Prepared for : U.S. Agency for International Development
Project No. 367 - 0148

IAAS - II INTERIM EVALUATION REPORT INSTITUTE OF AGRICULTURE AND ANIMAL SCIENCE RAMPUR, CHITAWAN, NEPAL

Prepared
by

Dr. Donald G. Green
Consultant
Agricultural Devleopment
Honolulu, Hawaii

Mr. Shyam S. Khadka
Chief
Monitoring & Evaluation Specialist
APROSC
Consultant (Personal Service Contract)

Dr. O. Donald Meaders
Professor
Agricultural & Extensión Education
Michigan State University
East Lansing, Michigan

Under Contract No. PDC-1406-I-00-4054

WU P'I INCORPORATED
CAMBRIDGE, MASSACHUSETTS
SEATLE, WASHINGTON
APRIL 1987

IAAS - II INTERIM EVALUATION REPORT

INSTITUTE OF AGRICULTURE AND ANIMAL SCIENCE

RAMPUR, CHITWAN,

NEPAL

(USAID/N Project No. 367.0148)

Prepared

by

Dr. Donald G. Green
Consultant
Agricultural Development
Honolulu, Hawaii

Mr. Shyam S. Khadka
Monitoring & Evaluation Specialist
APROSC
Consultant (Personel Service Contract)

Dr. O. Donald Meaders
Professor
Agricultural & Extension Education
Michigan State University
East Lansing, Michigan

Under Contract No. PDC-1406-I-00-4054

WUP'I INCORPORATED
CAMBRIDGE, MASSACHUSETTS
SEATLE, WASHINGTON
APRIL, 1987

"Agricultural development does not and will not come free. It calls for substantial investments and not just material inputs, such as better seeds and fertilizers or in capital projects such as dams and canals, but in increased human skills, knowledges, inventiveness, and productive capacity as well." Dr. K.B. Rajbhandary**

****

" ..... the institutionalization of an agricultural education capability at the highest levels in Nepal, competent to apply science to the life and work of rural Nepal, is a task requiring from two to three decades....."**

****

** Quotes from "Higher Education in Agriculture in Nepal: The Report of a Pre-Feasibility Study," MUCIA, August 1972

Nepal Revisited

"...challenges ... faced a decade ago were no less than those of today. Now the faculty is much better prepared to make the future different .... The most impressive change in the past ten years is in faculty ... in their hearts and minds lies the real future of IAAS." Dr. O. Donald Meaders.

ACKNOWLEDGEMENTS

The Evaluation Team's task was made possible by the extensive cooperation given by many persons. Major thanks have to go to Dr. K.N. Pyakurel, Dean, the IAAS Faculty and students at all three campuses, and the Utah State University Team and their staff. Their ready reponses to our questions and comments, the provision of much information, and their patience with our many probings are truly appreciated.

The time shared with us out of busy schedules by the many MOA, TU and other GON officials helped us obtain the insights of the leaders who help shape the future of IAAS. We are also indebted to the several individuals representing various donor agencies for their contributions to our thinking and analysis.

Our final thanks go the USAID/N Mission for their guidance, assistance and understanding.

GLOSSARY

AID	-	United States Agency for International Development
ADB	-	Agricultural Development Bank
AIC	-	Agricultural Input Corporation
APRDSC	-	Agricultural Project Service Centre
ARPP	-	Agricultural Research and Production Project
CIMMYT	-	International Center for Maize and Wheat Research
DOA	-	Department of Agriculture
DLDAH	-	Department of Livestock Development and Animal Health
FAO	-	Food and Agricultural Organization
GON	-	Government of Nepal
HMG	-	His Majesty's Government of Nepal
IAAS	-	Institute of Agriculture and Animal Science
IRRI	-	International Rice Research Institute
IRNR	-	Institute of Renewable & Natural Resources
JT	-	Junior Technician (I.Sc. Ag.)
JTA	-	Junior Technical Assistant (One year training beyong High School)
MOA	-	Ministry of Agriculture
MOE	-	Ministry of Education
MOF	-	Ministry of Finance
MUCIA	-	Midwest Universities Consortium for International Activities, Inc.
NPC	-	National Planning Commission
NMDP	-	National Maize Development Programme
OD	-	Organizational Development
R and D	-	Research and Development
RCUP	-	Resource Conservation & Utilization Project
RD	-	Rural Development
RCHE	-	Royal Commission on Higher Education
TU	-	Tribhuvan University
UNDP	-	United Nations Development Programme
USU	-	Utah State University
WB	-	World Bank

TABLE OF CONTENTS

Appendices

10. Courses of Study for B. Sc. (Animal Science)

11. Administrative Staff by Levels

12. Committees at IAAS

13. Academic Plan for IAAS

14. Students Passing S.L.C. by Zones

15. Androgogy

16. Approved Research Project under IAAS - II

17. Research Program Outside Funding

18. Academic Staff Qualification by Department

19. Academic Qualification at IAAS, March, 1987

20. Academic Qualifications of IAAS at Branch Campus, March 1987

21. Number of Faculty Currently on Leave for Degree Study by Campus and Department, March 1987

22. Current and Future Degree Levels of IAAS Faculty

23. Seminar Conducted at IAAS Rampur

24. Brief Notes on Building Strong Agricultural College

25. List of Equipment for Current Fiscal Year

26. The Future IAAS Role.

I. EXECUTIVE SUMMARY

USAID/N initiated this project evaluation: "IAAS--II Interim Evaluation Report", April 1987. The project goal is to increase agricultural production in Nepal's small farm sector. The project purpose is to improve the capability of the Institute of Agriculture and Animal Science to meet Nepal's need for trained agricultural and animal science manpower.

This institutional development project had its first phase from June 1974 (implementation started December 1975) to September 1984. The second phase was authorized in July 1984, implementation started in September 1985, and the completion date is October 1991. This is an interim evaluation with the next evaluation scheduled for March 1990. Approximately 18 days were spent on location at the 3 campus sites, obtaining visual, verbal and written information. Approximately 6 working days were spent in Kathmandu interviewing GON and other officials. Over 50 documents were examined.

The project is generally proceeding well. The Team found definite progress toward meeting all project outcomes. Some delays in meeting original schedules have occurred, especially in the area of construction and equipment procurement, but the necessary processes appear to be

functioning now. The Team was particularly impressed by the overall growth in the faculty in several ways (two team members have had prior contact with IAAS).

There are currently on IAAS staff 31 B.Sc. holders, 78 M.Sc. holders and 16 Ph.D.s. When those on current approved study leaves return there will be 23 B.Sc. holders, 71 and 31 Ph.D.'s. This is beginning to be the kind or critical mass needed by the only institution of higher education in agriculture in Nepal. It is necessary to achieve the goals of starting selected M.Sc. programs and achieving Royal Charter status, which the Dean and faculty are desirous to achieve.

Additional degree training is required to have a critical mass of faculty with Ph.D.s in several agricultural and animal sciences disciplines. Although the costs are less for the study toward the Ph.D. in India and the Philippines, other factors should be considered for the long-term linkages with agricultural researchers in the U.S.

The interest in achieving Royal Charter status is only one example of the faculty's interest in planning and achieving new dimensions. Tribhuvan University has recognized research along with teaching as a faculty member's legitimate function. This has led to an increasing number of completed research projects, to small amounts of additional Rupees budgeted for research, and to a growing

interest in, and some precedent examples of, joint research with other entities. The Institute is also beginning to explore possible ways to engage in contractor services to agricultural development projects which lead to important linkages and experiences for faculty members. The Team came away with solid, positive feelings about the abilities that exist, the effect those abilities are having on other faculty and the general broad outlook that is replacing introspective tendencies.

On the other hand IAAS leadership needs to get on with establishing a planning unit that can help strengthen planning processes in departmental units. It needs to finalize a farm development plan and implement it. If assistance is needed a short-term advisor for helping think through an implementation plan would be reasonable. The new rules that permit IAAS to utilize farm-generated income should be an incentive if TU does not reduce budget allocations at the same time. The leadership also needs to continue pressing on budget allocations for maintenance and recurring operational costs. A well-organized planning unit should prioritize needs and plan to get them met incrementally and by packaging needs in ways that may be attractive to outside donors of various kinds.

The role of the Academic Administration Advisor (short-term and recurring) is a high priority for the remainder of the

project. Assistance could be provided in implementing a planning unit and in helping develop appropriate standards for moving into an M.Sc. program. The development of appropriate standards may be achieved in part by a study of SAARC universities and by contacts with the Organization of Agricultural Colleges in Southeast Asia.

An additional role for the Academic Administration Advisor is recommended for the balance of the project. That is a role working with the Dean in relationship to the Faculty Board and for strengthening linkages with the Ministry of Agriculture for research and extension.

Improvement in the JTA program is needed. Criticisms continue to persist about JTA's practical skills. An examination system with an emphasis on cognitive recall works against increasing the amount of practical training. Modifications are needed that will measure skills and give marks accordingly. Only then can practical instruction be increased and improved. Those adjustments will require greater clarity about the specific tasks and skills that are required of the JTA. The IAAS faculty needs to join with MOA in research that focuses on job functions and the skills needed for those functions. Because of the linkage implications, USAID and other donors need to be supportive through related projects to help develop these research linkages made. The project can supply a short-term advisor

with expertise in training needs research and analysis.

II. PROJECT AND EVALUATION SETTING

This evaluation was initiated by USAID/N as an interim review of what is called the IAAS-II Project. The specifics of the evaluation were outlined in a "Statement of Work:" (see Appendix 1). In general the Evaluation Team was to 1) assess progress towards meeting project objectives; 2) assess IAAS programs in light of Nepal's manpower needs; and 3) determine what changes, if any, need be made in the project implementation plan.

The Institute of Agriculture and Animal Science at Rampur is the major institution in Nepal responsible for pre-service higher education in agriculture and animal science at the B.Sc. level. It also provides preservice training for middle level extension personnel (JTAs-Junior Technical Assistants for both agriculture and animal science). The Institute first started in Kathmandu in 1959 under the Department of Agriculture. It later was placed under the aegis of Tribhuvan University and then moved to Rampur in the Inner Terai in 1973. It now has two branch campuses - Lamjung in the hills, and Paklihawa in the Terai. The Institute has developed under rather rigorous environmental conditions, with an instability in its goals and functions, as well as other "growing pains" associated with a developing institution and faculty in an isolated spot where only time and maturity can increase the traffic to and from the institution. (See Appendix 2 for a partial listing of events leading to this evaluation.)

IAAS was first supported by an USAID/N institutional development project for the period 1974-1984. During that period IAAS experienced growth in physical facilities, trained faculty and program content. AID recognized the crucial importance of IAAS to Nepal's agriculture sector and sought to continue the relationship started during the first 10 years. At the same time the World Bank was seeking to put in place an Agricultural Manpower Development Project that focussed on improving JTA level training for extension. As a result a single, co-financed project emerged as the IAAS - II Project.

The project goal is to increase agricultural production in Nepal's small farm sector. In order to achieve this goal, the GON must improve the planning and implementation of agricultural development projects and programs. This, in turn, requires increased quantity and quality of trained manpower.

The project purpose is to improve the capability of IAAS to meet these needs for trained agricultural manpower. IAAS II builds on progress made in the first phase on institutional development. Project assistance is being channeled toward outputs in terms of a) improved administration; b) improved curriculum; c) improved faculty and staff; d) increased and improved teaching materials; e) implementation of a comprehensive farm plan leading to full support of research needs and optimal production output on remaining lands; f) expansion of programs for research, extension, publications, and training; and g) provision of

needed support for the approximately 5,680 students that will study at IAAS campuses during the project. (For the logical framework see Appendix 3. Narrative detail can be found in the "Project Paper: Institute of Agriculture and Animal Science - II, October 1984).

Utah State University was awarded the technical assistance contract in mid-1985 and three long-term advisors were in place at Rampur in September and October 1985 and January 1986. A work plan was finalized in February 1986 (see Appendix 4 for summary of outputs).

The Evaluation Team began work in Kathmandu on March 5, 1987. A variety of events influenced the pace and nature of the evaluation. During this 5-week period the USU Academic Administration Advisor arrived for his 4th short-term advisory trip; the Utah Campus Coordinator was also present; the Chief of Party/Agricultural Education Advisor was completed his tour of duty early; and the World Bank project supervisor reviewed the project.

Several GON developments of a very current nature that may have significant influence on IAAS's current and near future decision-making were present or unfolding. Tribhuwan University made significant changes in the rules and regulations governing IAAS and other institutes. The MOA is in the developmental stages of improving inservice training and planning regional training

centers for its large cadre of agricultural staff. There is a corresponding development thrust being made to establish a better national system of research. The technical trade schools with agriculture programs have graduated the first batch of trainees, some of whom will probably become JTAs. An umbrella over all these activities is the thrust by HMG to decentralize planning and implementation activities. All agencies including IAAS have developed and are refining long-term plans to the year 2000.

The congruence of these events and the presence of extra persons related to the project provided complexity that gave the Evaluation Team plenty of challenge. The Team spent about 18 days at the 3 campus sites obtaining verbal, visual and written information from faculty, students, and technical assistance personnel. The Team observed developments at the three campus farms, inspected laboratories, classrooms, and dormitories. Approximately 6 working days were spent in Kathmandu interviewing GON officials, USAID personnel, and other persons related to agricultural development in Nepal (see Appendix 5). At least 4 days were spent riding in a vehicle to campus sites. Over 50 documents were reviewed by the team (see Appendix 6).

Twelve days after arrival the Team conducted a session with IAAS faculty and USAID/N project officers. That session focused on an initial set of issues the Team had identified and alternative ways of dealing with each issue. The participants offered comments, suggestions and gentle criticisms. On 1 April the Team

aired a set of tentative recommendations with the IAAS Faculty and obtained feedback. On 3 April a session was held with the USAID/N Mission personnel with a focus on findings, conclusions and recommendations for a few major areas perceived to be of most interest. On 5 April a similar session with a slightly altered agenda was held with GON and TU officials.

Perhaps most difficult for the Team was the seeming importance of several issues to the future well-being of IAAS and thus the protection of a large US investment, making it most difficult to establish priorities. It did underscore the point, however, that institutional development is never a quick and precise process.

III. FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

A) CONDITIONS PRECEDENT, COVENANTS AND ADDED CONSIDERATIONS

At the time of project authorization certain conditions precedent to fund disbursement, covenants and additional considerations were established (see Appendix 7). The Evaluation Team was to assess the Institute's performance in meeting these.

Most of these elements have been suitably met. One condition precedent was that IAAS develop a maintenance plan to extend the useful life of equipment and the physical plant throughout the life of the project. This was done, but the status of the corollary covenant to "increase and maintain the annual IAAS budget sufficient to support all ... program activities and provide adequate maintenance ..." remains unclear. A large increase after a trend of decreasing the maintenance budget has apparently been channeled to IAAS through the project for the next fiscal year (see Appendix 8). Other than the suggestions of the Academic Administration Advisor (see USU Report # 4), the Team was not alerted to the presence of an implementation schedule to go with the maintenance plan submitted as a condition precedent. The Team concludes that this covenant is not yet stabilized.

Another covenant relates to the three IAAS farms. While noteworthy progress has been made with forages on the Rampur farm, general crops on the Paklihawa farm, and nursery crops on the Lamjung farm, the three campus farms are some distance away from being fully utilized "for research, production, and demonstration according to a comprehensive plan."

A significant development among the additional considerations is the "revision by Tribhuvan University and IAAS of rules and regulations governing operation of IAAS programs..." Recent action of the TU Faculty Council has given IAAS autonomy in several areas including the right to use income directly rather than returning it to TU (see Appendix 9).

IAAS has not yet achieved consolidation of subject matter departments from eleven to seven. The Team did not clearly establish whether IAAS has yet included "Practical Crop Production" into the B.Sc. Ag. curriculum. The new B.Sc. animal science curriculum contains a 6-month work experience internship that could focus on "Practical Animal Production."

B) ADMINISTRATION

a) Findings

1. A long-range plan for the Institute of

Agriculture and Animal Science has been developed by the Dean and faculty. It covers the fifteen-year period 1986-87 - 1999-2000. It is divided into three five-year periods and envisions a Royal Charter being received during the first phase. Before the year 2000 the Institute is expected to evolve into an agricultural university. The plan has been reviewed by the Academic Administration Adviser and other USU Team members with written suggestions and comments provided to the Dean.

2. There are two Assistant Deans, each with clearly defined job descriptions and assigned areas of responsibility: Assistant Dean-Academic affairs and Assistant Dean-Administration. (For numbers of persons in administrative positions see Appendix 11.)

3. There are permanent and temporary committees, all appointed by the Dean, for the purpose of facilitating the operations of the Institute (See Appendix 12). The committee structure provides a means to involve faculty in the decision-making process. All committees report to the Dean.

4. A recently adopted policy by Tribhuvan University provides greater autonomy for four Institutes: Agriculture and Animal Science, Engineering, Forestry and Medicine. This new policy allows the Institutes to retain income (such as farm income), to appoint persons up to Reader level, to negotiate contracts for various projects, and requires that Deans be selected from within the University. It also extends the term of office for Deans from three years to four years.

5. An evaluation procedure has been adopted and used for evaluating faculty, and for selecting faculty for advanced degree opportunities. The evaluation includes criteria which relate to teaching, research and extension.

6. A revised plan for maintenance, with a separate list of high priority emergency items, has been developed by the Assistant Dean - Administration with assistance from the USU team. Planning, doing, and budgeting maintenance has been and continues to be a troublesome area, mainly because of inadequate budgets and lack of personnel.

7. The position of Campus Engineer, which reports to the Assistant Dean-Administration, is currently vacant. The of Project Engineer, who reports to the Project Coordinator, is responsible only for Project Construction. However, his function overlaps with that of the Campus Engineer when Project funded construction includes maintenance and/or remodeling of 2 existing buildings.

8. A position titled "Training Officer "with responsibility for the middle level (JTA) training (admission, curriculum, instruction improvement, examinations, etc.) was established and filled. Concurrently, a position titled "Program/Training Officer" was established and filled by USU on the USU/IAAS-II Project. The Agricultural Education Advisor works with both person. These two officers collaborate on planning and developing training programs.

