

AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D.C. 20503

PROJECT NUMBER
ANNEHMENT NUMBER TWO

REVA

INSTITUTE OF AGRICULTURE AND ANIMAL SCIENCE

367-0102

JUNE 1983

UNCLASSIFIED

AGENCY FOR INTERNATIONAL DEVELOPMENT PROJECT DATA SHEET	1. TRANSACTION CODE <input type="checkbox"/> A = Add <input checked="" type="checkbox"/> C = Change <input type="checkbox"/> D = Delete	Amendment Number 2 to PROP 1974	DOCUMENT CODE 3
--	---	------------------------------------	---------------------------

2. COUNTRY/ENTITY NEPAL	3. PROJECT NUMBER <input type="text" value="367-0102"/>
-----------------------------------	---

4. BUREAU/OFFICE ASIA <input type="text" value="04"/>	5. PROJECT TITLE (maximum 40 characters) <input type="text" value="Inst. of Agriculture & Animal Science"/>
---	---

6. PROJECT ASSISTANCE COMPLETION DATE (PACD) MM DD YY <input type="text" value="09"/> <input type="text" value="30"/> <input type="text" value="84"/>	7. ESTIMATED DATE OF OBLIGATION (Under 'B.' below, enter 1, 2, 3, or 4) A. Initial FY <input type="text" value="74"/> B. Quarter <input type="text" value="4"/> C. Final FY <input type="text" value="81"/>
--	--

8. COSTS (\$000 OR EQUIVALENT \$1 = 14.20NR)						
A. FUNDING SOURCE	FIRST FY			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total
AID Appropriated Total	160		160	5,501		5,501
(Grant)	(160)	()	(160)	(5,501)	()	(5,501)
(Loan)	()	()	()	()	()	()
Other U.S.						
1. CAP GRANT					4,157	4,157
2.						
Host Country		251	251		3,360	3,360
Other Donor(s)						
TOTALS	160	251	411	5,501	7,517	13,018

9. SCHEDULE OF AID FUNDING (\$000)									
A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE		D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
(1) 103	100	070		5,484				5,501 (a)	
(2)									
(3)									
(4)									
TOTALS				5,484				5,501 (a)	

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each) BRW BSW RAG TECH	11. SECONDARY PURPOSE CODE
---	-----------------------------------

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each) A. Code B. Amount

13. PROJECT PURPOSE (maximum 480 characters)

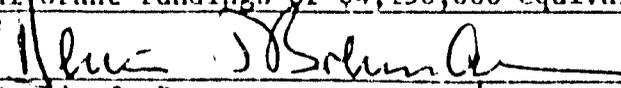
To develop the capability of the Institute of Agriculture and Animal Science (IAAS) to provide quality training for B.Sc. candidates.

14. SCHEDULED EVALUATIONS Interim MM YY MM YY Final MM YY 	15. SOURCE/ORIGIN OF GOODS AND SERVICES <input type="checkbox"/> 000 <input checked="" type="checkbox"/> 941 <input checked="" type="checkbox"/> Local <input type="checkbox"/> Other (Specify)
---	---

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a 29 page PP Amendment.)

This PP amendment revises the project purpose and scope to reflect changes in the Government of Nepal's policy regarding who will receive training at IAAS. The original project envisioned training Ministry of Agriculture officers, vocational agriculture teachers, and farmers. However, emphasis has now been shifted to training B.Sc. candidates. This proposed amendment reflects this change.

(a) Total LOP figure includes \$17,000 which was previously approved and not obligated. Excludes Capital Grant fundings of \$4,156,660 equivalent.

17. APPROVED BY Signature:  Title: Dennis J. Brennan, Director, USAID/Nepal Date Signed: MM DD YY <input type="text" value="06"/> <input type="text" value="08"/> <input type="text" value="93"/>	18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION MM DD YY
---	--

Institute of Agriculture and Animal Science Project

Project Amendment No. 2

Table of Contents

	<u>Page</u>
I. SUMMARY AND RECOMMENDATION	1
A. Recommendation	1
B. Summary Description of Project	1
1. Project Goal	1
2. Sub-Goal	1
3. Purpose	1
4. Project Inputs/Outputs	4
C. Issues	5
1. Practical Orientation in Training	5
2. Completion of Campus Construction Program	5
II. BACKGROUND AND PROJECT STATUS	7
A. Background	7
B. Project Accomplishments	8
C. Problems	10
1. Campus Construction Program	10
2. Changing Institutional Responsibility	11
3. IAAS Staff Attrition	12
4. Training for Women	13

	<u>Page</u>
III. RATIONALE FOR PROJECT AMENDMENT	15
A. Trained Manpower Needs for the Agricultural Sector	15
B. Changing Emphasis of IAAS Training	16
C. Campus Construction Needs	21
IV. PROJECT DESCRIPTION	23
A. Goal	23
B. Sub-Goal	23
C. Purpose	23
D. Outputs	23
E. Inputs	25
F. Budget	27
V. IMPLEMENTATION PLANS	28
A. MUCIA Work Plan	28
B. Evaluation	28
C. Timetable of Events	28
D. Additional Construction	28

Annexes

- A. Logical Framework
- B. MUCIA Work Plan (1983-84)
- C. Summary of PL-480 Funded Construction Program
- D. IAAS Graduates by Year
- E. IAAS Budgets and Expenditures by Year
- F. IAAS Bulletin (1981) (Not included for reproduction)

I. SUMMARY AND RECOMMENDATION

A. Recommendation

That an amendment to the Institute of Agriculture and Animal Science Project (367-0102) be approved. The amendment revises the project statement of purpose to reflect changed conditions and priorities in the institutional environment of Nepal and authorizes use of project funds for construction.

B. Summary Description of Project

1. Project Goal: To increase agricultural production in Nepal's small farm sector.
2. Sub-Goal: To provide the necessary trained manpower for Nepal's agricultural sector development.
3. Purpose: To develop the capability of the Institute of Agriculture and Animal Science to provide quality training for B.Sc. candidates.

Although the project focus will be that of assisting with the development of the Institute's B.Sc. program, the project will also support the other training activities which may be assigned to the Institute. These will likely include a limited responsibility for direct farmer training, a gradually expanding responsibility for in-service training for GON personnel, and possibly also a responsibility for extension agent training.

This statement of project purpose represents a revision of the purpose, which, as stated in the original PP, was "to expand and improve the IAAS so that it will be capable of providing quality training and academic programs for (1) middle and high level officials in the Ministry of Agriculture; (2) vocational agriculture teachers and supervisors and (3) farmers at the community level."

The FY 1981 project paper amendment did not formally amend the project purpose. However, in recognition of institutional and GON policy changes affecting the Institute of Agriculture and Animal Science (IAAS), the amendment stated the project purpose as being "to help relieve manpower shortage and skill deficiencies in Nepal's agriculture sector so as to achieve improved agricultural productivity".

The project purpose as stated in this proposed amendment reflects further changes in the GON policy and institutional environment with regard to who will receive training at IAAS. The original project paper envisioned IAAS offering a wide range of training programs at different levels for various client groups. Some of these training programs were never begun; others were begun but later eliminated; and the priority of others has been changed.

The original project purpose envisioned training programs for middle and higher level officials of the Ministry of Agriculture (MOA). Although IAAS academic programs are training future Ministry employees, in-service training programs have not been offered for Ministry officials. This has been due both to a previous lack of personnel and adequate facilities on the part of IAAS and to a lack of demand for training on the part of the Ministry, since IAAS was relatively remote from Kathmandu, was newly established, and could not compete with training opportunities offered by other projects and institutions. In the future IAAS may assume a role in offering short courses for GON personnel, but in any case this would remain very limited during the life of the current project.

Farmer training has never been a major emphasis of IAAS. The GON mandate for farmer training lies with the Extension Service of the Department of Agriculture (DOA). Although IAAS has started an extension project as a learning device, research tool, and service to farmers in the area adjacent to the campus, the Institute will not duplicate DOA extension activities by expanding its program of direct farmer training.

Vocational agriculture teachers were trained at IAAS until 1979. At that time, because of lack of facilities for and interest in vocational courses, the Ministry of Education decided to phase out the vocational agriculture classes in secondary schools. IAAS, thereafter, stopped training vocational agriculture teachers.

Since the Institute's establishment, training for agricultural extension workers - Junior Technicians (JTs) and Junior Technician Assistants (JTAs) - has been a major, but problematic, training activity of IAAS. Students completing a one year course receive a certificate and can be assigned as JTAs. After completing a second year of training in basic sciences, JTAs receive an Intermediate Science Certificate in Agriculture (I.Sc./Agriculture) and can be assigned as JTs.

As discussed in the first project paper amendment, there have been many problems with the JT/JTA training programs. Students have agitated to move directly from JTA into JT programs and then into the B.Sc. program. User agencies, especially the MOA, criticize graduates from the JT/JTA programs as being too young and too lacking in practical experience to function well as village extension agents. Operating the JT/JTA programs, most of which are located on branch campuses, is administratively difficult and has resulted in fragmentation of teaching resources, especially during the period when many IAAS staff were on study leave.

