd Stage										
	1974				1975				1976				1977				1978		
	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th		
Topographical Survey	.88																		
A & E Services			3.47	5.19	3.47	.40	.30	.40	.40	.40	.40	.30	.40	.40	.40	.30	.40		
Rampur Road				.54															
Site Preparation & Devel.				.75	.25	.25		.25	.25	.25		.25	.25	.25	.25		.25		
Material Stockpiling				21.00	20.00	20.00	20.00	20.00											
Furniture & Equipment						12.00			9.00										
Construction - Phase I						30.00	20.00	28.00	22.00	12.00	7.00	10.00							
Construction - Phase II									18.00	16.24	7.00	14.00	16.00	16.00	6.00	10.00			
Sub Total	.88		3.47	27.48	23.72	62.65	80.30	88.65	89.65	88.65	14.30	24.65	16.65	16.65	6.30	10.65			

Total Rs 374.69 Lakhs

3. Monitoring and Evaluation

The Grant Agreement and Implementation Letters will specify the mechanism to be used for monitoring the fiscal and physical progress for the project. In general, fiscal monitoring will be done through financial reports and other documentation which HMG will be required to submit in order to obtain quarterly releases of funds. Physical implementation will also be monitored through detailed quarterly reports which will provide basic information on the development of plans, drawings, and specifications, procurement actions; construction problems and progress, etc. USAID will retain certain approval rights for critical project elements such as selection of an A&E firm; designs and specifications; contractor selection; and major procurement contracts.

The design and supervision of construction will be done by a local A&E firm to be selected by HMG with approval of USAID. A Project Director will be assigned to the staff of the Dean of the Institute who will coordinate and monitor the project on HMG's behalf. An engineer will be assigned to the project to work with the Project Coordinator, local A&E firm, and contractors and to monitor the implementation on AID's behalf.

The project will be reviewed in the Mission on a monthly basis and with HMG quarterly. Annual evaluations will be conducted coincident with the technical assistance aspects of this project.

*Not necessary
since (e)(6)
doesn't apply*

Section 611(e) Determination

I, Charles R. Grader, the principal officer of the Agency for International Development in Nepal, having taken into account, among other things, the maintenance and utilization of projects in Nepal previously financed or assisted by the United States, certify that in my judgement Nepal has the financial and human resources necessary to effectively utilize and maintain the facilities to be constructed at the Institute of Agriculture and Animal Sciences.

I base this judgement primarily on the facts as presented in the Capital Assistance Paper which adequately and accurately describes the Project, the basis for undertaking the Project, and the manner in which the project is to be implemented. The Capital Assistance Paper concludes the Project is worthy of consideration for A.I.D. financing and that Nepal has the necessary resources to implement and effectively utilize and maintain the Project. I concur with those conclusions.

Charles R. Grader

Capital Assistance Grant Authorization

Pursuant to the authority vested in the Assistant Administrator, Bureau of Near East/South Asia of the Agency for International Development (hereinafter called "A.I.D.") by the Foreign Assistance Act of 1961, as amended, and the Delegations of Authority issued thereunder, I hereby authorize the establishment of a grant ("The Grant") pursuant to Chapter 2, Title II, Development Grants, To His Majesty's Government of Nepal (hereinafter called "H.M.G.") of not to exceed thirty seven million four hundred and eighty nine thousand Nepalese five hundred rupees (Rs 37,489,500) or three million five hundred and seventy one thousand dollar (\$3,571,000) equivalent to assist in financing the local currency costs for the construction of classroom and administrative complexes, hostels, staff quarters, farm buildings, and supporting student and staff community facilities at Rampur, Nepal for the Institute of Agriculture and Animal Sciences. | 2

The Grant is subject to the following conditions:

- (a) The Grantee to assure A.I.D. that adequate funds, both local and other currencies, for the Project will be made available.
- (b) Procurement of goods and services to be from Nepal, the United States and other Geographic Code 941 countries.
- (c) The Grant shall be subject to such other Terms and conditions as A.I.D. may deem advisable.

Assistant Administrator
Bureau of Near East/South Asia

NEPAL POLITICAL DIVISIONS