9. Changes in the organization and management of campus farms were recommended by the short-term consultant for the Livestock Farm Economic Study. The proposed changes

included such areas as management independence, management team, lines of authority, and incentives for good management.

10. Linkages with agencies, such as The Ministry of Agriculture, which hire IAAS graduates are formalized in some instances. There are several representatives from the MOA on the IAAS Faculty Board. MOA specialists are usually invited as members of Instruction Committees. IAAS has a membership on the Agricultural Research Coordinating Committee in the MOA. There exists a proposal for exchange of scientists between IAAS and MOA.

11. The faculty grouped in the Department of Basic Science and Humanities constitute an important part of the degree programs. Staffing in this Department is highly dependent on contract faculty.

12. The current calendar for IAAS is in disarray as a consequence of unrest and problems on campus during 1984-85. The calendar has been published so that both students and faculty do have opportunity to plan ahead.

b) **Conclusions**

Administration of an organization or institution includes such functions as planning, organizing, staffing, budgeting, and evaluating. In a young institution such as the Institute of Agriculture and Animal Science, the challenges are great even under the best of circumstances. Much progress has been made in a relatively short time even though there have not been major breakthroughs in the overall agricultural development of Nepal.

The Government of Nepal is currently engaged in a long-term planning process. The Institute of Agriculture and Animal Science has also been involved in much planning.

Planning is one of the keys to success for administration. It appears that the capacity for planning has been improved during the past two years. The staffing pattern, the use of committees, the presence of many well qualified young agricultural scientists, all are positive factors. However, there are still some constraints to effective planning for both short-term and long-term plans. Those constraints are both internal and external. The internal constraints are in part, organizational, and in part, staffing.

The external constraints are in part due to the state of the linkages between IAAS and other agencies such as the Ministry of Agriculture. Strong linkages, both personal and institutional, are essential. It appears that improvements have been made recently in creating linkages to the MOA and other agencies.

The evidences of planning taking place within some of the departments is a very positive sign. Some faculty are engaged in planning within the constraints of the present situation (lack of faculty offices, deficiencies in equipment and supplies, etc.) and planning to do only that which is immediately possible. In the meantime those same faculty are keeping their sights on more distant goals. This kind of planning is viewed as a positive sign of the potential for planning at the unit level under guidance from the administration of the Institute.

The GON has embarked upon a policy for decentralization for planning and implementing programs. The recent granting of greater autonomy to IAAS is seen as one bit of evidence of that policy. The new autonomy brings with it opportunities to review and revise the organizational structure, committee structure, and operating policies.

These relatively recent changes for decentralization and for long-range planning, when linked to the present stage of development of IAAS, appear to provide what is frequently called a "window of opportunity" for administration.

c) Recommendations

1. With assistance from the Technical Assistance team, the Dean should prepare plans for a Planning Unit. This will require delineation of duties, relationships to other units, staffing and budgeting. It appears to be an essential unit to support institutional planning and the planning by sub-units.

2. IAAS should continue to develop and refine the long-range academic plan with attention to the key points presented by the Academic Administration Advisor and in the outline prepared by the Campus Planner (H. James Miller). (See Appendix 13 for a copy of the outline.)

3. IAAS should review the departmental structure and make appropriate combinations so as to reduce the number of agricultural and animal science departments to seven. The Institute should also concurrently develop and implement policies to

guarantee distribution of resources and training opportunities in an equitable fashion among the academic disciplines. This reduction to seven agricultural and animal sciences departments must be accomplished before beginning and an M.Sc. program. (E.g. one combination might be as follows: Agronomy (including soils); Agricultural Economics (including Agricultural Statistics); Plant Protection (including Entomology and Plant Pathology); Animal Science; Rural Sociology and Extension; Agricultural Engineering and Irrigation; and Horticulture.)

4. IAAS should develop operational guidelines for the newly granted autonomy and authority. There are strong implications for new roles for departments and faculty as well as possible reorganization of the committee structure for the Institute. These should be implemented during the year 1987-88.

5. Improved communications are needed between project Staff and the faculty regarding procurement, construction and other aspects of the project. This requires a review of the organizational chart as well as the opening of new means for communication both oral and written. Such a review should include the formal and informal

communication channels for IAAS, the USU team, and USAID.

6. IAAS should prepare and implement a revised organizational structure and staffing pattern for administration, management, and for the farms. Sufficient studies have been completed. If additional assistance is needed for implementing a plan, terms of reference should be developed and a short-term consultant requested.

7 As part of long-range planning a study group should be organized to visit selected SAARC universities. This is one basis for identifying minimum standards for graduate degree programs in agriculture and animal sciences. Funding should be sought from TU, MOA, MOF and MOE to supplement funds from the USU contract. The USU Team might provide an individual to facilitate planning, to expedite the tour, and to prepare a report.

C. INSTRUCTION

The Team reviewed several items under the heading of Instruction. Included were curriculum, practical training, teaching quality, and teaching materials.

FINDINGS

- The B.Sc. Animal Science curriculum was approved by the Faculty Board in March 1987 and submitted to Tribhuvan University Executive Committee for formal approval. The four-year curriculum includes a six-month work experience internship during the final year. Also included are two electives. The targeted intake for the B.Sc. Animal Science program is 40 students per year. However, a highly placed government official indicated that quality was more important than quantity and suggested a first-year intake of 20.

- Each subject matter area now has one or two elective courses available for final year B.Sc. Agriculture students.

- The 1986 B.Sc. Graduate Study obtained opinions from 220 of the 301 graduates about several aspects of instruction. The findings will have special value when compared with similar findings of repeat studies in the future, perhaps every five years. Significant findings

include:

- 33% of graduates reported extension as the major responsibility of their present job; 23% research; 12% management, and 12% loan administration. The latter was not listed as a category to be checked.

- The courses most frequently listed as valuable for one's present job:

	No. of Graduates
Agronomy	100
Extension	82
Animal Science	48
Agriculture Economics	47
Horticulture	47
Agriculture Statistics	46
Plant Protection	42

- Courses not taken that would help in current work

Fish culture (Aquaculture)	37
Agriculture Credit	26
Planning and Evaluation of Projects	19

- Courses IAAS should add

Statistics	35
Fisheries	31
Research Methodology	22
Project Formulation	20

- Both graduates and supervisors named the areas of study they would most like for a 6-8 week short course. The weighed responses most frequent for both groups were:

Topic (Ranked by Graduates)	Grads.	Supv.
Ag statistics	153	0
Ag Extension and Communication	125	36
Ag Economics	94	43
Plant Protection	93	15
Project Planning & Evaluation	62	44
Fisheries	58	13
Horticulture and related	53	50
Livestock Production and Management	47	7

Topic Ranked by Supervisor	Supv.	Grads.
Horticulture and related	50	53
Project Planning & Evaluation	44	62
Ag Economics	43	94
Ag Extension & Communication	46	125
Agronomy Practical	35	31
Animal Science	35	10

- Both graduates and supervisors concluded that "the practical aspects of learning have not yet reached the standard of theoretical instructions."

- 23% of the graduates indicated that IAAS should strengthen practicals over the next five years

- Graduates stated that the most valuable practicals for their present jobs were:

Agronomy	60	Plant Protection	32
Extension	49	Soil Science	31

Contd.../...

Horticulture	35	Sociology & Rural Devt.	29
Livestock	33	Statistics	29

- More than one half of the graduates reported they had had no contact with IAAS since graduating.

- At the start of the B.Sc. program the intake target was only 40 students; at the time of the study it was 140.

- The number of secondary school students in Nepal has increased dramatically during the past five years (up approximately 68%) but the bench mark study did not indicate any measures of the quality of students admitted in the IAAS programs (see detail in Appendix 14).

- A 1984 B.Sc. Graduate Study indicated that practicals were "lower in quality than theory courses". Respondents generally felt the teaching quality was good, but that grading was unfair; 75% felt teaching materials were inadequate.

- The 1986 bench mark study of the 880 students on the 3 campuses showed.

  - 58% of the current B.Sc. students felt the opportunity to learn by doing was poor, while the majority of the JTA students stated it was fair to

good.

- 75% of the B.Sc. students felt the teachers were well or very well prepared; 93% of the Lamjung JTA students and 80% of those at Paklihawa had a similar response. prepared.

- An IAAS administration official indicated that the faculty are cognizant of shortcomings in incorporating practical training. Though substantial thought is being given to the problem, a shortage of faculty nonetheless contributes to the problem. He also reported that a list of teaching materials submitted in December-1985 has not yet been procured.

- A small group of students were asked to comment about practicals they have had. They reported having had :

  - how to identify the stage of development of plants for irrigation
  - plant protection practicals for controlling pests and diseases
  - vegetable gardening (but not how to start a farm)
  - artificial insemination for improved breeding
  - plant propagation (but nothing on seed production yet)
  - have demonstrations, but don't always get practice

on doing

- poultry practicals when they come
- fertilizer application (but not soil analysis)
- budding and grafting

- Faculty indicate that laboratory practicals are constrained by long delays in the procurement of needed lab supplies and equipment.

- Most courses have one lab/field practical per week along with 2 or 3 theory periods of theory.

- A lack of funds and support staff prohibit supplying even limited handouts to students. Few or no handouts are currently being given. A limited inquiry indicated that teachers do prepare a variety of leading materials. There was little evidence that this was done regularly, especially since the course content does not seem to change.

- Faculty and thr USU Team report that library holdings of appropriate types and numbers of journals for each department are inadequate, even though substantial numbers of new books have recently been procured.

- A major project objective is to improve faculty skills for increasing JTA practical experinece. One "Pedagogy"

Workshop was held for all faculty and another one is planned for the Paklihawa faculty. A World Bank representative suggested the need to work with DOA to determine what practical skills are needed by graduates for future job assignments.

- "Farmers are much more aware now and know more than the JTAs" was a statement frequently made by IAAS faculty during the review.

CONCLUSIONS

As the only institution for higher education in agriculture, IAAS trains persons for meeting present and future manpower needs in agriculture and animal science. It does so on two levels. On one level it trains at the degree level to meet high level officer function needs in the MOA and other government agencies as well as within a smaller but growing number of needs within quasi-government organizations and private sector enterprises. The two branch campuses train middle level JTAs needed by the MOA for extension activities. The two tasks are quite different in nature, although they both require some common features and the application of similar resources and skills.

The degree training has two dimensions. In Nepal where increasing productivity in agriculture is a major goal, this academic training should strive to prepare the graduate to

perform productively in whatever job is taken. This means that the graduate must have knowledge that enables him to understand the situation in which he works.

The 1986 graduate study did not analyze how each of those groups responded to questions about a) courses not taken that would help in their current job; b) courses or practicals most valuable for present work, c) courses IAAS might consider adding, or d) what short-term refresher training would be most desired. The findings do, however, suggest that shifts in needs are taking place. For example, the graduates indicated that livestock production and management was a desired short-term course. Relatively few supervisors used that terminology, but several did cite animal science. Ag. statistics was also frequently cited by graduates, but supervisors did not cite that subject at all as being desired for their needs. Horticulture was the area most frequently cited by the supervisors.

These same findings provide initial awareness of good opportunities for inservice training that IAAS could provide in collaboration with MOA agencies. IAAS could also provide training for trainers courses within the MOA, which in turn would plan and conduct refresher trainings.

The other dimension to the degree/diploma training is the academic one: preparing some individuals for eventual post

graduate studies. These individuals may go to other countries or to IAAS when it is prepared to offer the M.Sc. degree. Related to this is IAAS' striving for a Royal Charter. This entails developing a level of Academic and Insstitutional excellence substantially above what IAAS now has both for M.Sc. and B.Sc. programs.

In summary, the B.Sc. programs must increasingly respond to the functions that graduates will perform. Theoretical and practical learning must be related in more productive ways. At the same time the basic academic foundation must remain strong and reflect the teaching and research skills of the IAAS faculty gained through higher degree training and experience.

Regarding non-academic curricula, IAAS operates two branch campuses which train the middle level JTAs needed by the MOA. These individuals are in terminal, non-academic programs in agriculture and science. If the frequently cited conclusion by IAAS faculty is correct-that farmers are now more aware and know more than JTAs-then changes in the JTA learning process are needed. One suggestion is to enhance the applied skills of the JTAs. But to know which skills would make the JTA more productive requires a far better understanding of what the JTA is expected to do. It may not be necessary that he knows more about all aspects of

farming than the farmers he serves. Perhaps he needs to know well a few things that farmers do not know so well. To get to that point will require IAAS faculty, both at Rampur and the branch campuses, to know more about the functions expected of the JTAs by DOA and DLDAH. Further research is needed in this area.

It appears that some persons internal and external to IAAS think that practical training is not what it should be and could be. The frequency of the criticism in various documents, of past and present origin, and in verbal comments made to the Team suggests that the issue has gone on long enough. Action needs to be taken to dispell the image. If in the process ways can be found to improve further the teaching of practicals both faculty and students will be ahead.

The nature of instruction and the motivation of students are strongly affected by the examination system. Student performance during the year is recorded by marks received on internal examinations prepared and graded by IAAS instructors. Those students who pass the internal examinations and any special papers and practicals required by the instructor may take the final examination at the end of the course. That examination is controlled by an External Examination Committee and focuses mostly on

cognitive areas (information, recall, etc.). The performance of the students on the final examination is viewed as a measure of "teacher effectiveness" as well as a measure of "student learning."

This external examination system is not designed to test the ability of students to perform such skills as identification of a plant disease, or a common insect, or to look at a plant and detect a nitrogen deficiency or a myriad of other problems faced by farmers. Neither the teachers nor the students get very excited about the "practicals" which count very little toward the final "PASS". Unless the system examines the learning contained in practicals, neither the instructors nor the students will be motivated to improve their attention to practicals. Both instructors and students are encouraged by the examination system to diminish the many how-to-do skills that are required to make agriculture more productive.

The final approval by the TU Executive Council of the new B.Sc. Animal Science Curriculum (see Appendix 10) will make it possible for IAAS to revise its Handbook and start a significant new program. The includion of a six-month work experience internship during the fourth and final year is a significant innovation. The Team believes this program can have a significant impact in the years ahead on the animal health, nutrition, and livestock production, management and

husbandry problems faced by thousands of small farmers in Nepal. The training of future DLDAH officers and other who will be in a position to transfer better husbandry and preventative health care technology to farmers can have substantial economic impact. While the curative approach of the veterinary sciences has its place and some veterinarians will be needed, the Team includes that the strong animal hygiene approach of the IAAS curriculum addresses these first eschelon needs of small farmers by ultimately empowering livestock technicians with the knowledge and information they need for improving animal dare practices. When that process has been well started a careful analysis might then be made of the comparative cost-effectiveness of having veterinarians trained in India versus establishment of a costly veterinary sciences program in Nepal.

Even though construction and equipment procurement delays may hamper some aspects of the program, the Team concludes that IAAS should make the effort to accomplish the admission processes necessary to start the program in 1987. It is recommended, however, that the first year intake should be smaller than the target 40. Starting with a smaller intake will permit greater attention to beginning problems. The faculty will have more opportunity to fine tune the courses and processes as this smaller class moves through the four years. To assure a smaller intake the Team suggests that a target of approximately 20 graduates be set for this first

group (with special effort to enroll some women students). An appropriate allowance should be made in admissions to off set an expected percentage of "no shows" after admission. While the trend for the B.Sc. Agri. program has been a 15-20% drop off after admissions, the faculty may want to set the figure smaller because of the perceived better employment opportunities. Perhaps a waiting list process could be used to assure that at least 20 students would actuallt start the program.

RECOMMENDATION

IAAS should conduct training needs research for both the BSc and JTA students. Emphasis should be on determining what knowledge and skills are needed to improve their job productivity. Such research cannot be done without the explicit approval and cooperation of employing agencies, nor without the explicit approval and cooperation of the donor agencies.

There are several possible ways to activate such research. For example, a short-term advisor could be engaged through the project to help design the studies. The IAAS Faculty Board with assistance from the donors could secure the cooperation of relevant persons in the MOA. If additional expertise in implementation and design is required beyond that of IAAS faculty a short-term advisor, local firm with expertise in manpower and training needs research might be engaged.

The faculty at the three campuses, perhaps under the guidance of the Academic Assistant Dean and the Campus Chiefs, with the assistance of the departmental Instruction Committees, should take early action to document the strengths that exist in existing practical trainings. Wherever the faculty are convinced improvements are needed appropriate steps should be taken. These should be widely shared within the institution so that all faculty have data on issues relating to the quality of practical trainings.

The IAAS Faculty Board should assess how the examination system can be modified to emphasize the learning of practical skills. This should be done for both the BSc and JTA programs. The grades given for B.Sc. practicals might be increased only slightly, whereas the proportion between theory and practicals might be reversed in the JTA program. The system of testing practical skills used by the International Rice Research Institute in the six-month rice production training program, for example, might be adapted for use at IAAS. Donors should encourage the use of a short-term advisors to help IAAS modify the instructional system and determine how it could best be implemented within the existing structure.

The animal science B.Sc. program should be started in 1987 with a student intake that would result in approximately 20 graduates in 1991. Faculty should use their best judgement in estimating the drop out percentage after admissions and the possible drop out number during the four-year program.

D. TECHNICAL ASSISTANCE

Findings

Long-Term Advisors

The Agricultural Education Advisor (and Chief of Party) arrived on post in September 1985 to begin a 3-year assignment, but terminated the tour in March 1987. As Chief of Party he organized and managed the overall administration of the USU/IAAS/AID contract; developed the Work Plan in cooperation with others; prepared or supervised the preparation of reports; and worked with short-term consultants; worked with the Project Implementation Coordinator.

In the role of Agricultural Education Advisor, he assisted the Textbook, Manuals and Instructional Materials Committee; and organized and coordinated a 3-day workshop on pedagogy. The workshop was well received as indicated on evaluation sheets but may have spent too much time in lectures, not enough time for actual "hands on" experiences, and lacked education specialists as presenters. The Agricultural Education Specialist assisted in developing plans for a two-week pedagogy workshop for faculty to be held at the Paklihawa campus during the summer (1987) vacation (the plans include use of local education consultants from TU's Curriculum Development Center and Education Institute); conducted one seminar with faculty and arranged for ten

other seminar sessions involving team members and short term consultants. The seminar series was conducted by a faculty member from the Department of Rural Sociology and Extension.