The disposition of JT/JTA training has been the subject of continuing review. The principal issue is whether JT/JTA training should continue as the responsibility of IAAS or be turned over to the MOA. Assuming it remains with IAAS, the questions then are whether JT/JTA training should be an academic program allowing upward mobility into the B.Sc. program or be limited to non-academic, practical agricultural training, and whether JT/JTA training should be done at Rampur or at branch campuses.

A GON Royal Commission on Higher Education is studying these problems at present. The Commission is expected to complete its report and make recommendations by mid-1983, after which a GON policy decision can be expected. In the meantime IAAS, with support from this project, will continue training JT/JTAs.

The IAAS project will continue to provide limited support for the development of JT/JTA training programs, as long as these remain the responsibility of IAAS. Major support is not possible within the scope of the current project and is made difficult

by the location of these programs at branch campuses. While AID/N recognizes the importance of developing these training programs, the necessary support for this development is planned under a World Bank project being developed specifically to assist the GON with JT/JTA training.

The original Project Paper included B.Sc. level training at IAAS as only one of a range of training programs. However, with the development of IAAS, this has become the major training activity on the Rampur campus. This training responds to Nepal's need for an indigenous capability to provide agricultural B.Sc. degree training. IAAS is the only institution in Nepal which provides this B.Sc. training in agriculture and animal science.

The importance of an in-country B.Sc. training capacity is increasing. An AID PL-480 funded India training program has been training approximately 50 agricultural B.Sc. participants each year since 1980. However, this program will end in FY 1986 with little likelihood that Nepal or other donors will be able to continue such an ambitious training program. At the same time the GON is planning to make use of greater numbers of B.Sc. graduates in the extension program.

The current IAAS Project will give major emphasis and support to B.Sc. training which has become the major activity of IAAS. The revised project purpose, therefore, reflects a revision of the project to meet Nepal's changing institutional needs.

4. Inputs/Outputs: The IAAS project provides technical assistance, training, and equipment and materials under a contract with MUCIA (Midwest Universities Consortium for International Activities). Due to inflation, delays in implementation, and an expanded participant training schedule, an FY 1981 project amendment was authorized to provide additional funds to complete planned project activities.

These inputs are helping provide IAAS with a well-trained staff, a relevant curriculum, additional campus facilities, a comprehensive campus plan and operating procedures and an active, although limited, extension and research program.

Project implementation is generally on schedule.

C. Issues

1. Practical Orientation in Training: The original project paper proposed IAAS training programs with strong emphasis on practical application and farmer-oriented training. Most emphasis was toward training farmers, vocational agriculture teachers and extension agents. The current focus of IAAS is on developing a B.Sc. level program of international standard at Rampur. Extension agent training may continue, but will be mainly on branch campuses.

Although there has been a significant shift of emphasis in training at IAAS/Rampur, the Institute and the IAAS project continue effectively to address Nepal's manpower needs. The changed training agenda for IAAS is the result of institutional experience and development. AID/N believes the current revision in project purpose is supportive of a rational and gradual evolution of the Institute.

Despite the evolution of IAAS from a training center with a broad mandate for training to a traditional B.Sc. degree-granting institution, it is essential that IAAS continue the practical orientation currently maintained in the curriculum. Students take a very heavy load of laboratory and practical courses. Most do off-campus projects and participate in study tours. Faculty research projects are also generally very practically oriented and the extension program, which serves as a direct link between the Institute and farmers in the area, provides a mechanism for students to apply their knowledge and learn practical lessons.

The IAAS project will continue to support practical, farmer-oriented research, teaching, and extension activities. Special emphasis on this is important as staff return from training abroad and as the Institute moves towards a higher level of academic training.

2. Completion of Campus Construction Program: Construction of physical plant for the Rampur campus has been funded by a separate, but related, PL-480 local

currency funded project. Construction is proceeding well, but because of inflation and initial delays in starting construction, the project will not be able to complete all planned construction.

In 1980 the GON approached AID to provide additional construction funding. AID, although not itself in a position to respond with additional resources, attempted to help the GON obtain the needed funding from other donors. To date the GON has not been successful in this, largely because of the hesitancy of other donors to commit funds to complete what is seen as an AID project. However, discussions are continuing with a bilateral donor and some construction may be financed under World Bank and Asian Development Bank projects.

Completion of campus infrastructure is essential for the long-term development of the Institute. In the short-term, if the GON does not obtain the necessary additional construction funding, the Institute will experience two major problems -- IAAS will not be able to accommodate any significant number of women students, and housing will not be available for IAAS staff.

II. BACKGROUND AND PROJECT STATUS

A. Background

The Institute of Agriculture and Animal Sciences was created in July, 1972 as a branch institute of Tribhuvan University. It was formed from the Agricultural College established within the Ministry of Agriculture's Department of Agricultural Education and Research. The Agricultural College located in Kathmandu, trained extension agents and technicians to staff research farms and laboratories. At the time the Institute was created, it moved to its present site at Rampur.

In June, 1974, AID authorized \$3.2 million for the Institute of Agriculture and Animal Science Project. Implementation began in December, 1975 with the signing of an AID-direct contract with MUCIA (Midwest Consortium for International Activities, Inc.) for provision of technical assistance, training, equipment, and support to the Institute. In January, 1981, AID authorized a project paper amendment to provide an additional \$2.3 million necessary to complete project activities. A companion PL-480 local currency funded project authorized in June, 1975 and identified by the same project number, is providing \$4,157,000 local currency equivalent for construction of campus physical plant.

The importance of agricultural education for development in Nepal has not changed since the original project paper was prepared. The agricultural sector still employs 93 percent of the labor force (compared to 94 percent in 1974) but most of the population is engaged in agricultural production at the subsistence level or below, and agriculture's share of the GDP has declined from 72 percent in 1974 to 57 percent in 1981.

The institutional environment has changed greatly since the beginning of the project. The Ministry of Agriculture's staff of technical agricultural personnel grew from 1594 JTs and 529 officers in 1974/75 to 2,450 JTs and 773 officers in 1979/80. Growth has continued since that time. Institutions, such as the Agricultural Inputs Corporation and Agricultural Development Bank, have expanded and new institutions, such as the Agricultural Project Services Center (APROSC) and the Department of Livestock Development and Animal Health, have been established.

The Tribhuvan University Institute of Agriculture and Animal Sciences (IAAS) and its role in Nepal have also changed considerably over its short life span.

B. Project Accomplishments

Over the initial eight years of the IAAS Project, progress has been gratifying. The Institute has evolved from a struggling organization with a minimum of staff to a viable training institution with active, expanding research and extension programs. Project support and firm GON commitment to the Institute are responsible for this development.

The GON has increased staffing at IAAS and added branch campuses as a result of the high priority assigned to training personnel for the agricultural sector. Growth of IAAS and overseas staff training have greatly enhanced the Institute's ability to provide higher level training and to engage in a more sophisticated level of research.

The staff is generally young and well trained. Of the total professional staff of seventy-nine, fifty-five have M.Sc. or Ph.D. degrees. None have failed to complete their degree programs and many have been able to obtain independent funding to continue work towards Ph.D. degrees following completion of their project funded training. The young, well-trained staff are a "critical mass" of talent necessary for future development of the Institute.

The assignment of a new Dean in late 1982 filled a gap after about a year of administration by temporary acting deans. Stability and improved leadership with a permanent Dean, resident on campus, should markedly improve operation of the Institute.

The number of departments in the Institute has expanded from the previous three (Crop Science, Animal Science and Rural Development) to six (Crop and Soil Science, Horticulture, Agricultural Botany and Plant Protection, Animal Science, Rural Development, and Basic Science and Humanities). A Department of Agricultural Engineering, as well as other departments, may be added in the future as staff can be recruited and the program expanded.

Since 1974 the Institute has trained a total of 4,154 JTs and JTAs and 237 B.Sc. graduates, and is currently

projecting training of 500 JT/JTAs and 75 B.Sc. graduates per year. The quality of training has varied, especially during the period of student unrest from 1979-81, but is improving.

Training is, of course, the major purpose of the Institute. IAAS has developed a comprehensive curriculum for each of its programs - B.Sc., JTA, and JT (Annex F). These are now being revised to improve the curriculum which has been changed from a semester to an annual system. Institute staff continue to revise and improve the curricula under the direction of a Curriculum Committee.

The establishment of the Curriculum Committee, and other such committees, illustrates the maturing of the Institute and the increased competence of Institute staff. Committees have been established and are functioning for Curriculum, Research and Extension. They appear to provide a good means of involving faculty participation in administration and of improving management.

The IAAS Extension Project was begun soon after the Institute moved to Rampur, but has become more active during the past two years. In the past, the extension program has lacked focus and clear objectives, but recent actions on the part of the Extension Committee and the return of additional participant trainees in the Rural Development Department are helping to substantially improve the project.

The Institute research program also began soon after the Institute was founded, but expanded considerably in 1982 when nineteen different proposals were approved by the Research Committee for MUCIA funding. Some of these are now nearing completion and approximately twelve others are being prepared for Research Committee review. IAAS staff have also been successful in obtaining research funding from sources other than MUCIA, and, although the number of other grants is small, it is important in reducing dependency on MUCIA for research support.

MUCIA support has been critical for the development of the Institute. Most laboratory and farm equipment and library books have been provided under the MUCIA contract. In the early years MUCIA staff developed curricula, taught courses, and assisted with campus administration and planning.