2. The Animal Science Advisor arrived on post in October 1985 for a two-year assignment. He has assisted the Animal Science faculty with instructional, research and extension programs. Special attention has been given to two areas; improving forage production as a basic requirement for strengthening the livestock program; and assiting faculty to incorporate more practical training in their courses. He also provides assistance in planning and implementing programs through the Extension and Farm Coordination and Planning Committees, and in advising on plans and reports for research.

3. The Veterinary Science Advisor arrived in January 1986 for a two-year assignment. He has assisted faculty in Animal Science with herd health improvement, planning for procurement of drugs and equipment for a new laboratory; teaching classes; giving demonstrations; advising the Research and Textbook Committees; and providing assistance (along with IAAS faculty) to a commercial dairy farm in nearby Bharatpur. Recently he was named Chief of Party in addition to his other duties.

4. The procurement of equipment and the construction of

facilities related to the work of the long-term advisers has progressed about as rapidly as one could expect but never as fast as hoped by faculty and advisers. Delays make it difficult to accomplish all that is desired. For example, the construction of a veterinary laboratory, ordering drugs and equipment, and the sending a technician for special training were to coincide so that the Veterinary Science advisor could train the technician on the newly installed equipment prior to ending of his tour. This "coming together" is not likely to happen on schedule.

The combination of two roles, Agricultural Evaluation Advisor and Chief of Party, reduced the amount of time available to perform the agricultural education functions. Appointing the Training Officer, and the Program/Training Officers were good moves for long-range effect. However, there are agricultural education functions which have not been completed, such as effective application of theories of learning in teaching - learning environment.

Short-Term Advisors

Findings

1. The plans for the project included 35 person months for short-term consultants. One continuing consultant, the Academic Administration Advisor, and three other short-term consultants have been utilized.

2. The Academic Administration Advisor position was

designed as a means to provide assistance to the central administration of IAAS (Dean, Department Heads, Assistant Deans and heads of support units) with the procedures for operation and management of the Institute. It was anticipated that the Advisor would provide a continuity of service through recurring

visits of approximately 5-6 weeks duration twice each year. Four visits have been made (the fourth occurred during the period of the evaluation in March, 1987). Assistance has been given in the development of a staff evaluation system; the development of a priority list for emergency maintenance; and development of a selection system for identifying candidates for degree programs and exchange scholar programs. Areas of emphasis and guidelines for plans for staff in-country training were developed with the responsible administrations. After discussions with administrators, department heads and faculty additional suggestions were made in a written report on the Fifteen-year Plan for IAAS; and many other relevant and timely activities.

3. A short-term consultant was utilized in July, 1986 to make recommendations to run the livestock farm more economically and effectively. The recommendations included details on several areas which were considered essential; more management independence, establishment

of a management team, clarification of the lines of authority for the director of the farm, and provision of incentives for good management. The recommendations are under consideration for implementation and, if adopted, will require some changes in policy and procedures.

4. A short-term consultant was utilized in October-December, 1986 for the purpose of developing a plan for a pomology orchard on the Rampur campus. The consultant worked with the faculty and prepared a specific report with recommendations for establishment of the orchard (soil sampling, gradient mapping, layout of old and new orchard, and procurement of species and varieties of different fruits). After reviewing the Department's program, the consultant made recommendations on the B.Sc. Ag. program, laboratory organization, greenhouse construction, plans for short-term and research activities, extension education and proposed an arrangement for establishing a linkage between IAAS, Rampur, Nepal and G.B. Pant University of Agriculture and Technology, Pantanagar, India. The faculty Horticulture has moved quickly to adopt some of the recommendations and to make plans for adoption of others.

Conclusions

The long-term advisors were on post within a relatively

short time after the signing of the Contract. The absence of an indepth orientation to the contract, to IAAS, and to Nepal may have been a significant factor in the adjustments made by the team in relationship to the IAAS administration and faculty.

Provision should always be made for appropriate orientation to contracts, institutions, and the host country (language, government, culture, etc.). It should be considered a part of the start-up costs by the Contractor.

The long-term advisors have contributed to improving instruction and programs. However, the arrival of many commodities and the completion of construction will only take place after the end-of-tours for the long-term advisors.

Conclusions

The short-term consultants provide an excellent means for getting assistance for clearly identified problems. When plans are well-laid for the consultant and the terms of reference specific from the view point of all key people the prospects for success are very good. The Department or unit(s) involved should implement the recommendations or modify them according to resources available.

Recommendations

The un-completed functions assigned to the Agricultural Education Advisor may be performed through the use of Nepali

or expatriate short-term consultants. These consultants must be expert in andragogy (see Appendix 15), teaching of adults, as well as in the application of theories of learning (e.g. learning domains and learning styles) to agricultural and animal sciences.

The functions of Chief of Party are critical to the success of the project. Those functions are an essential part of the linkage between the Utah State University and the other parties to the Contract. The scope of the functions will be diminished with the departure of the two other long-term advisors.

Recommendation:

The Veterinary Science Advisor should complete his assignment as scheduled. The Dean should request additional services from the Veterinary Science Advisor for up to two months at such time as his services could be utilized for assisting the technician to make the laboratory operational.

The Animal Science Advisor should also complete his assignment as scheduled. The Dean might consider requesting additional services from him at some time in the future to provide additional follow-up services.

Conclusions

The short-term consultants provide an excellent means for getting assistance for clearly identified problems. When plans are well-laid for the consultant and the terms of reference specific from the view point of all key people the prospects for success are very good. The Department or unit(s) involved should implement the recommendations or modify them according to resources available.

Recommendations:

The position of Academic Administration Advisor should be given a high priority because of its key role in the future of the project. An essential element for continued development and progress is in the area of planning at both the unit and institution levels.

All requests for short-term advisors should be initiated by the Dean after consultation with department chairpersons. The priorities for such requests should then be determined in consultation with the USU Team (Academic Administration Adviser/Campus Coordinator). The Dean and Department Chairpersons, or the appropriate Assistant Dean, should be responsible for the terms of reference, the assembly of appropriate materials for use by the Advisor, and appropriate follow-up activities.

E. RESEARCH ACTIVITIES

Findings

- New policies have been formulated in relation to research programs at IAAS. Under the new regulations, a faculty member can only conduct a second research project after the completion of the first research project.

- The Dean's interest in strengthening research has been expressed through recently research guidelines which set forth strict regulations for conducting research.

- The project has funded thus far funded 46 research projects (see list in Appendix 16 from 5 October 1985 to 28 February 1987). Five have been completed and published, 21 are in final preparation stage, 14 are ongoing and four have been dropped for technical reasons.

- N.Rs.235,172.00 out of N.Rs. 300,000.00 has been spent in FY 1985/86 for the research activities. N.Rs. 400,000.00 has been allocated for research in FY 1986/87. Recently, T.U. has included a small line item for research, though the amount allocated for the current fiscal year is only N.Rs.50,000.00.

- Winrock International has provided research grants totaling NRs. 150,000 for nine projects involved in natural resource management.

- Recently the Computer Research Centre has incorporated all computers on campus, including a new IBM computer purchased by IAAS, to assist faculty in undertaking their research projects.

Conclusions

i. The average teaching loads are relatively light for highly qualified staff members, (most holders of Ph. D & M.S) and most of them have sufficient time to concentrate their activities on doing more research.

ii. The farms especially the livestock farm is currently being underutilized for research activities.

iii. Continuity of research on the same problems over time is lacking in most IAAS research programs.

iv. Donor agencies have recognized the research capability of IAAS faculties through their willingness to fund research projects.

Recommendations

1. Due recognition should be given both to research and teaching as a functions of the faculty. Faculty should be evaluated on the quality and timeliness of their research, not just on quantity alone.

2. Research should be part of the assigned workload of all faculty who have M.Sc or Ph.D degrees.

3. The Research Committee should devise ways to stimulate the timely submission of completed research reports. Perhaps for some types of research a percentage of the fund could be withheld to speed up the publication of reports.

4. IAAS should develop farms and procure needed animals for research.

5. To achieve the long-term goal of conducting agricultural research in the Mid-hills (at the Lamjung Campus), additional land (about 4 ha.) should be acquired.

6. IAAS should encourage research that is related to national priorities through the active representation and participation of IAAS faculty in RCC and NARSC. USAID should work with the IAAS administration and the Research Committee to find way for collaborative

research of national significance with MOA and other agencies.

7. In selecting and awarding research proposals, the Research Committee should assess the need for continuity between completed the proposed research by a faculty member.

8. The project should increase funding for faculty research and actively seek ways to obtain additional research funds so that viable research programs can be developed.

9. IAAS should establish printing capability to facilitate timely production of research proposals, research results as occasional papers and/or in the IAAS journal, and class handouts and other documents associated with research and teaching.

F. EXTENSION ACTIVITIES

Findings

- Extension at IAAS should not complete with formal extension system operating under the Ministry of Agriculture.

- The extension activities of IAAS are more confined to and viewed as extension-per se-than as opportunity for (a) - practical training, (b) developing appropriate

techniques for disseminating technical information to farmers, or (c) creating a learning environment for students to systematically study farmers' problems.

- The Member Secretary of the Extension Committee assisted by two JTs, has substantially increased IAAS' extension activities in three Panchayats, i.e. Sarada Nagar, Mangalpur and Narayanpur.

- Outreach activities include selling improved vegetable and cereal seeds, animals, insecticides/fungicides, veterinary medicines, renting sprayers and dusters, and providing stud services and price information etc.

- The Evaluation Team learnt that the practicals attached to the Extension Education Course have encouraged students to become involved in farm households and to study farmers' problems.

- The kitchen gardening project at Rampur has assisted in increasing incomes and improving family nutrition.

- About 15 leaflets dealing with various aspects of crop production, plant protection, grain storage and animal husbandry have been published and distributed to farmers.

- 450 farmers at Lamjung Campus and 150 farmers at

Paklihawa Campus attended the Annual Farmers' Days in early 1987. 8500 farmers from Chitwan district attended the second Annual Farmers' Day, held at Rampur in January 1987.

- In Lamjung, a 1.5 ha mango plantation serves as a demonstration orchard for farmers from nearby Panchayats.

- TU does not include extension as a function while determining faculty load and does not include a budget for extension activities.

Conclusions

1. The extension/outreach programs of IAAS are presently in place and some of the problems of Chitwan farmers are being addressed. However, extension/outreach is not a recognized function of faculty into the work roles of larger number of staff with agriculture and animal science background has not been incorporated.

2. Much importance has been given and actions are already underway to involve faculty and students in extension activities

3. There have been weak-linkages between the extension committee of IAAS with other government and semi-government agencies particularly at the district level.

Recommendations

1. Extension activities should be recognized as a legitimate function of IAAS faculty and an important element of instruction.

2. Students should be encouraged to opt for extension electives and practicals by providing a small package of monetary incentives for students working on faculty research projects related to extension.

3. Faculty involved with extension activities should provide feedback to the Research Committee about farmer's problems related to crops and animals.

4. The Extension Committee should find ways to help women in the Chitwan area start income generating activities and improve the health and nutrition of all family members.

5. IAAS should formulate policies to carry out its extension programs in collaboration with the MOA and other district agencies involved agricultural development. USAID should help create linkages.

6. Extension faculty should collaborate with the Research Committee to find ways and means to establish printing capability at IAAS.

G. TRAINING

The training section ficuses on Degree Programs, Short-term Training, and the Exchange Scholar Program. Short-term Training covers both faculty and staff.

A. Findings

1. Degree Programs

a) There has been an increase in the number of faculty and an upgrading in their educational qualifications from 1984 to 1987, as shown below: [Based on faculty listed on the rosters and including those on educational leave for a higher degree). For additional details by Department of Rampur see Appendix 18 and Appendix 19 for faculty at the branch campuses].

		Educational Level				
Rampur	Total	Ph.D.	Master	Bachelor	JI	JIA
1984	75	3	65	4	3	0
1987	90	14	64	9	3	0
Paklihawa						
1984	18	3	11	4	0	0
1987	26	2	13	11	0	0
Lamjung						
1984	12	0	1	11	0	0
TOTAL (IAAS)						
1984	105*	6	77	19	0	3
1987	128**	16	78	31	3	0

* - Includes contract hire of 4 Ph.D.'s and 12 Masters
** - Includes contract hire of 4 Ph.D.'s and 11 Masters

b) Currently there are 22 IAAS faculty on study leave : 13 from Rampur, 5 from Paklihawa and 4 from Lamjung. Fifteen of those 22 are working toward Ph.D.'s and seven toward M.Sc. degrees. Eight of these are under USAID funding: 3 on Ph.D. and 5 on Masters' programs. Currently the project provides 14 degree programs, 10 under the USU contract and 4 under the India Training Program.

c) When the faculty return who are now away on degree programs, assuming there is no increase in the number of faculty, approximately 25 percent of the entire faculty will have Ph.D.'s and 57 percent will have Masters Degrees. However, the range will be from a high of 58 percent with Ph.D.'s and 42 percent with Masters in the Agronomy Department at the Rampur campus to 50 percent with Masters Degrees and 50 percent with Bachelors Degrees at the Lamjung Campus. Most of the Departments, as now constituted, would have less than 36 percent of the faculty with Ph.D.'s: four departments with 20 percent or less, three departments with from 21-30 percent, and two with from 31-40 percent. (See Appendix 20, 21, and 22.)

d) The selection procedure for identifying faculty for the funded degree programs under the USU

contract is based on agreed upon priority fields, basic criteria for eligibility, and an evaluation of the applicants' qualifications according to a set of weighted criteria (Faculty Evaluation Form).

e) According to the Work Plan (February 1, 1986) ... "If during the first three years (by 10-88 no women candidates are selected, the final two training programs will be reserved for female candidates. Preference will be given to female candidates from IAAS in specified fields. If no satisfactory candidates are found, the competition will be opened for all female applicants within Tribhuvan University." (p.16)

Currently no females have been sent on degree training programs, nor are any scheduled to be sent.

The Exchange Scholar Program

The Work Plan provides for support of two distinct types of exchange scholar programs, both of which are designed to improve the capacities of IAAS faculty in the areas of research, teaching and service. The exchange program is considered as one means of providing temporary staff for IAAS programs. These programs are the External Scholar Exchange, which is an exchange of scholars with U.S. or

third country universities; and Internal Scholar Exchange, an exchange of staff members between IAAS and its major user agencies, principally the Ministry of Agriculture.

External Scholar Exchange

- A goal of three exchange scholar programs was set and funding provided. The proposed schedule was one scholar per year in 1986, 1987 and 1988.

- One faculty member (Entomology Department) is currently participating in the exchange at a U.S. University (Soil Science and Agricultural Engineering Department) is scheduled to go to a U.S. university in mid-1987.

Internal Scholar Exchange

- A goal was set for the first five years for one IAAS faculty member per year to be assigned to a GON agency (mainly MOA) for a period of approximately one year. During the same period GON agencies (mainly the MOA) was expected to assign one technical staff for one year for a period of five years to work at IAAS.

- The DOA generally considers this program to be good and best suited to their needs, but the program has yet to become operational. A shortage of appropriate housing at Rampur is the major factor inhibiting this exchange program.

Short-Term Training : Staff

- Provisions were made in the Work Plan for twelve IAAS support staff to receive short-term out-of-country training.

- Plans have been made to send a veterinary laboratory technician and a nutrition laboratory technician to the Malaysian Veterinary Research Institute in Ipoh.

- Two librarians participated in six-week training programs on Library Management during February - March 1987 at the University of Philippines, Los Banos.

- The IAAS Property Management Officer participated in a six-week training program on Personnel Administration at UPM/Malaysia during February-April 1987.

- Two farm managers are to be provided six-week training programs.

- The Dean made an administrative visit to several universities and agencies in the U.S. and the Philippines during June-July, 1986.

  A faculty member of the Horticulture Department (Assistant Dean-Administration) participated in the

September 1986 meeting of the AAACU in Korea. The theme of the meeting was: Higher Education in Agriculture for National Development.

In-Country Training

- Provisions were made in the Work Plan for in-country training courses for approximately 110 IAAS support personnel.

- Fifty support staff from all three campuses have participated as shown below:

Financial Management	9 persons
Office Management	10 "
Electricity	5 "
Plumbing	5 "
Operation and Maintenance of Laboratory Equipment	13
Audio-Visual Aids	8 "

- Participants stated that the programs were helpful; but not long enough. It seems that the internal promotion/reward system specifies a longer period of training in order to qualify for advancement.

- A 3-day Pedagogy Workshop was conducted in October 1986. Participants included 87 faculty members from the three campuses. An evaluation conducted at the close of the workshop showed a "Good to Very Good" rating on a scale from Poor to Excellent. Interviews

with many of the participants revealed concerns for lack of planned time for "hands on" experiences, demonstration of equipment not available, and the absence of "education" experts.

- Plans have been made for a 2-week workshop on improvement of instruction for the faculty at Paklihawa during the coming summer vacation. The detailed curriculum for the workshop will focus on application of learning theory when teaching and on teaching methodologies. Experts from the Curriculum Development Center and Institute of Education (both within Tribhuvan University) will be in charge.

Seminars/Workshops

- Provisions were made for technical assistance advisors and short-term consultants to present approximately five seminars/workshops on subjects of general interest to the IAAS faculty and GON personnel.

- Seminars were arranged in cooperation with a member of the faculty in the Department of Rural Sociology and Extension. For a complete list of the titles, presenters and dates see Appendix 24.

Conclusions

Degree Training Programs

- The IAAS faculty are keenly interested in additional degree training opportunities for personal professional advancement and as a means of improving the quality and level of the educational programs offered by IAAS.

- The proportion of faculty with Ph.D.s varies considerably from department to department and from discipline to discipline.