However, over the life of the project, the role of the MUCIA advisors has changed. As the Institute has grown, its administration has become more complex, but its staff has also expanded and is better qualified to deal with problems of administration, planning and curriculum revision. Although the Institute has less need for direct assistance of advisors in running the Institute, their role as advisors is enhanced and can be invaluable as the Institute seeks to develop better operating policies and procedures.

The advisor team's role has evolved to that of serving two main functions. The first is to act as advisors to individual faculty members and committees on questions of curriculum development, research and extension planning, and specific technical issues. The second function is in more active planning and mobilization of resources to address specific problems confronting the Institute.

C. Problems

1. Campus Construction Program: Campus construction funded by the separate PL-480 local currency grant is summarized in Annex C. Despite some delays, work is now on schedule and of good quality, and the project is providing IAAS with a greatly improved campus physical plant.

The major problem with the construction program is that of insufficient funds to complete all of the planned works. This shortfall is due both to inflation and to initial delays in starting construction. Major deletions from the construction plan were staff offices, an auditorium, 124 housing units, classrooms for 370 students, dormitories for 210 students, and additional laboratories. Lack of some of these facilities can be compensated for by better use of existing facilities. However, the need for additional staff housing and a women's dormitory is urgent and their continued postponement may have serious consequences for the total IAAS program.

In 1980 prior to the first IAAS project amendment, the CON requested that AID provide additional funds for construction. When AID was unable to do so, the CON attempted to obtain grant funding from the

World Bank, but was again unsuccessful. AID/Nepal has approached another bilateral donor with the proposal for completing campus construction. Despite some initial expression of interest, the other donor has thus far declined to become involved, largely because of a lack of interest in funding the completion of what is generally viewed as an AID project. The proposal has more recently been raised again but the chances for obtaining the needed funding are remote.

Some funding has been secured from other donors. The Chitwan Valley Development Project funded by the Asian Development Bank provides for development of facilities on the livestock farm. A proposed World Bank project, "Agricultural Manpower Development Project," also provides funding for construction of livestock facilities, laboratories, and some housing at Rampur.

However, as yet, IAAS has been unable to secure funding to complete the campus construction program. Until this is done, lack of facilities will hamper operation of the Institute and contribute to low morale among the staff.

2. Changing Institutional Responsibility: The rapid pace of institutional development in Nepal during the IAAS project period has ironically hindered in some ways development of the Institute. As IAAS and other Nepalese institutions have developed, their roles and responsibilities have changed. With IAAS, the changing role relates to the question of who exactly the Institute is supposed to train.

Changes in the Institute's training mandate are due both to over-ambitious plans, as in the case of proposed farmer training, and to legitimate changes in response to a changing institutional environment, as in the case of eliminating the vocational agriculture teachers program. The changes and uncertainty regarding the training agenda have made it extremely difficult for the Institute to plan for future development and have not allowed the Institute sufficient time to implement necessary policies and programs.

The most important issue currently being debated is that of JT/JTA training. Various proposals under consideration include continuing the present arrangements for JT/JTA training; leaving the training with IAAS but restricted to branch campuses; transferring responsibility to a separate unit in Tribhuvan University; and transferring responsibility to the Ministry of Agriculture. The outcome of this debate has obvious implications for IAAS staffing and construction.

A second issue being discussed is that of autonomy. The Institute staff would like to see the Institute become an autonomous agricultural university and establish a Masters degree level program. Other proposals include semi-autonomy within Tribhuvan University and inclusion of the Institute in a Technical University, including the Institutes of Medicine, Forestry and Engineering.

Although the resolution of these issues is very important to the Institute, the decisions can not be forced. The Institute and its supporters will have to work and plan as best possible within this aura of uncertainty.

3. IAAS Staff Attrition: A well-trained staff is one of the major strengths of IAAS, but one that must be conserved and properly managed. To date only three project-trained participants have left the Institute. However, seven other staff members have completed M.S. degrees and made their own arrangements for continuing in Ph.D. programs. When these staff members complete advanced training and return to Rampur, the training will ultimately benefit the Institute. However, the Institute must make teaching positions at Rampur as attractive as possible in order to retain the trained staff.

In the early years of the Institute's development, Rampur was inaccessible and isolated. Although still "far from the city", in recent years improved roads, electricity and facilities and a larger educated population have greatly reduced the sense of isolation at Rampur. The major staff complaints, at present, concern lack of work incentives and facilities and a shortage of housing. The lack of

incentives and facilities is common to most GON institutions, but shortage of housing at Rampur poses a particular hardship for staff trained abroad who are now unable to adequately house their families at the Institute. Over the next several years, the Institute will need approximately 28 additional housing units for academic and administrative staff. This estimate is based on complete utilization of all current housing and limited recruitment of additional staff. Provision of this housing would be a strong incentive for staff to remain with the Institute.

4. Training for Women: The study, "The Status of Women in Nepal", details the important role that women play in the agricultural labor force and in making farm management decisions. Women contribute approximately 69 percent more family agricultural labor than do men and independently make 42 percent of the farm management decisions, as compared to 28 percent made independently by men.

Despite this dominant role of women in agricultural production, very few GON extension agents or agriculturalists are women, and, because of social and cultural constraints in many areas of Nepal, it is difficult for unrelated male extension workers to work with women. However, the Ministry of Agriculture is committed to increasing the number of women employees, and greater mobility of population and a higher general level of education within the country make this increase feasible.

At present there are few trained women agriculturists who could be employed by the MOA. It has also been difficult for women to break into male dominated IAAS. When the IAAS project was being planned, female enrollment was not even considered. However, in 1980-81 one woman enrolled at Rampur and later dropped out. In 1981-82 three women enrolled at the Lamjung campus, and in 1982-83, four women enrolled at Rampur (of whom one later dropped out) and six women enrolled at the branch campuses.

On the Rampur campus the lack of adequate housing facilities has made it especially difficult for women students. Women initially had to live off-campus and walk to classes, but in early 1983 MUCIA turned one of the guest house trailers over to IAAS to use as a temporary women's dormitory. This has enabled the

three current women students to continue in the Institute, but will not accommodate increased enrollment in the next years. A women's dormitory is a priority need for the campus.

III. RATIONALE FOR PROJECT AMENDMENT

A. Trained Manpower Needs in the Agricultural Sector

The IAAS project paper cited Ministry of Agriculture estimates of need for increases in personnel between 1974 and 1985 of 16 at the Ph.D. level; 111 at the M.Sc. level; 821 at B.Sc. level; and 5,485 at the JT/JTA level. Since the time of the Project Paper the need for trained technical personnel has continued.

Nepal's Sixth Five Year Plan (1980-85) projects an increase in agricultural manpower requirements of 1,456 at the level of B.Sc. and above and 6,334 at the JT/JTA level. An agricultural manpower review by APROSC, "Trained Manpower for the Agricultural Sector", in July, 1981, estimated that during the period 1980-1990 an additional 2,507 higher level and 8,155 JT/JTA level personnel will be needed. An FAO/World Bank report, "Agricultural Manpower Development Project", dated March, 1981, estimated that between 1981 and 1990 Nepal will need to increase JT/JTA numbers by 7,090 and B.Sc. and higher level personnel by 1,730.

While these manpower studies agree that trained agricultural personnel will be needed in large numbers, exceeding the current capacity of IAAS and other training institutions, they also recognize that GON institutions may not be able to absorb these numbers of personnel. The FAO/World Bank Report, "Agricultural Manpower Development Project - Preparation Mission", concludes that "it is clear that the quantity of staff to be trained should be pitched far below the numbers supposedly needed because of institutional and budgetary limitations".

While administrative and budgetary restraints may to some extent limit the GON's ability to utilize optimal numbers of trained manpower, the private sector may provide employment opportunities for significant numbers of trained agricultural technicians. The need for trained manpower will undoubtedly continue to grow, even though it will probably do so at a slower rate than is often assumed.

The constraints to GON utilization of trained manpower will probably affect JT/JTA level recruitment more than B.Sc. graduate, or officer level. Although the MOA hired sizeable numbers of JT/JTAs in 1982-83, the GON will not likely be able to employ the massive numbers of JT/JTAs envisioned in the manpower projections. The MOA is already planning to make greater use of B.Sc. graduates in extension programs as Subject Matter Specialists (SMS). The net result is a need for greater emphasis on B.Sc. level training and greater emphasis on training quality than quantity.

The importance of emphasizing B.Sc. level training is particularly great, since the AID PL-480 funded India training program under which approximately 50 agricultural B. Sc. graduates are trained per year is due to end in FY 1986. However, IAAS has matured as an institution and has developed to the point that it should be able to provide most of the B.Sc. level training needed.

AID support of the amended IAAS Project remains consistent with the Mission strategy for increasing agricultural productivity. The 1982 CDSS stated that one of the Mission's objectives in this area is "to improve the Government's capability to plan and implement agricultural policies specifically designed to benefit the rural poor" Improved in-country training of B.Sc. graduates at IAAS will provide the GON with trained personnel to better plan and implement future programs in the agricultural sector.

B. Changing Emphasis of IAAS Training

The basic goal of helping to build the institutional capability of IAAS to supply Nepal's professional agricultural manpower needs has been maintained throughout the life of the project. There have, however, been shifts in emphasis of project activities as the goals and aspirations of IAAS itself have changed. This reflects, in part, changes in policy and program emphasis in the Ministry of Education.