- The purpose of programs at the branch campuses are different from those at the main campus. The proportion of faculty with Ph.D.s and M.Sc.s also varies among campuses.

- No women have been identified or sent for advanced degree training.

Exchange Scholar Program

- The exchange scholar program has achieved its purpose for the external exchange but the internal exchange has not yet been implemented.

Short-Term Training

- The short term training program, to upgrade the performance of key staff is off to a good start. The

first five persons have been carefully selected and the program is moving smoothly.

In-Country Training

- The in-country in-service training for support staff has demonstrated the importance of providing opportunities for the staff to increase their levels of competence.

- The instructional improvement program for faculty has enabled them to improve their instructional techniques. The varied levels of faculty development make it imperative that future programs be designed at levels appropriate to the intended participants and that follow-up activities be planned as a part of the program.

Recommendations

1. **Degree Program**

   a) In order to further strengthen the faculty in all agricultural and animal science disciplines there should be at least 12 additional degree programs beyond those currently planned and funded. This should encompass six Ph.D.'s and six Masters' degrees and be achieved through several alternatives.

1) The USU Contract should add up to six additional slots. The number will depend on funding available and the costs associated with selected sites and the level of the degree program. Third country sites, such as India and the Philippines should be given high priority if appropriate for the chosen fields of study. (See supporting detail in Appendix 24.)

2) Faculty should be encouraged to seek assistantships/fellowships for advanced degree training from other sources. USAID/USU could provide international travel funds should the fellowship not cover travel expenses.

3) Funding for degree programs should be actively sought from other donor agencies and organizations. To make donors aware of IAAS a packet of information should be developed whereby each department provides an overview of its overall program. Funding for these promotional materials should be requested from Tribhuvan University and USAID (perhaps in-kind support for printing, etc.).

b) The priorities for fields of study should be set as soon as possible and no later than 01/88, after considering the following factors:

1) The overall ratio of Ph.D.'s to Masters to Bachelorsdegree holders on each campus;

2) A goal of at least a 50:50 ratio of Ph.D.'s to M.Sc.'s in departments targeted for M.Sc. programs (this ratio should be reconsidered after determination of appropriate standards maintained by SAARC universities);

3) The ratio of Ph.D.'s to Masters' by discipline areas based on information about current degree holders and those away on approval study leaves; and

4) The needed degree levels of faculty for strong programs in the basic sciences and humanities.

c) One of the remaining open Ph.D. positions should be assigned to Animal Science. All persons being sent on Ph.D. programs under the contract should be started by 01/88.

2. Exchange Scholar Program

This program should continue as planned, utilizing visiting scholars for seminars and consultations.

3. Study Tours and Short Courses

These also should continue as planned, as they are essential to help faculty interact with other professionals worldwide. Most of this should be accomplished by outside funding, except for administrative staff.

4. In-Country Training

a) Continue as planned. Follow-up and evaluation activities should be pursued after participants return to their work stations.

b) Consideration should be given to providing farm workers with additional training when innovative practices are introduced. IAAS faculty (and others) could provide the instruction.

H. PROCUREMENT AND CONSTRUCTION

FINDINGS

- Faculty are agitated about the slowness of procurement; the technical assistance team and USAID/N indicate process has been a bottleneck and early coordination not so smooth; priorization of procurement has not been cleared.

- An equipment and supplies list was first generated about January 1985 at the request of the PIU in order to establish a procurement budget as one of the preconditions to the IAAS - II project agreement.

- Credit against the World Bank loan became available in March 1985; and for the USAID grant in June 1985.

- Department Chairmen were provided the opportunity to revise their procurement lists in January 1986.

- The World Bank agreed to Utah State University as purchasing agent, but Ministry of Finance ruled that the PIU should be the agent; detailed arrangements were finalized by September 1986.

- The Project Coordinator, Dean and Assistant Deans established first priorities for large equipment items some of which have been delivered with other deliveries

anticipated shortly (see Appendix 25 for current year).

- The Project coordinator indicated steps will be taken to permit updating of lists within monetary amounts established.

- The procurement of fertilizers was reported by faculty to be very difficult. The USU team found difficulty in understanding the process so problem might be solved.

- According to the implementation schedule in the November 1987 Staff Appraisal Report (World Bank) construction is about one year behind, but statements by USAID and World Bank officials indicate that now some of this time has been made up.

- Faculty voice strong concerns about the quality of construction. Hurried construction of staff housing only a few years ago has resulted in major maintenance and repair needs not yet met. Similar maintenance and repair needs are cited for class rooms.

- Faculty contend that current construction plans do not meet the long standing need for faculty office space .

- A Women's dorm at Paklihawa has been renovated (but with no screening on windows) and a compound wall

completed. An old generator building at Rampur is being renovated as a temporary women's dorm. An old dairy science lab is being renovated as a nutrition laboratory. The North Farm has been completely fenced with barbed wire and 2700 feet of brick wall between the campus and Rampur bazaar is partially finished. Repair of the men's dorm at Lamjung should start within six months; the North Farm barbed wire perimeter fence remains to be built.

- The Project Coordinator reports that building construction (new and renovation) has moved from design to securing of tenders with considerable construction to start within next 6 months.

Conclusions

The process of procurement is rich with regulations and procedures to be learned and followed. The experience being gained has undoubtedly had a time cost, but that experience is clearly a plus factor for IAAS in the long run. The experience has also demonstrated the importance of open communications.

Recommendations

None.

1. FARM DEVELOPMENT

Findings

- There are three designated farms at the Rampur Campus: Agronomy, Horticulture and Livestock. Each farm has a farm manager, JT level.

- The project provides about $0.5M for farm and campus development activities at IAAS, the major elements being tube-well installation, animal sheds, workshops, feed mill, and a veterinary lab.

- Farm equipment to be purchased during FY 1986/1987 includes farm tractors, power tiller, mowers, and other items.

- The first meeting of the Farm and Campus Development Committee was held September 26, 1986 to discuss the progress of farm development work and to request designated persons at each campus to prepare prioritized lists of farm development activities for the Committee to use in planning project-funded farm development works. These have not yet been completed.

- Two short-term consultants have been utilized to assist in for developing the livestock and horticulture farms (orchard) at Rampur. The livestock consultant focused on ways to improve management in

70 order to increase production and productivity of crops and livestock. The horticulturist provided detailed plans for a new orchard and changes in an old orchard.

- Several reports submitted in earlier years contain recommendations regarding farm development. Two such reports are: Nelson. Report on Development and Operation of IAAS Farms, 1977. Sofranko and Odell. End-of-Tour Report, May/June 1984. (See pp. 22-23, 35, 44-45)

- The Animal Science and Veterinary Science Advisors have assisted the Farm Manager in planning and implementing activities for the Livestock Farm at Rampur, extension activities on the farm.

- Farmers have visited research and production plots on all campus farms.

- The proposed fifteen-year development plan for IAAS includes goals for expanding and strengthening the farms.

- Short term training has been provided to two farm managers.

- The Academic Administration Advisor has assisted administrative personnel to develop plans and to monitor farm improvements. His reports have been concentrated on status and progress in farm improvement. He has worked with the department heads of Agronomy, Animal Science and Horticulture on a Farm Development Plan (1986 - 1990).

- Recent changes in the policies of Tribhuvan University make it possible for IAAS to keep income generated by the farms.

Conclusions

- Much advice and assistance has been provided regarding planning, developing and utilizing the farms for research, teaching and production.

- The recent changes in Tribhuvan University policies which permit IAAS to retain income from the farms may provide more incentive for development and utilization of the farms.

Recommendations

1. The Farm Coordinating Committee, or other appropriate committee designated by the Dean, should develop comprehensive plans for each of the farms. The plans should: 1) take into account the recommendations from the

several reports on farm development; 2) identify needed facilities, equipment, lay-out and staffing; 3) be phased for incremental development; and 4) include realistic budgets for the various phases.

2. If assistance is needed for implementation of the plan(s), then a short-term consultant could be hired.

J. PUBLICATION

Findings

- At present the Editorial Board publishes IAAS journals and occasional papers.

- For the preparation of textbooks and laboratory manuals, IAAS has established a General Textbook Committee chaired by Dean. Under this Committee for each text there is an Expert Committee responsible for selecting authors, providing guidelines on the course content, and reviewing the drafts.

- Authors for the preparation of five textbooks and manuals for the B.Sc. Agriculture program have already been selected by Expert Committees.

- Preparation of 13 texts and nine laboratory manuals in Nepali for JTA programs is progressing well.

- Publication of the "Rampur Round Up" newsletter and Occasional Papers has been discontinued since 1985-86.

Conclusions

1. The process of publishing textbooks and manuals and IAAS Journal is proceeding well.

RECOMMENDATIONS

1. The Editorial Board should:

   a) Encourage authors to incorporate an appropriate number of photographs, drawings, tables, and charts into the texts and manuals so as to provide a good balance between quality and cost.

   b) Determine the best way to reactivate the "Rampur Roundup" newsletter, a publication vital to internal communication.

   c) Find ways to publish occasional papers on a regular basis.

   d) Collaborate with the Research and Extension Committee on plans for and ways to finance printing capabilities at IAAS.

K. SPECIAL STUDENT SCHOLARSHIP

Findings

- The special student scholarship program aims at increasing enrollment of women and students from remote areas.

- There is a general consensus that an increase in female students is desirable, as is enrollment of talented students from remote districts.

- The enrollment rate for both groups of students is presently too low. (See Appendix B for numbers of students by Zone enrolled at Rampur, 1983-84 to 1986-1987.)

- The provision of additional quarters (temporary women's dormitory) for 48 female students at Rampur, and some additional facilities at Paklihawa Campus, will help attract more women in the future.

- At present, the total numbers of female students at Rampur, Lamjung and Paklihawa campuses are 25, 4 and 3, respectively. This is far below the targeted number.

Conclusions

1. The enrollment rate of both groups of students i.e., female students and students from remote areas is too low.

RECOMMENDATIONS

1. To promote increased enrollments of female students and students from remote areas, a vigorous publicity campaign is needed. IAAS should:

   a) print a simple informative brochure inviting female and remote area students to attend programs offered at Rampur, Paklihawa and Lamjung. It should also provide

information relating to facilities available, scholarships, career opportunities, opportunities for higher studies, and employment prospects.

b) supply information to the district offices of The Women's Organization, Mothers Clubs, District Panchayat Secretariat and other relevant entities and to DADOs/DLDAH offices.

c) liaise with TU and USAID to determine what assistance, direct or in-kind, these entities can provide in this effort.

d) continue to use mass media to recruit these special students.

e) invite local leaders and guardians of female students to the campuses to see the facilities available and to visit with faculty.

2. To enhance the role of women, invite professional women specialized in the area of Agriculture and Animal Science (or closely related areas like nutrition) to deliver several lectures related directly to the prescribed course content.

3. Completing female student quarters at Rampur and Lamjung should be a high priority.

1. MEETING MANPOWER NEEDS

Findings

IAAS

IAAS has three campuses for carrying out its roles of agricultural manpower development. The main campus is located at Rampur. The branch campuses are located at Paklihawa (in the terai) and Lamjung (in the middle hills), at the present time the Rampur campus has enrolled students in 3-year B.Sc. Ag., 5-year B.Sc. Ag., and Intermediate Science (First Year). The Paklihawa campus enrolls students in Intermidate Science JT (Second Year) and in both Plant Science and Animal Science in the one year non-academic JTA program. The Lamjung campus enrolls only students in the non-academic JTA Plant Science program.

IAAS has a well defined role for teaching as the means for preparing the B.Sc. Ag. students. The degree program has been in place since January of 1977. There have been changes so as to accommodate special groups of students so that there has been a 3 year B.Sc. Ag., a 4 year B. Sc. Ag., and a 5 year B.Sc. Ag. curriculum. Currently there are students in 3 year B. Sc. and 5 year B.Sc. Ag.

It is anticipated that the recently approved B.Sc. Animal Science will start as a 5-year program in the fall 1987-88 academic year. This program is being started in response to demand for persons with greater knowledge and abilities for dealing with livestock nutrition, breeding and health.

Livestock (goats, chickens, swine, cattle, buffalo, etc.) are an important part of Nepal's agricultural sector and this new curriculum, with a beginning in- take of students this next academic year, expands the role of IAAS.

The faculty and administrators have made some plans for the time when they will start on M.Sc. program. There is some current demand for persons with master degrees in agriculture. Each year several persons go from Nepal to universities in other countries to earn master degrees. Efforts are underway to determine what standards should be met before starting such a program. In additions there is voiced support within the ministries for IAAS to eventually become a Royal Charter university.

The user agencies, mainly MOA, have generally expressed saftisfaction with the performance of the B.Sc. Ag. graduates. There are often extended delays before the graduate take a job; and most frequently this is a temporary job. It is not clear whether the delay in placement is due to the absence of an offer of employment, or reluctance to take the job offer, or a combination of the two.

The JTA program, now a non-academic program, underwent a curriculum revision approximately two years ago. Since that time the graduate from the one-year program cannot use the credits for entrance into an academic program such as the Intermediate Science Ag. Generally, the user agencies

express dissatisfaction with the performance of the graduates. The most frequently heard criticism has focused on the low level of agricultural knowledge and the lack of "practical skills".

At the present time the writing of textbooks and manuals is well underway. Many materials and some equipment which are on-order should enhance the institutional program when they arrive. The faculty have participated in one 3-day pedegogy workshop; and the faculty at Paklihawa are scheduled to have an intensive two-week workshop this summer. The instructional materials, the equipment, the textbooks and manuals, and the sessions on instructional improvement are all aimed at strengthening the performance of graduates when they take JTA posts in the field.

There have been problems with the intake of students into the JTA non-academic program. There have been fewer students apply for admission than previously. The quality level of those who apply is reported to be considerably lower than when the program was academic. Few students from the hill areas enroll, and enrollment is dominated by students from the tarai.

Another important factor affecting the outcome from instruction is the examination system. The exeminiations are considered by both the instructors and the students as a real measure of learning that which is important. The

amnount of marks provided for performance of practuals is relatively low. Most marks come from the end-of-year examinations. Those examinations place most emphasis on learnings, mainly on memorization.

The role of IAAS in research is an emerging role. Performing research is considered to be an important activity of faculty members. Their performances in research, the conducting and reporting, is considered in their evaluation for advancement and for selection to go for advanced study.

A small amount of money comes in the budget from Tribhuvan University for research work. However, most of the funds for research are in the form of small annual grants. In recent years, outside research organizations have began to recognize the initial mass of agricultural scientists of Rampur by grants or linkage with research in centers outside of Nepal. Finally, some of the faculty have been involved as consultants on outside research projects; and others are currently being courted for participation in research and development activities. This participation in research is one of the means for enhancing the teaching function as well as contributing to improved agricultural production and productivity in Nepal.

The role of IAAS in extension has a good beginning but much more can be done. At the present time the extension

activities have provided all of the students with opportunities to learn, through practice, how to prepare demonstrations with farmers, how to plan and conduct field days, and much more. The extension program part, has been an integral part of the teaching function.

Some in-service training has been provided to field workers in other agencies. Some special gardening projects have been conducted to improve family nutrition through the availability of fresh vegetables. Field days have been conducted at all three campuses. Cooperation has been sought and received from the private section as well as from MOA extension workers for planning and conducting field days. More needs to be done to formalize two-way working relationships with the extension program conducted by the Ministry of Agriculture.

The extension program at IAAS provides faculty with first-hand information about the practices used by farmers as well as a direct source of information about farm problems. The contacts with DOA/DOL extension works provide first-hand information about the functions performed and the competencies needed by IAAS graduates, All of this information, based on experience, helps faculty be more realistic with their instruction.

Other Agencies

Meeting agricultural manpower needs in Nepal is a function of

both the Ministry of Agriculture and Ministry of Education. The MOA has a long history of administering an extension program and an agricultural research program. IAAS actually had its beginning as a school under the MOA to prepare extension workers. The MOA has a series of training centers through which much in-service education is conducted for extension workers. In additions they offer farmer training programs and more recently have prepared selected farmers for village level positions called "Agricultural Assistants".

In the past the Ministry of Agriculture has sponsored many persons to India to get their B.Sc. in Agriculture as well as some persons for M.Sc. in Agriculture. Currently, the MOA has confidence in IAAS as the place to prepare B.Sc. Agriculture graduates. In the future they plan to send candidates to Rampur. In addition, they are urging IAAS to start an M.Sc. program at the earliest possible time. It appears that the MOA, the major user of IAAS, graduates, is now looking to IAAS to prepare the B.Sc. Agriculture and B.Sc. Animal Science graduates; and anticipates the preparation of M.Sc. graduates in the future.

There appears to be mixed sentiment regarding who should prepare JTAs. In addition, the actual role for JTAs appears to be in transition. The nature of the support systems for JTAs in service and their opportunities for career advancement are not clear. Rationales have been advanced for the Ministry of Educations, though Tribhuvan University and

IAAS, to administer and conduct the JTA pre-service program. Other persons have spoken strongly for the MOA, the user of the JTAs, to provide such training because the MOA knows best what it expects them to do (see Appendix 26 for some comments on the IAAS future role).

The MOA has not employed all of the JTAs trained by IAAS at the Paklihawa and Lamjung campuses. The JTAs who studied Plant Science have experienced more difficulty getting placed than those who studied Animal Science. Most of the Animal Science graduates have been placed through the DDL. A study is currently planned to try to determine the extent of unemployment for the recent JTA graduates.

The Ministry of Education several years ago dropped its attempt to have strong programs of vocational educations in agriculture as a part of regular secondary schools. Now an approach is evolving which focuses on technical school for teaching several trades such as agriculture, construction, health and industry. Only five of the seven and schools established offer the agriculture trade.

Some people see the agriculture graduates from the trade schools as potential JTAs. For admission into the schools, the students must meet several criteria: have a grade 7 pass; be the child of a farmer; be interested in returning to the farm and pass on an examination. The 3 year curriculum is adopted to the livestock and crops of the district in which the school is located. The curriculum is about 20 percent

theory and 80 percent practical. After completing three years of study, the students are then placed with JTAs for one year internship which is supervised by teachers from the school.