When the project was authorized in 1974, the focus was expected to be on: (a) training programs for teachers of vocational agriculture in secondary school; (b) one and two year certificate programs (JTA and JT) for high school graduates to be employed mainly as extension workers in the Ministry of Agriculture, and (c) farmers' short courses and other non-formal education at the

village level. The Project Paper also stressed the idea of an "upside-down" curriculum emphasizing the practical over the theoretical. While IAAS also had a mandate to train B.Sc. professionals in agriculture (a three year program beyond the 2 year I.Sc./agriculture), it was not expected to receive major attention.

Over the years, the emphasis has shifted to providing B.Sc. level training at Rampur and to the formation of an integrated agricultural teaching, research, and extension program. IAAS currently maintains responsibility for training JTAs and JTs but future disposition of these programs is open to question.

The vocational agricultural programs in secondary schools were unsuccessful due to lack of facilities and trained vocational agriculture teachers as well as a lack of interest in vocational education on the part of students, parents and teachers. As a result, in 1977/78, the GON decided to deemphasize vocational courses in secondary schools, and IAAS, thereafter, eliminated the vocational agriculture teacher training program. At the same time the composition of the MUCIA long-term advisory team was changed to discontinue long-term vocational agriculture specialists and add advisors in plant and soil science, animal science, and rural development, who could help develop the curriculum for the B.Sc. program in these general subject areas.

The broad range of short courses to be provided by the Institute to different users has also not proven very feasible. Until recently, the Institute, because of its location, has been too inaccessible and has had neither adequate staff nor the reputation necessary to provide short courses for GON Ministry personnel. Eventually, IAAS may be able to assume a major role in providing short courses for GON personnel. However, this will have to await the further development of both the Institute's capability and reputation and will not likely be a major activity in the near future.

Farmer training has generally been limited to Farmer Field Day Tours and the extension program. Farmers' short courses have not been organized on campus on a significant scale because of lack of budget, staff, and mandate. Farmer training has been and will continue to be the primary responsibility of the DOA Extension Service. The Institute will continue direct farmer training

projects only to the extent that these support the teaching and research functions of the Institute and provide services to the area immediately adjacent to the Institute.

The one-year certificate level (JTA) and two-year Intermediate Science Certificate in Agriculture (I.Sc./Agriculture or JT) courses have caused IAAS the most problems. Some of the problems have come with implementation of the "upside down" curriculum, which include a first year program (JTA) of agricultural courses followed by a second year program (JT) of basic sciences.

First year students taking agricultural courses without the necessary basic science prerequisites do not get maximum benefit from the courses. Second year basic science courses are not of great use to prospective JT level extension workers, but do provide a basis for students entering the B.Sc. course. There are also some inherent contradictions in integrating the concepts of an "upside down" curriculum for training effective JT and JTAs and at the same time establishing a B.Sc. program that meets international standards. The B.Sc. degree requires substantial basic science background which is incompatible with training an effective JT in two years. Curricular revisions have already somewhat de-emphasized this "upside down" curriculum and further revisions will likely eliminate its influence on the curriculum.

Training JTAs, JTs and B.Sc. graduates together at Rampur has also caused problems. In theory after one year of training, students were to have worked as JTAs for several years. Thereafter, selected JTAs were to have returned for an additional year of training to the JT level. After another period of work as JTs the best JTs were to have returned to complete B.Sc. degrees.

However, there is relatively little incentive for anyone to aspire to become a JTA or JT. Students have demanded that they be allowed to continue up the ladder from JTA to JT to B.Sc. without leaving the Institute. The GON was forced to accede to these demands with the result that standards for the JT and B.Sc. programs declined and few extension JTAs and JTs have actually been produced by the Institute.

There is also a degree of dissatisfaction on the part of some employers with the effectiveness of JTs and JTAs working in the villages. Some criticism may be valid as most JT/JTAs are young, and are working in village societies where age is respected. Much of the second year training may be irrelevant to the JT/JTAs' jobs and the practical work experience is limited even in the first year course.

The attraction of continuing on to the B.Sc. course, and the better job prospects that go with it, may also act as a deterrent to good JT/JTA job performance. With a different type of JT/JTA, who would be satisfied with the job and "locked into" it, job performance may improve in the village. This might be achieved by establishing separate career lines for JT/JTAs and B.Sc. graduates and by making the JT/JTA training "non-academic" through the elimination of the requirement for an S.L.C. (School Leaving Certificate or high school diploma).

After considerable time and debate, it appears that a decision will soon be made on the future of JT/JTA training. In July, 1982, the IAAS Faculty Board, composed of representatives from IAAS, Tribhuvan University, and the Ministry of Agriculture, recommended that: (a) IAAS continue to have responsibility for JTA training, but that this be done on branch campuses, (b) JT training be eliminated, and (c) the Rampur campus give major emphasis to training B.Sc. level students.

A Royal Commission on Higher Education has been formed and has appointed a Sub-Committee on Agricultural Education which completed its report in January, 1983. The Sub-Committee's report is not public but reportedly agrees with the IAAS Faculty Board recommendations.

The Royal Commission is scheduled to complete their report by mid-1983. Soon thereafter the National Education Committee, in conjunction with the National Planning Commission, should reach a decision and resolve the considerable confusion surrounding JT/JTA training.

Because of the uncertainty regarding the future of JT/JTA training, IAAS has given most of its attention to developing a sound B.Sc. program. The IAAS project, both because of physical location on the Rampur Campus and for the same reason as IAAS, has also contributed more to the development of the B.Sc. course than to the JT/JTA programs.

Because of the growing importance of having a Nepalese institution capable of providing relevant, high quality B.Sc. level training in agriculture, the emphasis on development of the B.Sc. course will continue until the end of the project. Other reasons for this emphasis are the uncertainty with the future of JT/JTA training and the proposed IBRD project, "Agricultural Manpower Development Project", which will provide support to branch campuses for JT/JTA training.

The IBRD Preparatory Mission for this project based its report on the assumption that the Ministry of Agriculture will take over the training. Depending on the decision following the Royal Commission's report, this project design may have to be revised but the project purpose will be to improve JT/JTA training and will, therefore, complement the current IAAS project, which is supporting mainly the B.Sc. program at Rampur.

In the meantime IAAS is actively moving to strengthen the B.Sc. level program. The Institute is planning to begin a two-year Intermediate Science Certificate (I.Sc.) program at Rampur in 1983/84. This program would be mutually supportive of the B.Sc. level science courses and would provide a pool of well-qualified potential applicants for the B.Sc. program. Also, in 1983/84 the Institute will transfer all JT/JTA training, except 25-30 horticultural JTAs and, possibly, some livestock JT's, to branch campuses. There has also been discussion of the Institute becoming an autonomous university and of beginning an M.Sc. program. Both proposals are important for the future, but it is too early to give them active consideration. Before IAAS can begin to offer M.Sc. degrees, the research program must be strengthened, additional Ph.D. level staff trained, and the quality of the B.Sc. program improved.

The IAAS training program has evolved and is continuing to move in the direction of a traditional B.Sc. degree granting institution. It will continue to train extension workers as required, but will maintain relative emphasis on the B.Sc. level training. The IAAS project supports this objective of the Institute. This project paper amendment is necessary to account for these institutional and policy changes, which have resulted from experience obtained since the project was initially authorized.

C. Campus Construction Needs

While the PL-480 local currency funded construction project has gone far towards developing the physical plant needed for the Rampur campus, it has left some critical needs unfilled. The GON and AID/Nepal have been unsuccessful to date in attempts to obtain other donor assistance to complete campus construction. Completion of the overall construction program will be a sizeable undertaking, but two critical gaps in the construction program will seriously hamper development of the Institute, if they are not completed soon. These are a women's dormitory and staff housing.

The GON has realized the need to involve women in agricultural development activities and has begun to encourage this involvement. To facilitate development of programs aimed at women farmers, it will be necessary to involve trained women in the planning and implementation of these programs. Women scientists are active in Nepali agricultural research, but these women have been trained in the basic sciences, since agricultural training has not been readily available for Nepalese women.

At present there are only three women students at Rampur. The number is small, because this is the first year women have been able to continue in classes, and it has not been widely known that women could enroll. As women students become established on the campus and when adequate dormitories are available, the numbers can be expected to increase. In fact as a matter of policy, the Institute will be actively attempting to recruit women students. A women's dormitory is needed to house about 30 students. This will meet women student housing needs for the next 2-3 years after which expansion may be necessary.

The other critical need is faculty housing. The original campus construction plan called for 160 housing units, of which only 36 units will be completed under the PL-480 funded project. While housing is inadequate for the current staff, 18 additional staff are scheduled to return from training and additional staff are being recruited. Without adequate housing, it will be difficult for the Institute to maintain staff morale and to retain the best-qualified staff.

Twenty-eight additional staff housing units are needed to accommodate staff currently on campus or in training and to be recruited in the near future. If housing is not provided, the likelihood of project-trained staff leaving the Institute is great.

IV. PROJECT DESCRIPTION

The project remains basically the same as described in the original PP. This amendment revises the statement of project purpose with regard to who is to be trained by the Institute and develops the case for funding the minimum of additional construction required.