The intake of students to study agriculture is set at 30 per year in each of the schools. A quota is set for each district within the region served by the school. All those who are selected get a scholarship. Most of the agricultural instructor are expatriates with M.Sc. in agriculture or higher and have a philosophy which is supportive of the practical education.

The graduates with the current capacity of about 150 per year are reported to get jobs easily and to have many skills from their work on individual plots and work with livestock and poultry.

Other Developments

Several other current developments appear to have impact, or potential impacts, on the role of IAAS in relationship to meeting agricultural manpower needs in Nepal. The national movement toward decentralization within the government has the potential for increasing the demand for B.Sc. Agriculture and B.Sc. Animal Science graduates. In additons, it appears that their potential role in development of plant and supervising the work of others will require some adjustments in the courses for bachelor degree students.

The various agencies within government are now engaged in developing long-range plans for 1987-2000. Such planning goes beyond the current 7th Five-Year Plans which projected a five year deficit of high level manpower in agriculture. The amount of deficit or surplus will be depéndent upon many factors but perhaps the most significant will be the abilitiy of the government to provide budget allocations to employ as many as the development programs need.

Conclusions

IAAS has a unique role as the only institution of higher education in agriculture in Nepal. Currently it appears to be meeting the need for B. Sc. Agriculture graduates and is currently preparing to start a B.Sc. Animal Science program.

Faculty and administrators at IAAS and other officials in government are planning ahead for the time when masters degrees will be offered and when the Institute will become a Royal Charter University. The JTA program as currently conducted by IAAS has received criticism from the user agencies and the user agencies have not employed all of the graduate. Several efforts are underway to improve the JTA instructional program.

IAAS has a growing role in research and has been recognized by external agencies and organizations for its research capability. Research is recognized as a function for the Institute.

IAAS has expanded its role in extension but that role is currently focused most strongly around helping students learn to perform extension activities. There has been an increase in the extension activities conducted directly with farmers as well as emphasis on some training of trainers.

The Ministry of Agriculture administers extension and research programs. There is an effort underway to strengthen the capabilities of the MOA for providing in-service education to extension workers and providing training for farmers. There are mixed opinions as to who should administer and conduct JTA training.

The technical schools under the Ministry of Education are believed to have considerable potential for preparation of practical-minded JTA's although the capacity of the schools is quite limited.

The current GON efforts to implement decentralization and the emphasis on development of long range plans (1986-2000) may have an impact on the number and level of higher level agriculture manpower needed.

MEETING MANPOWER NEEDS

1. Recommendations

The JTA programs at Lamjung and Paklihawa should be continued as per projection, but with special attention given to enrollment promotion. Special linkages should be developed with the MOA, especially regional offices, to develop

enhanced ways to promote the JTA opportunities within MOA.

2. Rampur Campus faculty should offer to plan and conduct special seminars for the Paklihawa and Lamjung faculties that would permit an exchange of technical subject matter related to key segments of the JTA curriculum. In addition such seminars might incooperate some special workshops where ideas are shared on "how to" conduct field practicals, lead skill training, develop self-made teaching materials, etc. The Rampur faculty could plan what they think might be needed and then use an anonomous survey to identify those subjects/topics that the other two faculties would be most interested in and plan accordingly.

3. When conducting research at the branch campuses, Rampur faculty should make special effort to involve JTA students in plot lay out and other appropriate aspects of research experimentation as special learning opportunities.

4. A study should be made of the JTA function. Graduate JTAs from IAAS could be selected for survey with a focus on identifying the nature of their functions and their perceptions about how well their training prepared them. A second phase of the study could determine the perceptions of their supervisors about how well the JTAs have been prepared for their function - if possible the exact nature of the JTA function. A third phase of the study should focus on MOA policies for employment, in-service, evaluation and career advancement opportunities for JTAs.

M. PROJECT IMPLEMENTATION MONITORING SYSTEM

The Team was only able to take an indirect approach to reviewing the PIMS. No attempt was made for example to review each type of monitoring and reporting activity outlined in the Project Paper under the heading Project Monitoring Plan. The Team had access to and used extensively the 6-months reports prepared by the Technical Assistance Team. These reports had a well-developed format for both narrative and appendix-type reporting and data. The material documented progress on most of the output elements of the project. Also extremely valuable to the Team were the reports of the Academic Administration Advisor which were well formated and documented progress made in meeting the terms of reference for each trip.

The Team did not see a work plan other than the one prepared by the TA contractor at the project startup so cannot comment on the existence of annual IAAS workplans and budgets. IAAS has prepared an Annual Project Progress Report at the end of the Nepali fiscal year, and files a financial report with Tribhuvan University. Details on the expenditure of AID project funds were not requested nor made available. A Financial review memo by the Office of Financial Management in February 1987 was available.

With three different entities involved, the Team concluded that reporting periods should be made coterminus. The annual report by IAAS to Tribhuvan University is normally made for the period July 16 to July 15. An agreement had existed with the USAID Project Officer that the semi-annual reports of the USU Team should follow the same dates, but the September 1 to February 28 and March 1 through August 31 periods were used. The World Bank reporting periods are already coterminus.

ARPP/USAID: ds
April, 1987

Institute of Agriculture and Animal Science Project Evaluation

Statement of Work

I. Background

In December, 1984, AID and the Government of Nepal (GON) signed the Institute of Agriculture and Animal Science Project Agreement No. 367-0148. The project's purpose is to improve capability of the Institute of Agriculture and Animal Sciences (IAAS) to meet Nepal's need for trained agricultural and animal science manpower.

The project provides degree and non-degree training and technical assistance through an AID direct contract with the Utah State University (USU) and provides operating costs for IAAS research, extension, farm development, scholarship and textbook preparation programs.

The project will terminate in October 1991. The first Joint Annual Review was held in September 1986 to review the progress of the project. However, to date there has not been an in depth external evaluation of the project.

Project Agreement provides funding for the project and includes funding for an external evaluation in early 1987. The services requested under this PID/T are required to perform this evaluation.

II Objectives

The contractor will provide two individuals in the field of Agricultural University Development to participate in an evaluation of the Institute of Agriculture and Animal Science Project. The consultants will work with a local consultant contracted by USAID/N to conduct an evaluation of this project with a view to 1) assessing progress towards meeting project objectives; 2) assessing IAAS programs in light of Nepal's manpower needs; and 3) determining what changes, if any, need made in the project implementation plan.

III Scope of Workst

The contractor evaluation team will provide a two-person team to conduct the evaluation. The team members should have expertise in educational administration and agricultural research in developing countries. They should have experience serving as staff of an agricultural university. Discipline specialization in Agricultural

Education or Animal Science would be useful. Experience with agricultural extension would also be desirable, as would prior experience in Nepal.

The team will review project documents (Project Paper, contractor's reports, Work Plans, research proposals, progress reports), discuss project activities with AID, the GON/Ministry of Education, World Bank, GON/Ministry of Agriculture, Tribhuvan University, USU and other donors; visit IAAS central and branch campuses (Lamjung and Paklihawa); and prepare a final evaluation report. Most of the time in country will be spent at Rampur.

The evaluation team will, specifically:

1. review progress made on providing technical assistance and training;

2. review progress on equipment procurement and construction;

3. assess quality and relevance of text book preparation, research, extension, and training activities of IAAS;

4. assess the effectiveness of the scholarship program in increasing enrollment of women and students from remote areas;

5. assess progress on farm development and identify weaknesses, if any, in the operation of IAAS farms;

6. provide a general assessment of academic support capabilities, curriculum, and teaching quality of IAAS and identify continuing needs of the Institute;

7. assess success of IAAS in incorporating practical training into the curriculum;

8. asses effectiveness of administration organization of IAAS including effectiveness of various IAAS Committees and the regulations covering operation of IAAS programs;

9. assess Institute performance in meeting conditions precedent, fulfilling covenants, and addressing additional considerations (page 34 of PP);

10. review and assess the project impact monitoring system and, based on findings related to items 1-9 above, document the broader impacts of the project, particularly with respect to IAAS ability to meet Nepal's need for trained agricultural and animal science manpower;

11. assess the IAAS training program in light of the manpower needs of the agricultural sector; and

Appendix 2

SOME SIGNIFICANT EVENTS RELATED TO THE IAAS - II PROJECT

The following list traces some of the significant events related to the planning and implementation of the current IAAS - II Project. The list is illustrative, not complete, and represents those events that came to the Team's attention in the course of the review.

Prior to	-	Formal and informal education limited to "char pas" (three 1950 Rs of reading, writing and arithmetic)
1959	-	Agriculture school established under DOA in Kathmandu to train extension workers
	-	National University (later Tribhuvan University) established in Kathmandu by the University Act
1969	-	The agriculture school becomes a college
1970	-	Illinois team studies agriculture education
1971	-	National Education System Plan abolishes all private schools and colleges and unifies all higher education under Tribhuvan University (TU)
	-	Agriculture college becomes the Institute of Agriculture and Animal Sciences (IAAS) under TU to train JTAs and JTs in 2-year, non-terminal program; and first Dean is assigned, semester plan and technical and vocational education programs introduced.
1973	-	IAAS moves from Kathmandu to Rampur in the Inner Tarai and is commissioned to train vocational agriculture teachers in addition to JTAs
1975	-	MUCIA is awarded contract to assist in the development of IAAS-I Project
	-	New dean assigned
1976	-	MUCIA team arrives
	-	Agriculture teacher program at Sano Thimi (Kathmandu) phased out
	-	Branch campus started at Lamjung to train additional JTAs
1977	-	First group of B.Sc. students admitted to IAAS-Rampur

12. suggest modifications in project targets and implementation in light of evaluation findings.

IV Report:

The team will be responsible for submission to AID/N and IAAS the evaluation team's report. The report will record the team's findings, observations and recommendations. The report will cover, as substantively as possible, the team's views concerning performance of the project to date, its prospects for successful completion, and any changes/modifications the team believe will impact favorably on the future conduct of the project. A draft report should be submitted to and discussed with USAID/N and the GON prior to finalizing it.

The local consultant will complete and submit to USAID/N fifty (50) copies of the completed IAAS Evaluation Report, within twenty days of the departure of the expatriate consultants.

V Relationships and Responsibilities:

The consultants shall work under the policy guidance of the Mission Director, USAID/N, and the operational guidance of the Chief of the Office of Agriculture and Resource Conservation. The GON liaison official shall be the Project Director for the IAAS-II Project (Dean of IAAS).

The Mission shall name a team leader for the evaluation team who shall be responsible for coordinating the work of the team and for ensuring timely completion of the evaluation report.

VI Term of Performance:

The team will complete its consultancy during February-March, 1987.

VII Level of Effort:

Each specialist will work eight hour days and six-day weeks with Saturdays off. A minimum of twenty seven work-days in Nepal for each specialist will be required to complete the assignment.

VIII Logistic Support:

IAAS will arrange for vehicle support and office space. The local consultant will provide secretarial and interpretation services as needed.

- Farm development plans prepared by farm management consultant

1978 - GON stops training vocational agriculture teachers at IAAS; vocational Agriculture in Secondary Schools phased out.

- Paklihawa branch campus opened in Tarai near Bhairawa to train additional JTA/JTs

1980 - First B.Sc. group graduates from IAAS

- Semester system dropped and annual system adopted; external examinations determine advancement

1981 - APROSC completes Agruculture Manpower Needs Assessment in Nepal

- World Bank (IDA) mission visits Nepal to explore possibilities for a project related to the agricultural education system - August

1982 - World Bank/FAO team prepares project to assist MOA to administer and manage middle level agricultural training; JTA training would shift back to DOA

- Royal Commission on Higher Education formed to study education issues; Agriculture Academic Board recommends that the one-year training preparatory to JTA employment be directed by Ministry of Education (through IAAS)

- Revised MUCIA work plan stresses importance of farm development to IAAS progress

1983 - Royal Commission Report recommends that JTA training be non academic, i.e., terminal one-year program

- Evaluation Team reviews progress of IAAS Project and recommends a continuation of insititutional development support for five years

1984 - IAAS - II Project authorized for 7 years by AID - July

- MUCIA completes 9 - year contract - September

- MUCIA end-of-tour report reiterates importance of farm development
- World Bank completes staff appraisal report for Agricultural Manpower Development Project UNKED to IAAS - II - November

1985 - World Bank (IDA) agreement signed for loan of SDR 8.5 million - March

- Student strike and disruptions close IAAS for 9 months - March to November

- AID grant $4.1 million effective - June ?

- USAID and USU sign contract for 5 years; Chief of Party/Agricultural Education Advisor arrives for 3 years-September

- Animal Science Advisor arrives for 2 years - October

- New Dean assigned in November; first visit Academic Administration Advisor

1986 - Veterinary Science Advisor arrives for 2 years - January

- Farmers' Extension Day held on IAAS campus - January

- Faculty seminar by Chief of Party on "USAID/USU IAAS-II Project Overview" - January

- Second visit by Academi Administration Advisor - March

- Livestock Farm Economic Study - July

- Student and faculty benchmark study completed - August

- Joint Annual Review of Project - September

- Third visit by Academic Administration Advisor - October

- First Annual Workshop on Pedagogy with 87 faculty in attendance - October

- Study of IAAS B.Sc. Ag graduates completed - December

1987 - First Annual Farmers' Day on Lamjung Campus - January

- First Annual Farmers' Day on Paklihawa Campus - February

- 50 support staff completed in-country training between December and February

AID MISSION (7-71)
SUPPLEMENT 1

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

(INSTRUCTION: THIS IS AN OPTIONAL FORM WHICH CAN BE USED AS AN AID TO ORGANIZING DATA FOR THE PAR REPORT. IT NEED NOT BE RETAINED OR SUBMITTED.)

Life of Project:
From FY 1985 to FY 1992
Total U.S. Funding $4,100,000
Date Prepared: 6-19-84

Project Title & Number: Institute of Agriculture and Animal Science Project - II

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Program or Sector Goal: The broader objective to which this project contributes:	Measures of Goal Achievement:		Assumptions for achieving goal targets:
To increase agricultural production in Nepal's small farm sector.	Agricultural productivity increases at a rate not less than 3 percent per year for the 20 years following project completion.	GON, IBRD, and FAO reports.	- GON regulations and policies do not restrict ability of GON employees and private sector individuals to contribute to increased agricultural production. - World economic and political situation does not restrict Nepal's ability to increase agricultural production.

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project:
From FY 1985 to FY 1991
Total U.S. Funding $4,100,000
Date Prepared: 6-19-86

Project Title & Number: Institute of Agriculture and Animal Science Project - II

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Project Purpose:	Conditions that will indicate purpose has been achieved: End of project status.		Assumptions for achieving purpose:
To improve the capability of IAAS to meet Nepal's need for trained agricultural and animal science manpower.	a) IAAS is training a sufficient number of well-qualified persons up to the BSc. level to meet employment needs of GON and other institutions.	a) GON and other agency records and conversation with supervisors of Nepali agricultural personnel.	a) —
	b) 10 percent of IAAS students are women and 5 percent are from remote areas.	b) Site visits and IAAS enrollment records.	b) Additional female students can be recruited and retained at IAAS.
	c) Relevant curricula being taught by well-trained motivated staff and including practical experience.	c) Site visits, IAAS records, and project evaluations.	c) GON continues to give high priority to the establishment of a B.Sc. program at Rampur. Trained staff can be retained at IAAS
	d) Institute farm being fully utilized for research, production, and demonstration.	d) Site visits; IAAS annual reports.	d) IAAS receives sufficient autonomy to permit good management of the farm.
	e) Institute has established sound administrative procedures and policies, plans, and maintenance programs.	e) Site visits; IAAS records and reports.	e) T.A. can be effectively utilized to help IAAS revise policies.
	f) Active research, extension, and teaching materials preparation programs underway at Institute.	f) Site visits; IAAS reports.	f) Trained staff can be retained at IAAS.

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project:
From FY 1981 to FY 1991
Total U.S. Funding $4,100,000
Date Prepared: 6-15-87

Project Title & Number: Institute of Agriculture and Animal Science - II Project

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Outputs	Magnitude of Outputs		Assumptions for achieving outputs
1. Improved administration.	1. Assistant Dean for Extension, Training and Information and Campus Operations Manager named. (FY 85) Maintenance plan accepted and implemented. (FY 85) Campus Development Plan accepted. (FY 87)	1. Site visits; Project and IAAS reports.	1. --
2. Improved curricula.	2. Animal Science B.Sc. program established. (FY 86) Practical work integrated into curricula. (FY 86)	2. Revised IAAS Handbook; Site visits; Project and IAAS reports.	2. --
3. Improved staff.	3. Adequate staff to teach curricula. (FY 88) Academic staff engaged in active professional programs of research, extension, publishing, and consulting. (FY 85)	3. Site visits; Project and IAAS reports.	3. IAAS can retain trained staff
4. Teaching materials.	4. Forty textbooks and laboratory manuals published. (FY 89) Additional teaching materials produced and used in teaching. (FY 87)	4. Site visits; Project reports.	4. Textbook honoraria are sufficient to attract qualified authors for textbooks.
5. Campus farms brought fully into operation.	5. Farm Plan developed and implemented. (FY 85) Farms completely under production and used for research and teaching. (FY87)	5. Farm Plan; Site visits; Project reports.	5. Capable farm managers can be recruited.

AID 1330-5 (10-77) SUPPLEMENT I

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project: From FY 1985 to FY 1991
Total U.S. Funding $4,100,000
Date Prepared: 6/18/84

Project Title & Number: Institute of Agriculture and Animal Science - II Project

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Outputs:	Magnitude of Outputs		Assumptions for achieving outputs
Continuation			
6. Research program expanded.	6. At least 12 new projects initiated each year and results published for at least eight. (FY 86) Research utilizes low cost approaches and is directed to priority development needs of Nepal. (FY 87)	6. Site visits; Research reports; Project and IAAS reports.	6. --
7. Extension program expanded.	7. Extension program reaching area farms through training programs (10/yr); technology trials (3/yr); and other programs. (FY 86)	7. Extension program annual Work Plan and Annual Report; Site visits; Project and IAAS reports.	7. --
8. Publication program expanded.	8. IAAS Publications Committee established. (FY 85) IAAS Journal published regularly and an IAAS Occasional Papers series begun. (FY 87)	8. IAAS publications.	8. --
9. Students graduated.	9. 85 agricultural and 40 animal science B.Sc. graduates produced annually. (FY 90) 500 agricultural and 100 animal science JTAs trained annually. (FY 86) Ten percent of students are women and five percent are from remote areas. (FY 89)	9. IAAS records; Project and IAAS reports; Agricultural manpower needs study.	9. Sufficient qualified women and students from remote areas can be identified and are interested in applying to IAAS.

LOGICAL FRAMEWORK

From FY 1985 to FY 1991
Total U.S. Funding $4,100,000
Date Prepared: 6-15-84

Project Title & Number: Institute of Agriculture and Animal Science - II Project

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Inputs	Implementation Target (Type and Quantity)		Assumptions for providing inputs
1. Technical assistance.	1. Long-term - 7 person yrs. Short-term-35 person mon. Visiting scholars - 3 programs. Peace Corps volunteers - 18 person yrs.	1. Project and IAAS reports	1. --
2. Participant training.	2. Fourteen degree programs - MSc.(8) and Ph.D.(6). Exchange scholars - three programs overseas and five in Nepal Overseas short-term training programs.(12) In-country training (210 persons).	2. Project and IAAS reports.	2. IAAS can identify qualified candidates to undertake training in specialized fields, i.e. engineering, irrigation, etc.
3. Funding for research, extension, in-service training; farm development, textbook publication, and student scholarships.	3. $ 2,038,000	3. Project and IAAS reports.	3. IAAS obtains necessary autonomy and budgetary flexibility to undertake and continue special programs.
4. Recurrent costs for operation of IAAS.	4. $ 3,467,000	4. IAAS budget and reports.	4. --
5. Construction.	5. Rampur - Staff housing - 34 units dormitories - 180 students guest house - 36 trainees	5. Project reports; Site visit.	5. --

AID 1330-93 (7-71)
SUPPLEMENT I

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project:
From FY 1985 to FY 1991
Total U.S. Funding $4,100,000
Date Prepared 6-14-84

Project Title & Number: Institute of Agriculture and Animal Science - II Project

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Inputs:	Implementation Target (Type and Quantity)		Assumptions for providing inputs:
	Classrooms - 2 laboratries - 2 livestock facilities - various		
	Lanjung - staff housing - 2 dormitories - 200 students classrooms - 2 laboratory - 1 livestock facilities - various; library; dispensary; road		
	Paklihawa - renovations of dormitories, staff housing, classrooms, and laboratories		
6. Equipment and materials.	6. $ 550,000	6. Project reports.	6. —

SUMMARY
OBJECTIVES: EXPECTED OUTPUTS-ASSUMPTIONS

The work plan is designed to facilitate the accomplishment of the stated project objectives. Realization of these objectives will result in the following outputs.

Objective	Projected Outputs	Assumptions
1. Improved administration	Key IAAS Administrators will be in place and will be operating according to approved plans- i.e. -Personnel and staff training and development plans -Campus maintainence plans -Campus construction and development plans -Departments will be following well defined work plans	Operating according to good plans will improve administration
2. Improved staff	14 additional staff members will have received post graduate degrees - 4 PhD -10 MSc -The majority of the staff 75% will have made individual professional improvement plans and will be implementing them	Faculty acceptance of involvement
	-3 IAAS faculty members will have been involved in external scholar exchange programs	External scholars can be attracted to participate
	-12 selected support staff members will have participated in short term external training programs	
	120 support staff members will have received "in-country" skills training	
3. Improved curriculum	-an animal science BSc degree program will be established	Sufficient human and other capital can be mobilized

SOURCE: WorkPlan -- USU/IAAS-II Project, February 1, 1986

97

Objective	Projected Outputs	Assumptions
	-additional "hands on" practical training will be a part of all agriculture and animal science courses	
4. Improve and expand the supply of teaching materials	-40 textbooks and laboratory manuals developed. -additional textbooks procured and syllabi developed for new animal science degree courses	Sufficient incentives and finances are provided to attract qualified authors
	-Some operational visual aid equipment and supplies available for branch campuses	Sufficient fianances are provided to supply electrical power
5. Research program expanded and quality improved	-some 12 new projects initiated -new research projects approved by research committee	Funds provided by project
	8 publications produced each year. Quality controlled by review committee	Recognition for publication efforts - funds available for publishing needs
6. Improved extension programming	JTA's assigned to each of the campuses to work with farmers under the direction of the extension and rural sociology department	-IAAS role in extension defined & recognized
7. Development of campus farms	-plans developed and implemented for the research farms -soils mapped -land use history documented and updated annually -lands fenced -additional land for the Lamjung campus will have been purchased	-that land purchase has been approved and funds are available

Objective	Projected Outputs	Assumptions
8. More highly qualified students trained by IAAS	In agriculture 1986-155 JTA's 40 BSc. 1987 180 JTA's 45 BSc. 1988 210 JTA's 50 BSc 1989 245 JTA's 50 BSc 1990 280 JTA's 62 BSc. 1991 300 JTA's 62 BSc In Animal Science 1986 25 JTA's 1987 30 JTA's 1988 30 JTA's 1989 35 JTA's 1990 40 JTA's 20 BSc 1991 50 JTA's 20 BSc Women enrollments 1986 20 JTA's 10 BSc. 1987 30 JTA's 20 BSc 1988 40 JTA's 40 BSc 1989 50 JTA's 60 BSc 1990 70 JTA's 60 BSc 1991 70 JTA's 60 BSc	That student strikes are settled That rate of student drop out is normal That the pass rate for final year students is 50% or more That the Animal Science BSc be in place as scheduled. That sufficient women students can be enrolled That GOU employment policies are conducive to opportunities for women graduates

Appendix 5

LIST OF PERSONS MET

Kathmandu

Mr. Mahesh K. Upadhaya	Vice Chancellor	TU
Dr. D. M. Singh	Member	NPC
Mr. P.P. Gorkhali	Director General	DOA
Dr. H.B. Rajbhandari	Additional Secretary	MOA
Mr. Mohin Shah	Joint Secretary	MOA
Mr. S.N. Regmi	Deputy Director General	DOA
Mr. N.P. Regmi	Chief, Training Section	DOA
Mr. K.P. Nepal	Joint Secretary	MOE
Dr. P.L. Pradhan	Planning Division	TU
Mr. S.K. Malla	Secretary	NPC
Dr. S.R. Sharma	Member Secretary	NEC
Mr. R.B. Singh	Joint Secretary	MOA
Mr. K.M. Shrestha	Director	DOTVE
Mr. D. Frazer	Advisor	DOA
Dr. Micheal Wallace	Research Specialist	Winrock
Mr. Severino R. Santos	Senior Ag. Ed. Specialist	World Bank

Rampur, Chitwan (IAAS)

Prof. K.N. Pyakurel	Dean
Dr. Tej B. K. C.	Professor
Dr. N. P. Joshi	Lecturer
Mr. R.B. Thapa	Lecturer
Mr. Shree C. Shah	Lectuer/Training Coordinator
Mr. Sudarshen Tiwari	Farm Manager/Animal Science
Dr. Indira Bhalla	Lecturer
Mrs. Usha Jha	Assist. Lecturer
Dr. Clark Ballard	Academic Administration Advisor
Dr. K.K. Tiwari	Project Coordinator/IAAS II
Mr. Dainik B. Nepali	Lecturer
Mr. Suresh C. Rai	Lecturer
Mr. Santa B. Gurung	Lecturer
Mr. Gyan K. Shrestha	Lecturer
Mr. Murari P. Suvedi	Lecturer/Member Secretary to Ext. Committee
Mr. Maheshwar Sapkota	Lecturer
Mr. Sundar M. Shreatha	Lecturer
Mr. Satya N. Tiwari	Reader
Dr. N.K. Mishra	Reader
Mr. B.N. Pokhrel	Lecturer
Dr. S.B. Singh	Lecturer
Dr. James H. Thomas	USU Campus Coordinator
DR. Westey T. Maughan	Chief of Party
Dr. Dewey E. Monty	Veternary Sc. Advisor
Dr. Robert C. Thompson	Animal Sc. Advisor
Mr. Nava R. K.K.	Project Officer

Branch Campus: Lamjung

Mr. Gopi Uprety	Campus Chief
Mr. Kishor P. Gajurel	Assist. Lecturer
Mr. Mohan P. Sharma	Assist. Lecturer
Mr. Ramesh R. Pokhrel	Assist. Lecturer
Mr. Gopal B. K.C.	Assist. Lecturer
Mr. Birendra K. Bhattachan	Assist. Lecturer
Mr. Purandhar Dhital	Assist. Lecturer
Mr. B.B. Thapa	Assist. Lecturer
Mr. Ananda R. Shrestha	Social Worker

Branch Campus Paklihawa

Mr. J.L. Yadav	Campus Chief
Mr. Tej B. Nepali	Lecturer
Mr. S.K. Tripathy	Lecturer
Mr. Narayan P. Khanal	Assist. Lecturer
Mr. Surendra Mishra	Assist Lecturer
Dr. Nagendra P. Tiwari	Lecturer
Mr. Shyam S. Jha	Assist. Lecturer
Mr. Nava R. Devkota	Assist. Lecturer
Mr. Shrawan K. Shah	Assist. Lecturer
Mr. Thaneshwar Pandey	Assist. Lecturer
Mr. Jag P. Mishra	Assist. Lecturer
Mr. Tripuri P. Singh	Lecturer

No. of students

Men	32
Women	2

USAID/N Kathmandu

Mr. William Stacy Rhodes	Deputy Director	USAID
Dr. Charles T. Hash	Chief	ARC
Mr. Gary Alex	Project Officer	ARC
Mr. George Taylor	Project Officer	ARC
Dr. John Breslar	Project Officer	PDIB
Mr Shree B. Bajracharya	Program Assistant	ARC

LIST OF SOURCES

1. An Analysis of Progress and Outcomes of the Institute of Agriculture and Animal Science project, Rampur, Nepal, by Ramesh B. Munanakarmi, George F. Aker, Donald G. Green and John L. Weihing. Cambridge, Massachusetts: Wu P'I, Inc., September 1983.

2. Project Paper: Institute of Agriculture and Animal Science-II (367-0148), Nepal (October 1984).

3. Report of the nepal agricultural Manpower Project Preparation Mission . FAO, Rome: FAO/World Bank Cooperative Program Investment Center, Report No. 10/82 Nep 17, March 8, 1982.

4. Staff Appraisal Report, Nepal: Agricultural Manpower Development Project. South Asia Projects Department, Education and Human Resources Division, The World Bank, Report No. 4878-NEP, November 14, 1984.

5. Office Memorandum: Nepal-Agricultural Manpower Development Project (Cr. 1534-NEP) Supervision Report from "S.R. Santos, ASPED and K. Mathema, RMN to Mr. W.E. Rees, Chief, ASPED.

6. Project Paper Amendment Number Two: Nepal Institute of Agriculture and Animal Science, 367-0102. Agency for International Development, Washington, D.C. 20523, June 1983.

7. Statement of Work. Attachment I.

8. Institute of Agriculture and Animal Science Project/Evaluation, Attachment "A".

9. Report of Academic Administration Advisor, Visit No. 1 by J. Clark Ballard, November 11 - December 1985. Report No. 1.

10. Work Plant, USU/IAAS-II Project, Tribhuvan University, Institute of Agriculture and Animal Science, Utah State University/USAID, Rampur, Chitwan, Nepal, February 1, 1986. Report No. 2.

11. Semi-Annual Report, September 16, 1985 - February 28, 1986, USAID/USU-IAAS-II Project. Report No. 3.

12. Report of the Academic Administration Advisor, Visit No. 2 by J. Clark Ballard, March-April 1986. Report No. 4.

13. Dairy Science Study by Dr. P. Jelen, University of Alberta [A Dairy Science Study Development under Contract No. ASB, 0148, C, 00,5156,00 between IAAS, USU, USAID/Nepal, and World Bank. June 9, 1986. Report No. 5.

14. Livestock Farm Economic Study by Dr. Robert Stevens, July 7-16, 1986. Report No. 6.

15. Student and Faculty Bench mark Study-Project Impact Monitoring Plan, August 6, 1986. Report No. 7.

16. Semi-Annual Report, March 1, 1986-August 31, 1986, USAID/USU/IAAS-II Project. Report No. 8, August 31, 1986.

17. Report of the Academic Administration Advisor, Visit No.3 by J. Clark Ballrad, October-November 1986. Report No. 9.

18. Orchard Plant and Development of Horticulture Department by Dr. Sant Ram, October 15 - December 6, 1986. Report No. 10.

19. Study of the IAAS B.Sc. Ag. Graduates by Ross E. Robson, Analyst, Evaluation Division, Asia and Near East Bureau. ANE/DP/E, August, 1985.

26. Asia Near East Bureau Procedural Guidelines for Evaluation, ANE/DP/Evaluation, February 1986.

27. Final Report, Project No. 367-11-110-102, Contract No. AID/NESA-C-1197, MUCIA/AID Project at the Institute of Agriculture and Animal Science of Tribhuvan University, Rampur, Nepal, February, 1985.

28. The future of IAAS as perceived by its faculty, by Grant Morrill. Supporting Document for IAAS II Project, Social Soundness Analysis, April 1984, Office of Agriculture and Resource Conservation, U.S. Agency for International Development, Nepal.

29 Administrative/Institutional Analysis,Technical Analysis of IAAS II Project paper by J. Cordell Hatch and Ganesh P. Rauniyar. Institute of Agriculture and Animal Science Project II. May 1984, Kathmandu, Nepal.

30. Proposed Fifteen Year Future Program of The Institute of Agriculture and Animal Science for Long-Term Development 1986/87-1999/2000. Translated by Nav Raj K.C. and Jaya Raj Joshi.

31. The Integration of Research and Extension in Farmers' Fields. The Terminal Report of the Integrated Cereals Project of the Department of Agriculture, Ministry of Agriculture, His Majesty's Government of Nepal, June 1985.

32. Memorandum dated February 20, 1987 from W.E. Lavery, Chairman, BIFAD, to AID Mission Directors, Representatives and Agricultural Development Officers regarding "Post Contract Linkages between Title XII Contractors and Developing Country Entities".

APPENDIX 7

CONDITIONS, COVENANTS AND ADDED CONSIDERATIONS

Conditions Precedent

1. Documentation demonstrating designation of a Project Director (Dean of IAAS).

2. Evidence that the GON has concluded an agreement with the World Bank for the financing of an agricultural manpower development project in a manner complementary to this Project.

3. Evidence of the development of a maintenance plan to extend the useful life of IAAS equipment and physical plant throughout the life of the project.

4. Evidence of the development of a comprehensive plan for the operation and utilization of the three IAAS campus farms.

Covenants

The GON will agree, except as may otherwise be agreed in writing:

1. to prepare a long-term development plan for IAAS;

2. to increase female enrollment and numbers of female staff at IAAS;

3. to increase the IAAS budget sufficiently to support expanded program activities and provide adequate maintenance of facilities throughout the life of the project;

4. to maintain the current constituent departments of IAAS under the control and direction of IAAS throughout the life of the project and not establish any such departments as separate institutions independent of IAAS; and

5. to production utilize fully the three IAAS campus farms for research, and demonstration according to a comprehensive plan.

Additional Considerations

Priority consideration should be given to resolving the following issues through action by IAAS, Tribhuvan University, and the IAAS Faculty Board:

1. prompt decision on whether to develop the B.Sc. curriculum as five-year, post S.L.C. programs or four-year post I.Sc. programs;

33. IAAS Livestock Development Farm: Its Problems and prospects for Improvement by M. Kharel and M. Shrestha, 1986.

34. A proposal for Implementation of Equal Access Scholarship Program, prepared by Dean B.P. Singh presented to Faculty Board. Dated August 2, 1985.

35. A Proposal for a B.Sc. Internship Program, prepared by Dean B.P. Sinha and presented to the Faculty Board. Dated February 20, 1985.

36. An Unofficial translation of the Minutes of January 28, 1986 Meeting of 4th PIB Meeting.

37. A research proposal for "A Study of Goat Crossbreeding for Increased Meat Production" submitted to US-Israel Cooperative Development Research Program. The Proposed time table for the project extended from September 1986 through August 1989.

38. Final Report of Practical Training in Tropical Agriculture by A.M.B. Westendorp and G.M.L. Dingemans, August 1986 - January 1987. (Students from R.H.L.S. Deventer, The Netherlands).

39. Farm and Campus Maintenance and Development Plant for the Institute of Agriculture and Animal Science for the Period 1986-1990. Prepared by Project Implementation Unit of IAAS, Rampur, and ARC Office, USAID/Nepal, Kathmandu. What date ?

40. Manpower Development Agricultural Project (MDAP): Evaluation Report by Peter L. Fedon and Wayne H. Freeman, February 1985. By whom ?

2. revision by Tribhuvan University and IAAS of rules and regulations governing operation of IAAS programs in order to expedite their implementation;

3. constitution or reorganization of the following IAAS committees: Research, Curriculum and Teaching; Scholarship; Examiniations; and Appointment, Evaluation and Promotion;

4. agreement to postpone consideration of developing an M.Sc. program at IAAS until after the final project evaluation;

5. agreement to avoid increasing the number of subject matter departments and attempt to consolidate all departments into seven departments; and

6. agreement to include Practical Crop Production and Practical Animal Production programs in the B.Sc. curricula.

Appendix 8

Institute of Agriculture & Animal Science

Budget for Maintenance (09011)

FY 039/040 - 043/044

Maintenance Budget (09011) Rs in '000.

		Rampur	Paklihawa	Lamjung	TOTAL
83/84	FY 039/040	500	18	8	526
84/85	FY 040/041	700	25	10	735
85/86	FY 041/042	600	30	41	671
86/87	FY 042/043	500	40	30	570
87/88	FY 043/044	200+1060	40	20	1320

Provided by USAID/N

Maintenance budget of IAAS for the past 3 years, approved by Tribhuvan University.