A revised logical framework is attached as Annex A. Most of the changes from the original logical framework are the result of a different perspective as to "goal" and "sub-goal" and revised estimates on likely "input" and "output" levels.

A. Goal

To increase agricultural production in Nepal's small farm sector.

B. Sub-Goal

To provide the necessary trained manpower for Nepal's agricultural sector development.

C. Purpose

To develop the capability of the Institute of Agriculture and Animal Science to provide quality training for B.Sc. candidates.

The project will continue to support other training activities, which the Institute may undertake, such as JT/JTA training, in-service training for GON personnel, and farmer training. However, major emphasis will be on support to the B.Sc. program.

D. Output

The project will assist the GON with the continued development of the IAAS. In addition to the establishment of the Institute, the project will assist the Institute produce approximately 387 B.Sc. graduates and 5,154 JT/JTAs graduates during the life of the project. Of these the Institute has produced 237 B.Sc. graduates and 4,154 JT/JTAs to date, and will produce an additional 150 B.Sc. graduates and 1,000 JT/JTAs by the end of the project. Thereafter the the annual production of B.Sc. graduates will be 75 and of JT/JTAs approximately 500 depending on future policy and support for JT/JTA training.

Specific outputs related to the establishment of the Institute will be as follows:

1. Trained staff: At the end of the project IAAS will have approximately 77 academic and 12 administrative staff. Of these approximately 60 will have received training under the IAAS project.
2. Curricula: Complete curricula will have been developed for the different training programs. A copy of the IAAS Bulletin (1981), attached as Annex F, describes the current curricula.

Since the Bulletin was published, Institute staff newly returned from completing higher degree training have improved course content and given considerable effort toward revising the curricula.

During the final eighteen months of the project, Institute staff along with MUCIA advisors will complete revision of courses and curricula under the direction of a Curriculum Committee. The staff will prepare text books for some courses and these will be produced in sufficient quantities for use by the students as individual texts.

3. Development of Campus Facilities: The project is assisting with campus development, mainly in equipping and setting up laboratories for teaching and research, a library, an audio-visual center, an extension center, and the research and demonstration farm. All of these facilities will be operational by the end of the project.
4. Campus Planning: During the early years of the project, major effort went into planning for physical development of the campus, curriculum development, administration, and establishment of procedures. In the final eighteen months of the project, MUCIA staff will assist the IAAS staff with: (a) development of a revised campus master plan; (b) curriculum revision; (c) development of a faculty policy handbook; (d) development of a staff evaluation and incentive plan; and (e) development and implementation of a comprehensive farm plan.

5. Extension Program: An Institute extension project is currently serving Shardanagar Panchayat surrounding the Institute. By the end of the project IAAS will have developed a plan to better utilize the extension project to deliver new technology to farmers and to provide a field laboratory for students.
6. Research Program: By the end of the project at least ten research reports will be published by IAAS staff. Additional research projects will be underway and research will be utilized to improve teaching and extension programs.
7. Construction: During the final year of the project, any savings that can be realized from other components of the project budget will be used to fund priority construction of faculty housing and a women's dormitory.

E. Inputs

The GON has provided land and staff for IAAS and physical facilities for the branch campuses. The GON also provides the annual budget for IAAS as detailed in Annex E.

A separate PL-480 local currency project has funded the major portion of campus construction at Rampur. This project construction, totalling \$4,157,000 local currency equivalent and detailed in Annex C will be completed by September, 1984.

The IAAS Project provides technical assistance, training, equipment, research funding, and minor farm and campus development activity funding through the MUCIA contract (AID/NESA-C-1197). Major project inputs are detailed below:

1. Technical Assistance: MUCIA has provided approximately twenty-two person years of technical assistance to date. In the final eighteen months of the project MUCIA will provide an additional six person years of technical assistance. Three long-term advisors will assist with curricula revision, general planning activities; research and extension program development; and improvement of the campus farm. Short-term advisors will conduct short courses on campus and will assist with improving operations of the Institute's laboratories, farm, communications center, and library.

2. Training: Approximately twenty-seven IAAS staff have completed training programs, mostly M.Sc. programs in the United States. During the remaining period of the project, thirteen more staff will complete Ph.D. and M.Sc. degrees; sixty will complete short courses; and twenty will participate in overseas study tours.
3. Equipment and Materials: Most equipment and materials needed for the Institute have already been provided by the project. This has included laboratory and farm equipment, library books, research and teaching materials, and two vehicles.

In the time remaining in the project, MUCIA will provide additional equipment to make the laboratories operational and add to the library resource. MUCIA will also provide equipment for an audio-visual center, the extension program, farm development, and minimum, immediate needs of branch campuses for library and teaching materials. An additional vehicle will also be obtained for the Institute.

4. Research Funding: The project has funded nineteen IAAS staff research proposals. Funding is available for approximately twelve more projects.
5. Farm Improvement: The project will assist with the improvement of the campus farm to make it more useful for research and demonstrations. Improvements may include land shaping, irrigation and fencing.

F. Budget (\$000)

	AID Dollar	AID Local Currency Grant	GON	Total
Land and Buildings	-	-	1,000	1,000
Construction*	-	4,157	-	4,157
IAAS Annual Budgets**	-	-	2,340	2,340
Technical Assistance	3,472	-	-	3,472
Training	1,313	-	20	1,333
Equipment & Materials	500	-	-	500
Research	162	-	-	162
Campus/Farm Develop- ment Activities	54	-	-	54
TOTAL	5,501	4,157	3,360	13,018

* Additional funds needed for staff housing and women's dormitory are not included.

** Includes cost of construction, research, training and equipment, in addition to salaries and operating costs.

V. IMPLEMENTATION PLAN

A. MUCIA Work Plan

The MUCIA Work Plan is attached as Annex B. In addition to the general work plan prepared in June, 1982 the newly-arrived contract team and the Institute have prepared a plan for specific activities to be accomplished by the end of the MUCIA contract. Although the work plan is ambitious, AID/N believes that the activities can be completed as planned.

B. Evaluation

An external project evaluation is scheduled for August 1983. This evaluation will be conducted by an IQC firm and will assess the effectiveness of the project in meeting its objectives. Emphasis will be given to assessing (a) current capacity of IAAS to fulfill its role in supplying trained personnel for the agricultural sector, (b) adequacy of present IAAS facilities, (c) effectiveness of technical assistance and training components of the project, (d) relevancy of the current curricula, research programs and extension activities, and (e) identifying factors which may have hindered project attainment of objectives.

C. Timetable of Events

1. Project Amendment Authorized	6/83
2. Project External Evaluation Completed	8/83
3. Fifth Project Joint Annual Review	1/84
4. Completion of MUCIA Contract	9/84
5. PACD	9/84

D. Construction

PL-480 local currency funded construction should be completed, as scheduled, by September, 1984.

AID/Nepal will continue to assist the GON to attempt to obtain additional funding to complete the campus construction plan. At the same time, MUCIA advisors will continue working with IAAS staff to prepare a campus development plan for the next ten years.

However, AID/Nepal considers construction of a women's dormitory and additional staff housing to be of the highest priority for continued rational development of the IAAS Rampur campus. Delay in funding these facilities may well negatively affect the development of the Institute. For this reason, if there should be any possibility of obtaining \$850,000 of grant funding for this construction, AID/Nepal will propose this additional obligation of funding for this project.

The funding would be obligated for construction as per the budget as follows:

	<u>\$000</u>
Women's dormitory (30 students)	75
Senior staff housing (20 units)	550
Junior staff housing (8 units)	125
Contingency	50
Inflation	50
	<u>\$850</u>

The construction can be completed in approximately eighteen months, if contracting is started early in FY 1984. If this additional \$850,000 grant funding is obtained, project PACD would be extended by one year to September 30, 1985.

ANNEX A
LOGICAL FRAMEWORK

<u>Narrative Summary</u>	<u>Objectively Verifiable Indicator</u>	<u>Means of verification</u>	<u>Important Assumptions</u>
<u>Goal:</u> To increase agricultural production on Nepal's small farm sector.	- Agricultural production increases at a rate of at least 3 percent per year	- GON and IBRD reports.	- GON organizations are not constrained by policy and procedural regulations restricting utilization of employees' abilities. - World economic situation does not result in reduction of Nepal's access to fertilizer and other needed inputs.
<u>Sub-goal:</u> To provide the necessary trained manpower for Nepal's agricultural sector development	- Programs in Nepal are training sufficient numbers of personnel to meet employment needs of GON institutions below M.Sc. level.	- MOA, DOA, AIC, ADB, and other institutions and projects records on recruitment of personnel	- GON salaries and perquisites will attract IAAS graduates - Other donors continue support to agricultural sector training institutes.
<u>Purpose:</u> To develop the capability of the Institute of Agriculture and Animal Science to provide quality training for B.Sc. graduates.	- Physical facilities sufficient for training of 500 students at Rampur. - Relevant curriculum being taught by well-trained and motivated staff. - Institute farm being well utilized for production, research, and demonstrations. - Active research and extension programs under way by the Institute.	- Site visit.	- GON policy continues to give a high priority to B.Sc. level training at Rampur. - Laboratories can be put into operation. - Tribhuvan University rules will allow needed flexibility to fully operate farm

Outputs:

- | | | |
|--|--|---|
| 1. Trained Nepali staff | 1.a) 77 - academic staff
b) 12 - administrative staff | - MUCIA, USAID, and IAAS - No major student, staff or records and reports. laborer strikes. |
| 2. Physical facilities | 2.a) Previously existing facilities and PL-480 funded construction as per Annex C.
b) Laboratories, library, and audio-visual room functional. | - No major turn over of IAAS staff occurs.
- GON continues to assign a high priority to development of IAAS. |
| 3. Graduates | 3.a) 1974 - 1982 - see Annex D

b) <u>B.Sc.</u> <u>JTAs</u> <u>JTs</u>

1983/84 75 300 200

1984/85 75 300 200 | |
| 4. Farm Plan developed for entire farm, including long-range plans for livestock breeding herds. | 4. Plan developed and accepted. | |
| 5. Faculty research program. | 5. At least ten projects completed and published by September, 1984. | |
| 6. IAAS extension program. | 6.a) Plan developed and accepted for future extension program.

b) Extension program providing services to farmers in Shardanagar Panchayat. | |

19/

- | | |
|--|---|
| <ul style="list-style-type: none"> 7. Development of a Campus Development Master Plan 8. Curriculum developed. 9. Faculty Policy Handbook developed. 10. Staff Evaluation and Incentive Program developed. | <ul style="list-style-type: none"> 7. Plan developed and accepted. 8. Continuing process. 9. Handbook printed. 10. Staff Evaluation and Incentive Program accepted. |
|--|---|

Inputs.

USAID

- 1. Technical assistance.

1. MUCIA Team:

	<u>1975-82</u>	<u>1982-84</u>
Long term technicians (person years)	20	.5
Short-term consultants (person months)	25	16

- MUCIA and AID Reports and Records.

- No unforeseen changes in MUCIA staffing during the final years of the project.

32

2. Training

- 2.a) M.Sc. degree programs - 50 persons - IAAS Reports and Budgets
(15 in India)**
- b) Ph.D. degree programs - 8 persons
(3 in India)**
- c) Long-term, non-degree- 7 persons**
- d) Short- courses - 48 persons**
- e) Study tours - 25 persons**

3. Commodities

3. \$500,000

4. Construction

4. PL-480 funds - \$4,157,000

5. Research funding

5. \$100,000

6. Farm Development Funds

6. \$44,000

GON

1. Campus and farm at Rampur

1. 500 A.

- IAAS Reports and Budgets.

2. Branch Campuses and Farms

2. 10 A.

3. Recurring budgetary support

3. As per Annex E.

23

SPECIFIC
WORK PLAN OF MUCIA/NEPAL PROJECT
through September 1984

Supplement to: GENERAL WORK PLAN
OF WILSON AND SOFRANKO (1982)

PROJECT 367-11-110-102

CONTRACT AID/NESA-C-1197

MUCIA/NEPAL PROJECT
IAAS, Nepal
P.O. Box 984
Kathmandu, Nepal

Work Plan of MUCIA (through Sept 1984)

I. Technical Assistance

A. Plant Science Advisor (P)

The Plant Science Division at IAAS includes Agronomy (Field Crops and Soils), Horticulture, and Plant Protection (Entomology Plant Pathology, Weed Control) Departments. Nearly all food whether of plant or animal origin, depends ultimately on the growing of plants in soils. The program of the plant science advisor involves working with all faculty members in the division to achieve better teaching, research, and extension programs in pertinent aspects of field and horticultural crop production, crop protection and soil management. The Plant Sciences Advisor also serves as Team Leader to coordinate activities of the team and to help provide logistical support to team members and to IAAS. He works closely with the Dean and Assistant Deans in many matters not directly related to the subject matter role and including improving internal organization of IAAS, strengthening of MUCIA/IAAS relationships, teaching improvement, faculty development and evaluation, research improvement and management, completing inventory of MUCIA/AID supplied equipment and keeping accurate records of location and condition of such equipment; and assisting in promoting student welfare.

B. Animal Science Advisor (A)

The general role of the Animal Science Advisor will be: (1) resource person to the Department of Animal Science, and (2) technical advisor to the Dean and the Animal Science faculty on matters of research, teaching, extension, curriculum and live-stock farm and herd development and management. In addition, the Advisor has been assigned as liaison person between the MUCIA team and IAAS in matters of safety and medical first aid, and for library and computer development.

C. Rural Development Advisor (R)

The Rural Development Advisor's work plan focuses on acting as a general resource person to the Rural Development Division (including Rural Sociology, Agricultural Economics, Agricultural Communications and Extension Education) and to the administration of IAAS concerning such activities as manpower and staff development, institution building, teaching and curriculum development, and research and extension activities in Rural Development. Advisor will act as a general consultant to the IAAS Pilot Extension Project and aid in the development and dispersion of information generated by campus research activities through support of the campus seminar committee, the IAAS Journal and the proposed Agricultural Communications Services Center.

D. Short-Term Consultants

The long-term advisor who will work most closely with the indicated short-term advisor is shown by: (P) for Plant Science, (A) for Animal Science and (R) for Rural Development.

1. Statistics and Research Design (A) 3 mos.
A short course in research methods and analysis will be offered at IAAS for faculty on a credit basis. Two instructor/consultants will be recruited to teach and consult with individual faculty members on their research.
2. Communication and Audio-visual specialist (R) 1 mo.
In line with the development of the Agricultural Communications Center, a short term consultant will be arranged who will help develop the organization for the use and maintenance of equipment for the center and help refine future growth plans for the center.
3. Laboratory Equipment Specialist (P) 2½ mos.
A person with training and broad experience in maintenance and repair of general kinds of laboratory equipment will be recruited. At IAAS the specialist will work with one designated faculty member in each department. He/she will train these faculty members and others in preventive maintenance as well as in repair procedures. He/she will also stress laboratory organization and sanitation.
4. Specialist in Training of Trainers (R) 2 mos.
All of the IAAS faculty members are trainers of trainers and it is expected that the B.Sc. graduates of IAAS will also eventually be trainers of trainers. USDA Short course #TC110-15: Training of Trainers for Agriculture and Rural Development offers a set of objectives which will fulfill this need. Rather than send a large group of participants to the USA for this course, arrangements will be made to teach this course or its equivalent to a selected group of IAAS faculty members on campus.
The participants will develop knowledge and skills to : (1) improve training effectiveness, using training resources to give the most appropriate information and skills to trainees; and (2) strengthen and update their knowledge in their own areas of specialization.

5. Library Science Specialist (A) ½ mo.

The Library Consultant will review library operations and advise on library development. Services of the consultant will not be scheduled until a librarian is recruited.

6. Experiment Station Management Specialist (P) 5 mos.

Two kinds of assistance will be provided by one or two consultants: (a) Layout of a part of the IAAS farm for improved drainage and for irrigation. (b) Training of IAAS farm manager (s) in providing routine farming operations and labor for field research projects and working with project leaders to schedule field activities ahead of time so farm managers can provide services requested & use labor/equipment most efficiently.

If it is not possible to recruit one individual who can perform both tasks, two consultants will be provided within the time allotment indicated.

7. Extension Communications Specialist (R) 1 mo.

A specialist will be selected to help bridge the gap between the proposed Agricultural Communications center and the pilot extension project if this is deemed necessary.

8. To be determined (P) 1 mo.

Provision is made for a short-term consultant in a field not yet identified as requiring assistance.

II. Training (Long-term advisor who will assume primary responsibility for facilitating the training shown by (P), (A) or (R) as above.)

A. Short-term training

1. Courses in Nepal

An attempt will be made to schedule an appropriate USDA short-course to be given in Nepal. If arranged, this course would be instead of the services of a corresponding short-term consultant indicated above. If the course can not be arranged, the consultant recruited will present an organized course as part of his consultancy.

1.1. Design and analysis of agricultural experiments (A)

A 6-week short course in research methods and analysis will be offered by short-term consultants at IAAS for faculty with credit toward promotion; lectures and individual consultations will be included.

1.2. Training of Trainers (R)

The short course mentioned above (I.D.4) will be offered on IAAS campus for selected faculty members either by USDA sub contract personnel or by approved short term consultants. If possible credit toward promotion will be arranged for participants.

1.3. Audio-visual training (R)

Training in the use and maintenance of audio-visual equipment will be provided for a group of persons who will be associated with the Agricultural Communications center. This training will be handled by the short term consultant listed in I.D. 2 above.

2. Training for administrative staff of IAAS (P)

Selected administrative staff members will be provided short-term training at appropriate institutions to improve their competence to manage a growing institution. Training course available in the region will be utilized wherever possible.

3. Overseas training course for academic faculty of IAAS (P)

Selected faculty members will be provided short-term non-degree training in specialized subjects. The program of the faculty member and the relevance of available courses will be considered in selection. USDA short courses offered in USA will be utilized for part of the training.

B. Study tours for academic staff

1. Mediterranean Live-stock Study Tour (A)

A 3 week tour with 7 or 8 faculty members will be taken to Cyprus (goat and sheep), Greece (sheep, goats, cheese processing), and Italy (buffaloes, cattle, sheep) with emphasis on multi-purpose livestock models applicable to Nepal.

2. Rural Development Study Tour to Indonesia (R)

Rural Development Study Tour to Indonesia. A 3 week study tour of 5 of the major agricultural universities in Indonesia, with special conferences with members of the Ministry of Agriculture and the Ministry of Higher Education and the Consortium of Agricultural Sciences will be arranged for a team of 7 or 8 faculty members from IAAS including members from each of the major disciplines (Animal Science, Plant Sciences, and Rural Development) and the Dean of IAAS. MUCIA R.D. Advisor will be the coordinator and the tour guide.

3. Plant Science Study Tour (P)

One or more tours of one to three weeks duration will be arranged to study plant sciences programs in relevant country or countries. It is expected that these will be arranged in late 1983 or in 1984. Tours will include the international center, ICRISAT, in Hyderabad, IARI in New Delhi and some agricultural universities in India. A tour to the international center, IRRI, and to University of the Philippines at Los Banos may also be arranged.

C. Administrative Visit to MUCIA Universities (P)

The Dean and one other senior administrative staff member of IAAS will each visit MUCIA Universities for approximately ten days to confer with MUCIA officials and to review administrative procedures and policies at those universities.

D. AID financed training program in India

Two or more participants per year can be sent by AID funded India Training Program for degree training in India at no cost to the project. Two or three short-term participants can also be sent each year.

III. Research Programs

MUCIA Advisors will work with IAAS faculty and administrators and serve as members of the research committee to best utilize project financial support for building research capability of IAAS faculty. Research proposal guidelines will be revised to insure that research is adequately planned and is pertinent to Nepal's agriculture and to IAAS's mission. Encouragement and assistance will be offered to faculty members in planning and conducting applied research and in making results available to interested persons.

A. Plant Science

Currently there are twelve research projects in progress in the plant sciences which are receiving MUCIA funding. Other areas of research which should be emphasized in plant sciences include;

a. Water management for crop production

There is immense opportunity for improved drainage, irrigation, and moisture conservation programs.

2. Development of cultural practices of field and horticultural crops for increased yields including:

2.1. Screening of germ plasm for selection of cultivars with potential for high yield under Nepalese conditions in cooperation with national programs in important crops.

- 2.2. Improved tillage and planting procedures.
- 2.3. Improved plant protection practices.
3. Nursery management for horticultural crops and improved landscape design and maintenance.
4. Improvement of integrated pest management programs.
5. Nursery management practices.
6. Seed quality studies.

B. Animal Sciences

The general areas of research to be emphasized in animal science include:

1. Forage evaluation
Evaluation of varieties of *Leucaena leucocephala*, a productive tropical leguminous fodder shrub/tree, has been formally proposed.
2. Feeding of crop residues
 - 2.1. Concentrates
Projects evaluating mustard cake are in progress.
 - 2.2. Roughages
Projects testing grain straws have been formally proposed.
3. Biogas residues
The feeding of biogas residue/slurry/sludge will be undertaken when biogas units are installed and operating.
4. Breed Evaluation
 - 4.1. Goats
Improvement of the size and milk yield of local goats while maintaining or improving their prolificacy will be undertaken.
 - 4.2. Sheep
Improvement of size, prolificacy, milk yield, and wool yield of local sheep will be initiated as this offers enormous opportunities for developmental research.
 - 4.3. Poultry
Poultry developmental research with chickens, pigeons, and Guinea fowl will be initiated under conditions of village scavenging.

5. Milk characteristics and processing

5.1. Comparison of milk composition of Haryana cows and Murrah buffaloes has been formally proposed.

5.2. Evaluation and characterization of goat and sheep milk for cheese, yoghurt and ghee will be undertaken.

6. Integrated fish-animal production

Construction of fish ponds is in progress.

7. Animal traction

Research into modernization of traditional farming techniques with modern equipment for animal traction will be undertaken.

C. Rural Development

Current and projected projects include:

1. Radio and other sources of information to the farmers in Chitwan District (P.I. Narayand Kunwar). Funded MUCIA project in process.
2. The evaluation of the B.Sc. Agriculture Program at IAAS, Rampur, Nepal, (P.I. Bholu Pokharel). Funded MUCIA project. Original project stalled but about to be reactivated.
3. A study of Farming Systems: A Case Study of Sharadanagar Panchayat (P.I. Pradeep Tulachan). Funded project in process.
4. Continuous research and evaluation of IAAS Pilot Extension Project. (RD Advisor and RD staff).
5. Assist in the development of new research projects within the Rural Development Division.
6. Research in the area of women's role as agriculturists in the Terai.

IV. Teaching Program (P) (A) (R)

MUCIA Advisors will assist IAAS faculty and administration in their efforts to improve teaching and curriculum and to encourage and reward superior teaching. This will include.

1. Preparation of syllabi and/or textbooks for assistance to teachers and guidance to external examiners.
2. Development of course outlines to define course objective and to reflect accurately what is being taught.
3. Development of elective courses to permit some specialization and pursuit of special interests and talents.

4. Arranging of seminars concerned with teaching improvement, evaluation of teaching, and related subjects.
5. Encouragement and assistance in developing at least ten textbooks for use in IAAS courses. Financial incentives will be offered from MUCIA funding.

V. Extension Activities

MUCIA Advisors will assist IAAS faculty and administrators in conducting and improving the extension activities of IAAS. MUCIA will provide financial support for extension activities as mutually agreed upon.

The Rural Development Advisor serves as the primary counterpart of the Coordinator of the IAAS Extension Committee. He also helps coordinate extension support by the other advisors. Special attention will be given to making the IAAS Pilot Extension Project more effective and relevant, not only to the needs of the local farmers but also as a teaching and research unit for the Institute.

VI. Special Activities

A. Seminars (R)

MUCIA Advisors will assist in development, conduct, and support of a regularly scheduled seminar series at IAAS. The R.D. Advisor will work closely with the seminar coordinator in this effort. While this will include guest speakers from other Nepal-based projects and agencies as well as visitors from other countries, one focus will be to encourage IAAS staff members to share the results of their research, study tours and experiences abroad.

B. Survey of IAAS Graduates (R)

The R.D. Advisor will assist IAAS in conducting a survey of its graduates. Terms of reference are being written to contract with an objective, external organization to conduct the survey.

C. IAAS Alumni Homecoming (R)

Related to the above survey, IAAS plans to invite selected alumni to return to IAAS and participate in a seminar to help ascertain any weaknesses in the IAAS curriculum. The R. D. Advisor will provide assistance.

D. Fencing and forage development of North Farm (A)

A strong perimeter fence of about 4.2 miles (ca 7000 metres) is required to stop encroachment of villagers on IAAS fields and to prevent contact of outside livestock with IAAS livestock with risks of disease and unscheduled matings. MUCIA will assist in planning and in financing this activity.

- E. Farm land shaping and irrigation development (P) (A)
- In order to improve drainage to permit earlier planting after rains and to permit development of deeper rooting zones for crops, a land shaping and ditch-drainage system will be installed on part of the IAAS farms. A short-term consultant may assist IAAS faculty and MUCIA Advisors. Funds may be available from the Chitwan Irrigation Development Project to help with the North Farm.
- F. Installation of Bio-gas Unit (A)
- Biogas digesters will be installed to render night soil and livestock dung safe for use as fertilizer or ruminant feed and to provide some of the fuel needs of staff and laboratories.
- G. Provision of Medical Doctor (A)
- Arrangements are being made for a volunteer physician. MUCIA will provide housing on a trial basis for the doctor.
- H. Completion of Campus master plan for medium term (10-20 years)(R)
- Long-term advisors, with possible assistance of a short-term consultant, will assist IAAS staff with the development of a Master Plan for Campus Development. The master plan will take into account future teaching, research and extension responsibilities of IAAS and will be for use by the Institute in obtaining future funding for campus development and in planning campus development and conform to an over-all plan.
- I. Establishment of Livestock Breeding Herds
1. Goats

The project will assist in procuring nucleus herds of local and Damascus (Shami) goats for evaluation and to initiate improvement of local goats in meat and milk production.
 2. Sheep

The project will assist IAAS in procuring nucleus flocks of local Kage. A prolific milking breed such as the Greek Chios or German East Friesian Sheep will be established with importation of animals or semen. These flocks will permit evaluation and initiation of genetic improvement of local sheep in meat, milk, and wool production.
 3. Poultry
 - 3.1. Chickens

The project will help provide flocks of local chickens, jungle fowl, and "improved" breeds or hybrids for evaluation and for development of improved local breeds.
 - 3.2. Guinea fowl

The project will help provide local and improved guinea fowl for evaluation as alternatives to chickens under village conditions.

3.3. Pigeons

The project will help provide local and selected populations of pigeons for evaluation and possible hybridization for improvement of meat and egg production.

4. Buffaloes

The buffalo development program will be funded by Chitwan Irrigation District under an Asian Development Bank Loan.

5. Swine

The project will help acquire some breedingboars or semen, plus the establishment of a nucleus herd of local swine.

6. Cattle

Bulls and/or semen for the Hariana cattle herd will be acquired for improvement of milk yield and draught characteristics, through pure breeding or crossbreeding.

J. Water for Lamjung Campus

A water supply is urgently needed. Some MUCIA funding may be available but not in amounts adequate to complete a water supply. Assistance in securing other funding sources will be provided if desired.