Fiscal Year

	(Budget (Rs)			
	Rampur	Paklihawa	Lamjung	TOTAL
1985/86	600	30	41	671
1986/87	500	40	30	570
1987/88+				
Regular	200	40	20	260
Through Project	800	100	100	+ 1000 1260

Provided by Project Office, IAAS

Appendix 9

Aditional Authority given to IAAS Dean under new Regulations Enacted by TU:

1. Appoint on a temporary or contractual basis the teaching staff at the level of a lecturer and administrative staff at the level of an assistant administrative officer.

2. Confer an 'acting' status to an officer of the level of a deputy administrative officer.

3. Sanction a raise in grade (annual salary increment) or terminate the job of an administravtive staff at the level of a assistant head.

4. Approve sending teachers and administrative officials on international-level training and seminars if the costs are not borne by T.U.

5. Earmark income generated through the internal resources of the Institute.

6. Transfer the budget allocated from one line item to another, provided the amount involved does not exceed the total amount of approved budget.

7. Waive an amount up to Rs.500 that was found misappropriated but difficult to recover.

8. Approve construction programs of up to 2.5 million rupees.

9. Pay extra salary to the teaching staff for their work during general vacations.

10. Approve travel for teaching and administrative staff to travel to India.

Appendix 10

Courses of Study for B. Sc. (Animal Science)

Yearwise Distribution of the Courses

YEAR 1

Course Code	Course Title	Credit hours	Marks
ANSCI 321	Introduction to Animal Science #	2 + 1	75
	Introduction to Plant Science #	3 + 1	100
	Introduvtion to Fish Culture *	1 + 1	50
	Principles of Ecor.omics *	2 + 0	50
	Poultry & Swine Production & Mgt.	2 + 1	75
	Principles of Animal Nutrition	2 + 1	75
	Introduction to Biochemistry *	2 + 0	50
	Anatomy and Physiology	2 + 1	75
	Statistics *	2 + 1	75
Total		18 + 7	625

YEAR 2

	Fodder and Pasture Production	2 + 1	75
	Introduction to Genetics *	2 + 1	75
	Veterinary Microbiology & Parasitology		75
	Introduction to Dairy Science	2 + 1	75
	Cattle & Buffalo Production	3 + 1	100
	Livestock Structures Environment Control	2 + 1	75
	Farm Management	1 + 1	50
	Sheep & Goat Production	2 + 1	75
Total		16 + 8	600

* Common course for B. Sc. Agriculture & B. Sc. Animal Science

\# Exempted for students having completed I.Sc. Agriculture

YEAR 3

Principles and Practices of Animal Breeding	3 + 1	100
Milk Products Processing	2 + 2	100
Reproductive Physiology & A. I.	1 + 2	75
Disease of Farm Animals	2 + 2	100
Extension Education *	3 + 0	75
Elective - (**)	3 + 1	100
Applied Nutrition	2 + 1	75
Total	15 + 9	625

** Elective courses to be developed in the areas of animal nutrition, animal breeding, fish farming, animal production, fodder and pasture production, dairy technology, animal health and other related disciplines as per need.

YEAR 4

Course Code	Course Title	Credit hours	Marks
	Animal Products and Public Health	1 + 1	50
	Livestock Economics	2 + 0	50
	Ecology and Adaptation of Farm Animals	2 + 1	75
	Internship (***)	0 + 8	200
	Elective -	3 + 1	100
Total		8 +11	475
Grand Total		51 +33	2325

*** During the initial 6 months students take classes. During the remianing 6 months they conduct fieldwork and to write a final repot.

Appendix 11

Administrative staff

	Rampur	Paklihawa	Lamjung	Total
Officer Level	11	2	2	15
Assistant Level	74	21	11	106
Lower Level	72	36	19	127
	157	59	32	248

Committees at IAAS

Permanent Committees:

		Chairman & Member
1.	Instruction Committees	There are 11 Instruction Committees Chaired by the Chairperson of the concerned Department. Members - Faculty members within the Department
2.	Subject Matter Committees: - Agronomy - Horticulture - Animal Science - Ag. Extension & Rural Sociology - Plant Protection - Agri. Economics - Soil & Ag. Engineering - Basic Science & Humanities	Headed by a faculty member appointed by the Dean in each subject area Members in each subject area: - Three from Dept. of Agri. & Livestock - Seven faculty members from IAAS Central Campus and Branch Campuses
3.	Faculty Board	Chairman - Dean Member Secretary - Asst. Dean, Academic Members - Asst. Dean, Administration - Campus Chief, Paklihawa - Campus Chief, Lamjung - Departmental Chairmen - 11 - Director, Dept. of Agriculture - Director, Dept. of Live. & Animal Health - Joint Secretary, Ministry of Agriculture - Joint Secretary, Ministry of Education - Chief, Planning Division TU - Director, Curriculum Dev. Centre, TU Invitees - Vice-Chancellor, TU - Rector, TU - Registrar, TU - Chief of Party, USU/IAAS-II Project
4.	Research Committee	Chairman - Dean Members - Asst. Dean, Academic - Member of Technical Assistance Team - Chief, IHMG/DOA (Maize Farm)

			- Project Coordinator, AMDP, IAAS
			- Other selected faculty members - 10
		Member Secretary	- Chairman, Dept. of Ag. Botany, IAAS
5.	Extension Committee	Chairman	- Dean
		Members	- Assist. Dean Academic
			- Member Technical Assist. ance Team
			- Chairman from 8 Departments, IAAS
		Member Secretary	- Extension Coordinator
6.	Examination Committee	Chairman	- Asst. Dean Academic
		Members	- Asst. Dean Administration
			- Campus Chief, Paklihawa
			- Campus Chief, Lamjung
			- Training Officer, AMDP/-IAAS
		Member Secretary	- Dept. Administrator, IAAS
7.	Student Scholarship Committee	Chairman	- Dean
		Members	- Asst. Dean Administration
			- Chief, Extra Curricular Activity, IAAS
			- President, Student Union
			- Secretary, Student Union
		Member Secretary	- Administrative Assistant
8.	Faculty Evaluation & Selection Committee (For higher studies)	Chairman	- Dean
		Members	- Senior Faculty (Ph.D. Holders) 4
			- Chief of Party, USU/-II Project
9.	Campus Development Committee	Chairman	- Dean
		Members	- Asst. Dean Administration
			- Project Officer, USAID/N
			- Project Engineer, USAID/N
			- A faculty member, IAAS
		Member Secretary	- Project Engineer
10.	Library Management Committee	Chariman	- Assist. Dean Academic
		Members	- Senior faculty members 4
		Member Secretary	- Asst. Librarian
11.	Hostel Management Committee	Chairman	- Asst. Dean Academics
		Members	- Asst. Dean Administration
			- Extra Curricular Activity Chief
			- President, Student Union
			- Secretary, Student Union

		- Student representative 1
	Member Secretary	- Hostel Warden
12. Sealed Tender Committee	Chairman	- Asst. Dean Administration
	Members	- A faculty Member
		- Representative from HMG-DOA (Maize Farm)
		- Account Controller, IAAS
		- Engineer or Overseer
	Member Secretary	- Administrative Officer IAAS
13. Recruitment Committee (Faculty & Staff)	Chariman	- Dean
	Members	- Asst. Dean Academic
		- Asst. Dean Administration
		- Senior Faculty Member
		- Chairman of Concerning Department
		- An Expert of the concerned subject
	Member Secretary	- Deputy Administrative Officer

Temporary Committees:

1. Project Implementation Committee	Chairman	- Dean (Project Director)
	Members	- Asst. Dean Academic
		- Asst. Dean Administration
		- Chief of Party, USU/IAAS-II Project
		- Project Engineer
	Member Secretary	- Project Coordinator, AHD Project
2. Board Project Iplementation	Chairman	- Vice Chancellor, TU
	Members	- Registrar, TU
		- Rector, TU
		- Joint Secretary, HMG/MOF
		- Joint Secretary, HMG/MOA
		- Joint Secretary, HMG/MOE
		- Joint Secretary, NPC
		- Project Officer, USAID/N
		- Project Engineer, USAID/N
		- Chief of Party, USU/IAAS-II Project
		- Resident Representative, MB
	Member Secretary	- Dean, IAAS
3. Textbook, Manuals and Instructional Material Committee	Chairman	- Dean
	Members	- Asst. Dean Academic
		- Asst. Dean Administration
		- Member Technical Assistance Team
		- Project Coordinator, AHD Project

		Member Secretary	- Professor, Soil Science, IAAS
4.	Farm Coordination Committee	Chairman	- Asst. Dean Administration
		Members	- Chairman, Agronomy
			- Chairman, Horticulture
			- Chairman, Animal Science
			- Member, Technical Assistance Team
			- Site Engineer
5.	Land Utilization Committee	Chairman	- Dean
		Members	- Asst. Dean Academic
			- Asst. Dean Administration
			- Chairman, Agronomy
			- Chairman, Horticulture
			- Chairman, Animal Science
			- Farm Managers (Agronomy, Horticulture & Livestock)
			- Agri. Engineer
6.	Editorial Board (IAAS Journal)	Editor in Chief	- Professor, Soil Science, IAAS
		Editors	- Professor, Entomology
			- Lecturer, Horticulture
			- Project Coordinator, AMD Project

Appendix 13

ACADEMIC PLAN FOR IAAS

Rampur, Nepal

H. James Miller, Campus Planner

To produce an authoritative, comprehensive academic plan for an institution requires investigation of virtually every facet of the historical evolution and current status of that institution. It requires an understanding of the intended mission mandated by Government, and requires probing for and prediction of future potentials, and probabilities, predicting growth and change.

The following is an outline for an Academic Plan for IAAS:

1. Enabling legislation and GON mandate past and current.

2. History of development with emphasis on those things that have significance for future development. Statistical data is essential showing nature of growth and change.

3. Constituencies of the institution, including sources of students, service areas, and graduate markets.

4. Administrative structure and operational policies.

5. Capital and operating budgets (indicate constraints).

6. Academic programs, clear, complete and concise.

7. Courses and curricula - tabulated to generate types, sizes, and numbers of classrooms.

8. Student body - tabulated projections.

9. Teaching and support staff.

10. Linkages with government agencies, other institutions and outreach.

11. Extra-curricular programs and activities that come with institutional operation.

12. Description of facility needs to support academic programs, provide offices, housing, field support, recreation and other facilities.

13. Current institutional philosophy, projected changes in direction or nature of the institution, impact upon campus needs.

14. Impacts and interfaces with the adjacent towns, farms, and regional institutions.

The academic Plant should establish a current base and make annual projections of growth and change for five years minimum and then jump to a ten year horizon with some speculation as to probable changes even beyond.

Immediate facility needs now handicapping current programs should be separated from long range needs.

Source: End-of Tour Report IAAS - MUCIA Project, A.J. Sofranko and R. T. Odell, University of Illinois, May/June 1984.

Appendix 14

1981-1985

Zone	1981		1985		Change			
	Total	Female	Total	Female	Total		Female	
					No.	%	No.	%
Mechi	10,368	2,350	19,934	6,109	9,566	92.26	3,759	159.96
Kosi	18,515	4,345	29,556	7,911	11,041	59.63	3,566	82.07
Sagarmatha	11,328	1,164	19,945	3,501	8,617	76.07	2,337	200.77
Janakpur	12,179	1,317	20,695	2,665	8,516	69.92	1,348	102.35
Bagmati	28,937	8,556	46,147	13,860	17,210	59.47	5,304	61.99
Narayani	13,083	2,240	21,140	4,221	8,057	61.58	1,981	88.44
Gandaki	15,699	2,619	24,708	6,222	9,009	57.39	3,603	137.57
Lumbini	12,591	2,251	21,890	5,254	9,299	73.85	3,003	133.41
Dhaulagiri	4,605	585	7,017	1,199	2,412	52.38	614	104.96
Rapti	4,613	687	8,226	1,447	3,613	78.32	760	110.63
Karnali	800	15	1,704	103	904	113.00	88	586.67
Bheri	4,431	674	9,703	1,705	5,272	118.98	1,031	152.97
Seti	3,448	324	5,632	557	2,189	63.34	233	71.91
Mahakali	3,734	139	6,165	525	2,431	65.10	386	277.70
Total	144,331	27,266	242,467	55,276	98,136	67.99	28,010	102.73

Source: Educational Statistics of Nepal at a glance (1981-1985), Ministry of Education and Culture, Planning Division, Kathmandu, Nepal.

APPENDIX 15

ANDROGOGY*

Malcolm Knowles presented his Theory of Adult Learning, which he called androgogy, at the 1969 Williamsburg Conference. The word comes from the Greek "aner" or adult, and means the act and science of teaching adults. He differentiated the teaching of adults from teaching of children, pedagogy, with three concepts.

The self-concept in pedagogy is one of dependency; in androgogy it is one of self-direction and individualization. Learning needs for youth are subject-centered and the application of learning is not seen until a later date. For adults the learning needs are problem -centered, the program must be individualized and the application of program content must be immediate. The child's readiness to learn depends on his biological development and the social pressures affecting him while for the adult, readiness results from his social roles.

* Courtesy of Miss Usha Kiran Subba, staff member at the Soaltee Oberoi, who made a special trip to the Central Library to extract this excerpt from an encyclopedia. DGG

Appendix 16

Research Program
Approved Research Projects Under IAAS-II Project

RAMPUR CAMPUS

	Approved Project Title	Project Leader	Effected Bengining Date	Remarks
1.	Agronomic studies on rape seed (b. campestris var toria) sown at different dates, row spacing and seed rates.	M.K. Mishra	5 Oct. 85	Failed due to unknown soil factors
2.	Perforance evaluation of Nepalese and some quality protein maize varieties in the winter and rainy cropping seasons in Chitwan condition	U. S. Gupta	1 Oct. 85	Dropped because of seasonal factors
3.	Intercropping studies with maize at different planting patterns.	D.M. Yadav	June, 86	Report waiting
4.	Nitrogen use efficiency in rainfed wheat at different weed control measures and their residual effect on succeeding maize crop.	N.K. Chaudhary	Nov., 85	"
5.	Pre-rice performance of cow-pea varieties and their effects on rice.	J. Timsina	25 Apr. 86	Dropped
6.	Survey of flora of IAAS Rampur Chitwan, Nepal	D.R. Dangol	Oct., 85	Report waiting
7.	Initial evaluation for sterlity prone rice cultivators grown by Chitwan, Nepal.	S.B. Gurung	25 May 86	"
8.	Incentives to farmers under alternative tenurial arrangement.	H. G. Gurung	Nov. 85	"
9.	Statistical studies of some agricultural dates.	T. Mallik	Nov. 85	"
10.	Land transaction in Nepal.	B. Bhandari	Nov. 85	Completed

11.	An exploratory study on attitudes of men towards women's participation in economic activities in selected three district Kathmandu, Chitwan & Janakpur of Nepal.	U. Gurung	Nov. 85	Report waiting
12.	Evaluation of forthnightly training of extension agents under T and V system in Nepal.	M. Suvedi	Oct 85	Report waiting
13.	Life history and seasonal history of rice stem borers.	F.P. Neupane	Dec. 85	Completed 43
14.	Studies on major insect pests associated with cabbage cauliflower and radish.	R.B. Thapa	Oct. 85	Report waiting
15.	Screening of rice germplasm against bacterial blight (IAAS & NRIP colaborative).	T.B. Adhikari	Sept. 85	Completed
16.	Nitrogen fertilization practices for sequential cropping of wheat, corn & black gram under Chitwan conditions.	S.C. Sah	Apr. 86	Ongoing
17.	Effect of azolla application on low land rice.	J.R. Joshi	Apr. 86	Failed
18.	Screening for disease & heat tolerant tomato lines during winter and summer in Chitwan.	G. Upreti	Oct. 85	Report waiting
19.	Forcing in Pineapple.	D.R. Baral	Aug. 85	Ongoing
20.	Collection maintainance and evaluation of banana cultivars under Chitwan conditions.	D.D. Dhakal	Oct. 85	Report waiting
21.	Modified atmosphere storage of fruits and vegetables.	D.H. Gautam	Nov. 85	Completed, 43
22.	The effect of planting dates seeding rates and levels of nitrogen on growth yield and quality of fodder oat.	S.D. Sah	Oct. 85	Report waiting
23.	Leucaena-II feeding trial in goats.	K.R. Tiwari	Dec. 85	"

24.	Studies to improve keeping quality of yogurt without refrigeration.	N.P. Sah	Oct. 85	""
25.	Comparative performace of cross breeds of border leissester sheet with indegineous breeds.	H. Kharel	Oct. 86	Ongoing
26.	Gastro intestinal parasites of pigs and their control with panacur (Fenbendazole) at IAAS Rampur.	I.P. Dhakal	Oct. 85	Completed Jesthe, 43
27.	Effect of animals wastes on growth of fish.	D. K. Jha	Nov. 85	Report waiting
28.	Effect of cooling on growth and physiological parameters buffalo calves.	D. D. Nepali	Mar. 86	Report waiting
29.	Performance of day old chicks fed diets of varying levels of raw or heat-treated mustard oil cakes.	M. Sapkota	Nov. 85	Report waiting
30.	Comparision of virulence of *Xanthomonas campestris oryzae* isolates on rice cultivars.	T. B. Adhikari	Jan. 86	Report waiting
31.	Response of corn genotypes to row orientation in Rampur.	T. P. Nepal	May 86	Dropped
32.	Assessment of the needs of micro-nutrients for paddy grown in IAAS farm.	Tej B. K.C	Jul. 86	Report waiting
33.	Effect of NAA, GA and ethrel in sex expression on cucumber at Rampur.	J. Pant	Jul. 86	Report waiting
34.	Study of the effect of various chemicals and in the control of paddy seedling.	R. R. Pandey	Jul. 86	Report waiting

PARLIHAWA CAMPUS

1.	Comparision of wheat and millet in broiler's diet.	B. K. Shah	Dec. 85	Ongoing
2.	Effect of nitrogen and seed rate on forage yield of oat and barley.	S. S. Jha	Nov. 85	Ongoing
3.	Effect of nitrogen, phosphorus & potassium on growth and yield of onion (Allium cepal.) cv, Nasik Red.	G. M. Singh	Nov. 85	Ongoing
4.	The effect of castration on growth performance of kids.	S. K. Sah	Dec. 85	Ongoing