VII. Acquisition of Equipment and Materials

MUCIA Advisors will assist IAAS faculty in developing lists of needed equipment for teaching, extension and research. MUCIA funding will be utilized within the limits of the budget available. Special attention may be given to the following:

A. Laboratory equipment (P) (A)

The short-term consultant in laboratory equipment maintenance and repair should provide valuable advice regarding laboratory equipment needs. Completion of the inventory of MUCIA/AID-provided equipment will facilitate development of needs. A workable fume hood will be obtained.

B. Horticulture Nursery Stock (P)

Assistance will be provided to develop needs for nursery stock and to help finance acquisition.

C. Audio-visual center equipment (R)

The R.D. Advisor and the short-term consultant will assist in organizing the Audiovisual Center, in ascertaining the equipment needs and in facilitating the purchase of the proper equipment. Tentative lists have already been prepared.

44

D. Extension program equipment (R)

The R.D. Advisor will assist the coordinator of the Extension committee to define the equipment needs of the Pilot Extension Project and assist in obtaining the required equipment.

E. Livestock equipment (A)

The following equipment needs are recognized and the project will assist in purchase of the equipment.

1. A 1000 kg weigh scale as well as several smaller scales for small animals.
2. A heavy-duty squeeze chute to facilitate the handling of buffaloes and cattle with a minimum of risk to the livestock and the staff and students.
3. Livestock identification equipment and supplies and other livestock management equipment.
4. Milk processing laboratory-
Equipment for processing up to 1000 litres of milk per day for the making of cheese, yoghurt, and ghee.
5. Veterinary laboratory-
Equipment for blood testing and other routine diagnostic procedures.

F. Books and Equipment for Branch Campuses (P) (A) (R)

The Project will procure books and equipment necessary to meet the immediate teaching needs of the branch campuses. Emphasis will be on purchase of textbooks and of equipment for student practicals.

G. Plant Protection Equipment (P)

Field plot and laboratory equipment are needed for teaching research and extension program in plant protection. Assistance will be provided, as feasible, to meet the need.

H. Seed testing and laboratory processing equipment (P)

Equipment is needed for student instruction in seed technology and for short-course instruction if IAAS decides to undertake such activities. MUCIA will help provide such equipment.

I. Sports and recreation equipment (P) (A) (R)

MUCIA will assist IAAS in acquiring needed equipment for group sports activities to promote student health, welfare and recreation.

VIII. IAAS Activity Commitments

The following activities are considered very important for the future development of IAAS. IAAS will assume responsibility for implementation of these activities. MUCIA specialists will serve as advisors and work as appropriate with IAAS staff complete these activities.

A. Complete Campus Development Master Plan

While MUCIA will assist in development of an up to date campus master plan, major responsibility for planning and final acceptance of a master plan lies with IAAS. The plan should identify future goals and responsibilities of IAAS and also identify construction and other needs to meet these goals. MUCIA will print the final master plan.

B. Complete Curricula Revision

Curricula revision will be a continuing activity of the Institute as courses change. During the final period of the IAAS project, the Institute will revise and MUCIA will print an up-dated IAAS Bulletin.

C. Develop IAAS Faculty Policy Handbook-

IAAS will review current Institute policies and establish other policies as appropriate. Those will include policies on such issues as housing assignments, research activities, training eligibility, leave, consulting assignments, and assignment of other perquisites and duties. In areas where the Institute is constrained to follow T.U. regulations, the appropriate T.U. policies will be included in the Handbook. MUCIA will print the Handbook developed by the Institute.

D. Development and Implementation of a Farm Plan

IAAS will revive its Land Utilization Committee to develop and begin implementation of a comprehensive Farm Plan based on current soil survey information. A variety of appropriate local cropping systems will be utilized on appropriate land areas to make maximum use of the Institute farm in teaching research, demonstration, and production. The Farm Plan, to the extent possible, will integrate farm activities and stress those activities appropriate to the conditions of Nepali farmers. MUCIA will print the Farm Plan developed by the Institute.

E. Implement Staff Evaluation and Incentive Program

IAAS will develop a system for regular staff evaluation, including both quality and quantity of work output. Institute policy in this regard will be included in the IAAS Faculty Policy Handbook. The Institute will begin implementation of this evaluation system and will establish an incentive program to recognize outstanding staff members.

ANNEX C

SUMMARY OF PL-480 FUNDED CAMPUS CONSTRUCTION PROGRAM

<u>Construction Activity</u>	<u>Construction Planned Under Original Project Paper</u>	<u>Current Status</u>
<u>Academic Facilities</u>		
Classrooms	700 student capacity	Completed for 330 student capacity
Laboratories	700 student capacity	Completed for 240 student capacity
Offices	89 staff capacity	Deleted
Library	One	Completed
Auditorium	One	Deleted
Student Center	One	Deleted
<u>Administrative Complex</u>		
Administrative Building	Remodel existing building	Deleted
Auditorium	Remodel existing auditorium	Deleted
<u>Student Hostels</u>		
Temporary Hostel	200 student capacity	Deleted
Permanent Hostel	480 student capacity	Completed for 270 student capacity
Existing Hostel	Remodel-150 student capacity	Under construction
<u>Staff Housing</u>		
Housing Units	160 family units	Completed-16 units; under construction-20 units
Guest House	Four or five units	Deleted
Visitors Quarter	One center for rela- tives of students	Deleted
<u>Community Facilities</u>		
Primary School	One	Under construction
Bank	One	Deleted, but existing facilities utilized.
Post Office	One	Under construction
Food Cooperative Store	One	Completed
Small Shops	Three or Four	Deleted
<u>Farm Operations Center</u>		
Field laboratory	One	Deleted, but may not be necessary
Implement Shed	One	Completed
Workshop	One	Completed
Threshing Shed	One	Completed
Storage Facilities	One	Completed

Cont'd of Annex C

VII. Campus Engineering Facilities

Maintenance Headquarter	Remodel Existing guest house	Deleted
Godown and Storage yard	One	Deleted

III. Electrical Distribution System

Existing System	Improve to meet campus needs	Under construction
-----------------	------------------------------	--------------------

IX. Sanitary System

Septic Tanks	Complete system	Under construction
--------------	-----------------	--------------------

X. Water Supply

Tubewell	One	Completed
Water tank	One	Completed
Distribution System	Complete system	Under construction

XI. Civil Works

Site Drainage	Complete system	Under construction
Irrigation Canal	Relocate	Completed
Roads and Walks	Complete system	Under construction, but on a reduced scale
Approach Road	Upgrade existing road	Completed
Windbreak	One	Deleted
Landscaping	Complete system	Under construction, but on a reduced scale

XII. Other

Dispensary	-	One - under construction
Existing Staff Quarters	-	Renovation of 5 family units - ready to start
Greenhouse	-	One - under construction

ANNEX D

I A A S G R A D U A T E S

<u>Campus/Program</u>	<u>1973/74</u>	<u>1974/75</u>	<u>1975/76</u>	<u>1976/77</u>	<u>1977/78</u>	<u>1978/79</u>	<u>1979/80</u>	<u>1980/81</u>	<u>1981/82</u>	<u>1982/83</u>	<u>Total</u>
Rampur											
J.T.A.	86	-	-	-	-	-	-	-	-	-	86
J.T.	41	34	97	84	94	150	164	-	213	-	877
B.Sc.	-	-	-	-	-	28	75	2	61	71*	237
Vo-Ag.Teachers	23	68	34	54	39	41	8	-	-	-	267
Lamjung											
J.T.A.	-	-	-	-	49	73	77	125	166*	162*	652
Pakhilihawa											
J.T.A.	-	-	-	-	-	83	255	17	164*	163*	682
J.T.	-	-	-	-	-	-	-	261	-	200*	461
Khumaltar/Tripureswar											
J.T.A.	-	21	61	90	88	83	12	70	62	98*	585
Janakpur											
J.T.A.	-	32	39	50	49	57	7	-	95	87*	416
Nepalgunj											
J.T.A.	-	15	28	44	40	44	10	-	-	-	181
Parwanipur											
J.T.A.	-	20	37	53	45	55	4	-	-	-	214

*Estimated.

ANNEX E

IAAS Budgets and Expenditures for Rampur Campus by Year

(Estimated Dollar Equivalent in \$000)

Fiscal Year	APPROVED BUDGET			ACTUAL EXPENSES			Income
	Capital Expenses	Running Expenses	Total Expenses	Capital Expenses	Running Expenses	Total Expenses	
1972/73	42.4	139.8	182.2	42.4	89.4	131.8	4.1
1973/74	110.2	140.6	250.9	64.6	116.2	180.8	19.4
1974/75	176.7	173.1	349.8	65.8	130.0	195.8	17.3
1975/76	950.3	167.9	1,118.2	45.5	114.3	159.8	16.9
1976/77	72.3	161.2	233.5	51.3	137.9	189.2	30.0
1977/78	74.2	205.9	280.1	58.7	155.1	213.8	37.6
1978/79	79.5	184.0	263.5	36.2	182.3	218.5	37.0
1979/80	45.2	281.2	326.4	38.3	223.6	261.9	72.1
1980/81	33.2	249.0	282.2	22.4	242.0	264.4	34.3
1981/82	38.0	264.7	302.2	26.1	265.4	291.5	57.8
1982/83	110.1	394.7	504.8	-	-	-	-