LAMJUNG CAMPUS

1.	Characteristics and information seeking behaviour of farmers of the South-east Lamjung district.	S. N. Tiwari	Dec. 85	Ongoing
2.	Adaptability and performance trial of Leucaena,Leucaena leucocephala(Lam.)de wit. in Lamjung conditions.	P. Dhital	Jun. 86	Ongoing
3.	Contribution of livestock in the income of farmers of Lamjung district.	R.R.Pokharel	Apr. 86	Ongoing
4.	Economic analysis of Ghaiya maize and ghaiya-maize mixed cropping grown at the same season in the mid-hills of Nepal.	R. Poudel	May 86	Completed Ashad. 43
5.	Factors affecting the technological change in agriculture	K.P. Gajurel	Apr. 86	Ongoing
6.	Preliminary survey of command diseases of farm animal in Lamjung.	R.B. Magrathi	Mar. 86	Ongoing
7.	Varietal performance of brinjal (Splagum melongega L.) during summer in Lamjung.	Gopal B. K.C	Mar. 86	Ongoing
8.	Varietal performance of upland paddy (Ghaiya) in Sundarbazar, Lamjung.	D.K.Bhattachan	May 86	Ongoing

Research Program

Outside funding

Research Project title	Project Leader	Sponsor	Effected beginning date	Date of completion	Remarks
Institutional practices and rural poor	GHS Adhikari	A/D/C/	Mar, 1985	Dec. 85	Complete
Impact of development efforts to Ag labor	B N Pokharel	A/D/C/	" "	" "	"
Marketing of major crops in Chitwan a case study of 6 village panchayat	G.P. Shivakoti	A/D/C/	" "	Jan. 87	"
Prospect of vegetable cultivation in Chitwan	R.R. Adhikari	USAID/N	1985	1989	on-going
Production and marketing of maize in Chitwan a case study of three village panchayats	P.M> Tulachan	CIMMYT	1981	1982	
Constraints to the adoption of improved technology in maize production in mid-hill and Tarai of Nepal	K.R. Tiwari	"	1982	1983	
Farm forestry development research	M. Sapkota	IDRC Canada			
Study on late blight of potato and tomato in Chitwan valley	S.M. Shrestha	USAID	1985	1988	on-going
A study on tree fodder in Chitwan	D.K. Baral	Winrock	4 months duration		Started
Studies on ethenobotany of Tharus of Chitwan district; A priliminary survey of medicinal plants	D.R. Dongol	"	"	"	"
A comparision of the carring capacity of IAAS fish ponds	D.K. Jha	"	"	"	"
An action research proposal on small scale broiler products program for rural woman in Chitwan	N.P. Joshi	"	"	"	"
Evaluation of pilot ext. program in Sha. Vill. panchayat, Chitwan	J.R. Joshi	"	"	"	"
Utilization of N/10 NaOH treated decoiled sall seed meal to replace crushed maize in the diet of growing pigs	D.B. Nepali	"	"	"	"
A study of improved stoves use in the hills of Nepal	M. Subedi	"	"	"	"
Survey of snails infestation in h low nds of IAAS livestock farms as related to liverfluke infestation in cattle buffalo, sheep and goat.	S.K. Sah	"	"	"	"
Problems and prospectives of livestock production in Chitwan	M. Sapkota	"	"	"	"

Appendix 18

ACADEMIC STAFF QUALIFICATION BY DEPARTMENT AT IAAS, RAMPUR, 1984 AND 1987

Department	Total*		Highest Degree									
			Ph.D.		M.A./M.S.		B.A./B.S.		JT/JTA		SLC	
	'84	'87	'84	'87	'84	'87	'84	'87	'84	'87	'84	'87
Ag. Botany	3	4	0	1	3	3	0	0	0	0	0	0
Ag. Economics	4	7	0	0	4	6	0	1	0	0	0	0
Ag. Statistics/Math	3	5	0	2	3	3	0	0	0	0	0	0
Agronomy	7	13	0	4	6	8	0	0	0	1	1	0
Animal Science	8	13	0	1	6	9	1	2	1	1	0	0
Horticulture	7	8	0	1	5	5	1	1	0	1	1	0
Humanities	5	–	0	–	4	–	1	–	0	–	0	–
Basic Science & Humanities	–	14	–	2	–	12	–	0	–	0	–	0
Entomology	–	3	–	1	–	2	–	0	–	0	–	0
Plant Pahtology	–	5	–	0	–	4	–	1	–	0	–	0
Plant Protection	8	–	3	–	5	–	0	–	0	–	0	–
Physics/Engineering	3	–	0	–	3	–	0	–	0	–	0	–
Soil Science & Ag. Engineering	–	11	–	1	–	6	–	4	–	0	–	0
Soils and Chemistry	7	–	1	–	6	–	0	–	0	–	0	–
Rural Sociology and Extension	4	7	1	1	3	6	0	0	0	0	0	0
TOTAL :	59	90	5	14	40	64	3	9	1	3	2	0

Sources: 1984 Data from Table 4, End of Tour Report: IAAS - HUCIA Project May/June 1984 and 1987 data from the Office of Assist. Dean.

* - Includes Permanent, Temporary and Contract.

Appendix 19

ACADENIC QUALIFICATIONS OF IAAS FACULTY AT BRANCH CAMPUS, MARCH 1987

Campus / Department	Total	Highest Degree					On Leave For		
		Ph.D.	M.A., M.S./ M.Sc.	B.A. B.E./ B.Sc.	D.Vm.	JT	Ph.D.	M.Sc.	Othe
LAMJUNG									
Horticulture	5	0	1	2	0	0	0	2	0
Farm Management	2	0	0	1	0	0	0	1	0
Agronomy	1	0	0	1	0	0	0	0	0
Animal Science	2	0	0	1	0	0	0	1	0
Extension	2	0	0	2	0	0	0	0	0
Sub-Total:	12	0	1	7	0	0	0	4	0
PAKLIHAWA									
Plant Science	6	0	2	2	0	0	1	1	0
Animal Science	7	(1)	1	3	0	0	1	1	0
Rural Development	7	0	1(2)	4	0	0	0	0	0
Basic Science	6	(1)	2(2)	0	0	0	1	0	0
Sub-Total:	26	(2)	6(1)	9	0	0	3	2	0
TOTAL :	38	(2)	7(1)	16	0	0	3	6	0

Appendix 20

ACADEMIC QUALIFICATIONS AT IAAS, BY DEPARTMENT, AT RAMPUR, MARCH 1987

Department	Total	Highest Degree				On Leave For		
		Ph.D.	M.A., M.S./ M.Sc.	B.A./ B.Sc.	B.Vm.	JT	Ph.D.	M.Sc.	Othe
Agronomy	13	3(1)*	4	0	0	1	3	0	1
Horticulture	8	1	5	1	0	1	0	0	0
Animal Science	13	1	7	0	1	1	1	1	1(MSc
Rural Sociology and Extension	7	1	4(1)	0	0	0	1	0	0
Plant Pathology	5	-	2(1)	1	0	0	1	0	0
Entomology	3	1 **	2	0	0	0	0	0	0
Ag. Botany	4	(1)	3	0	0	0	0	0	0
Ag. Statistics	5	2	1(1)	0	0	0	1	0	0
Ag. Economics	7	0	4**	1	0	0	2	0	0
Soil Science & Ag. Engineering	11	2	4	0	0	0	3		1(MSc
Basic Sciences & Humanities	14	(2)	5(7)						
TOTAL 1 3	90	10(4)	39(10)	7		1	3	12	

( )* Contract, should read, e.g. Three regular and one contract for a total of four.

** Currently on Exchange Scholar Program

*** One of these persons will leave in June to enter a Ph.D. program.

Appendix 21

NUMBER OF FACULTY CURRENTLY ON LEAVE FOR DEGREE STUDY FROM IAAS BY CAMPUS AND DEPARTMENT, MARCH 1987

Campus / Department	Number		
	Total	Ph.D.	Master of Science
BAMPUS			
Agronomy	3	3	0
Horticulture	0	0	0
Animal Science	2	1	1
Rural Sociology and Extension	1	1	0
Plant Pathology	1	1	0
Entomology	0	0	0
Ag. Botany	0	0	0
Ag. Statistics	1	1	0
Ag. Economics	2*	2	0
Soil Science and Ag. Engineering	3	3	0
Basic Sciences and Humanities	0	0	0
Sub-Total:	13	12	1
PAKLIHAWA			
Plant Sciences	2	1	1
Animal Sciences	2	1	1
Rural Development	0	0	0
Basic Science	1	1	0
Sub-Total:	5	3	2
LAMJUNG			
Horticulture	2	0	2
Animal Science	1	0	1
Farm Management	1	0	1
Sub-Total:	4	0	4
GRAND TOTAL :	22	15	7

* - Includes one person scheduled to leave in June for a Ph.D. program.

Appendix 22

CURRENT AND FUTURE DEGREE LEVELS OF IAAS FACULTY* BY CAMPUS AND DEPARTMENT BASED ON CURRENT APPROVED STUDY LEAVES

Campus / Department	Total	Ph. Ds.		M.Sc.		B.Sc.	
		Curx	Futxx	Curx	Futxx	Curx	Futxx
BAMPUR							
Agronomy	12	4	7	8	5	0	0
Horticulture	7	1	1	5	5	1	1
Animal Science	12	1	2	9	9	2	1
Rural Sociology and Extension	7	1	2	6	5	0	0
Plant Pathology	5	0	1	4	3	1	1
Entomology	3	1	1	2	2	0	0
Ag. Botany	4	1	1	3	3	0	0
Ag. Statistics	5	2	3	3	2	0	0
Ag. Economics	7	0	2	6	4	1	1
Soil Science and Ag. Engineering	11	1	4	6	3	4	4
Basic Science and Humanities	14	2	2	12	12	0	0
Sub-Total:	87	14	26	64	53	9	8
PAKLIHAWA							
Plant Science	6	0	1	3	3	3	2
Animal Sciences	7	1	2	2	2	4	3
Rural Development	7	0	0	3	3	4	4
Basic Science	6	1	2	5	4	0	0
Sub-Total:	26	2	5	13	12	11	9
LAMJUNG							
Horticulture	5	0	0	1	3	4	2
Animal Sciencea	2	0	0	0	1	2	1
Farm Management	2	0	0	0	1	2	1
Extension	2	0	0	0	1	2	1
Agronomy	1	0	0	0	0	1	1
Sub-Total:	12	0	0	1	6	11	6
GRAND TOTAL :	125	16	31	78	71	31	23

* - The JTs and JTAs have been omitted from this tally.
x - Cur = Current; xx - Fut = Future

Appendix 23

Seminars Conducted at IAAS Campus

December 1985 - February 1987

No.	Date	Topic	Presenter
1.	20/12/85	Agricultural Manpower Development of IAAS - II Project	Krishna R. Tiwari Coordinator, AMDP
2.	6/1/86	Toward Green Revolution Through Cowpea: Is it possible?	Jagadish Timsina, Lecturer, IAAS
3.	17/1/86	Genetic Architecture of Crop Plants: Its Cultivation	Dr. Laxmi P. Suvedi, Asst. Lecturer, IAAS
4.	31/1/86	USU/IAAS Project II	Dr. Wesley T. Haughan, Chief of Party, USU/ IAAS-II
5.	7/2/86	Rat Problems, Crop Losses and Management Strategy	Resham B. Thapa, Lecturer, IAAS
6.	9/2/86	Nutrition Garden	Jack Gershon, AVRDC
7.	28.2.86	Insect Pests in Cereal Crops	Dr. Fanindra P. Neupa Professor, IAAS
8.	12/3/86	Importance of Seed Pathology in the Field of Agriculture	Sundar M. Shrestha, Lecturer, IAAS
9.	15/3/86	Problems and Prospects of IAAS Livestock Farm, Rampur	Mohan Kharel, Farm Manager, IAAS
10.	19/3/86	A Largely Self-Sufficient Agricultural University in Nepal	Dr. Laxmi P. Suvedi, Asst. Lecturer, IAAS
11.	10/4/86	USU/IAAS-II Project: Faculty Training and Campus Planning	Dr. J. Clark Ballard, Acad. Adm. Advisor USU/IAAS-II Project
12.	16/4/86	Development of IAAS in Retrospects and Prospects	Dr. Bishnu Bhandari, Lecturer, IAAS
13.	29/4/86	Sharadanagar Community Health Diagnosis: Results and Experiences	MBBS Student Group, Institute of Medicine
14.	7/5/86	Measurement of Performance of Tillage Implements	Ashutosh Shukla, Lecturer, IAAS

15.	16/5/86	Acclimatization of Three Diverse Breeds of Sheep to Intense Summer Heat	Dr. Dewey E. Monty Veterinary Science
16.	30/5/86	Dairy Education and Research at the University of Alberta	Dr. P. Jelen, Prof. of Food Science
17.	15/7/86	Technology Transfer and Agricultural Development	Dr. Robert Stevens, Agricultural Economic
18.	1/8/86	Heat and Chemical Treatment on the Nutritive Value of Mustard Oil Meal	Dr. Nanda P. Joshi Lecturer, IAAS
19.	8/8/86	Experiences on Organic Farming and Alternative Agriculture in Nepal	Manohar C. Pareira
20.	3/9/86	Agricultural Research and Production Project	Dr. John De Boer, Chief of Party, ARRP
21.	24/9/86	IAAS Faculty and Student Bench-mark Study	Murari P. Suvedi Lecturer, IAAS
22.	25/9/86	Training Program of USU/IAAS-II Project	Mav Raj K.C., Program/Training Officer, USU/IAAS
23.	25/9/86	Managing Livestock Farm	Mohan Kharel, Farm Manager, IAAS
24.	24/9/86	Veterinary Science	Dr. Dewey E. Monty Vet. Sci. Advisory
25.	25/9/85	Animal Science	Dr. Robert C. Thomp Ani. Sci. Advisory
26.	25/9/86	Textbooks and Lab Manua's	Dr. Tej Bahadur K.C. Prof., Soil Science
27.	25/9/86	Extension Program	Murari P. Suvedi and Dadri B.S. Dangol
28.	26/9/86	New Frontiers in Agriculture Research	Dr. Doyle V. Matthews Dean, College of Agriculture, USU
29.	1/10/86	Autonomy for IAAS	Dr. Bishnu Bahandari Lecturer, IAAS
30.	14/11/86	Orchard Plan and Horticulture at IAAS	Dr. Sarita Ram, Professor, G.B. Pant University of A & T

31.	5/12/86	Permaculture	William Mollison
32.	14/12/86	Study of the IAAS B. Sc. Agriculture Iradicates	Dr. Ross E. Robson, Assoc. Prof., USU
33.	22/12/86	Women Extension Program	Mrs. Holeman
34.	23/1/87	Dimension of Rural Poverty	Ganga D. Lamsal WID Consultant, USU
35.	5/2/87	Use of Pesticides	William Klarman Consultant to Pesticide Use, ARP

Source: Semi-Annual Report, September 1, 1986 - February 28, 1987, USAID/USU-IAAS-II Project. Report No 12, pp. 10-11

BRIEF NOTES ON BUILDING STRONG AGRICULTURAL COLLEGES

AID and others in the international donor community have demonstrated much interest and made significant committments to help in agricultural development in Nepal. AID and the World Bank are currently engaged in a project with IAAS, Tribhuvan University "to improve the capability of the Institute of Agriculture and Animal Science to meet Nepal's need for trained agricultural and animal science manpower."

These notes are intended to add to the comments in the body of the report related to how AID can help IAAS achieve its purpose of preparing agricultural workers who are "willing and able" to help increase production and productivity in the agricultural sector.

The development of strong agricultural colleges is not only a long-time task, it is a never-ending task. At the heart of institutional development is the faculty. The faculty provide limits (upper and lower) to that which may be achieved when physical and financial resources are available. An outstanding, well equipped laboratory without a teacher is much worse, by far, than an excellent teacher without the laboratory. The teacher can still teach, perhaps not as effectively as with the laboratory. Both are needed to help achieve the goals of excellence.

After more than ten years of assistance by AID to the GON for the development of IAAS as the only instituion to prepare middle and higher level manpower in agriculture, the questions have been asked: What is needed for the future? and WHAT SHOULD BE AID's PRIORITY FOR ASSISTING IAAS IN THE FUTURE?

There has been much experience with the development of agricultural education institutions around the world. A recent publication from BIFAD (Board for International Food and Agricultural Development) provides some points which should be considered in the strategy for strengthening IAAS. The following points have been adapted from that publication (Building Colleges of Agriculture in Africa: U. S. University Experiences and Implications for Future Projects, Occasional Paper No. 7, May 1986):

1. A higher priority (by AID) should be given to investment in scientists and applied researchers than to diploma or lower level agriculturalists. (This is not to say that agricultural colleges like IAAS should not be involved with JTA/JT training but to indicate that the investment in preparing for D. Sc. and graduate degrees should have the higher priority for AID funds.)

2. U.S. training for graduate degrees should be limited to Ph.D's. M.Sc's should be trained in India, the Philippines or other third countries. Dissertation research should be conducted in Nepal rather than in the U.S.

3. Triangular or multi-party relationships should be enhanced as part of the strategy to build a strong agricultural college in Nepal. (e.g. Nepal-India-US: Nepal-India-Philippines: Nepal-India-US-Philippines).

4. Linkage with research and extension institutions must be carefully designed so as to fit the current conditions and proposed changes for research and extension in Nepal by the GON.

5. Linkages with extension services are important as a part of the education of the BSc candidates. They are also important for keeping the faculty in touch with the current farm level technology and with the nature of the job requirements for extension workers at the several levels.

The further development of IAAS faculty through advanced degree training is a must for the future strength of IAAS. If other donor funds were available to support the MSc degrees, the first priority for AID could be the support of PhD programs. This support should include arrangements for dissertation research to be conducted in Nepal, and for the major professor to travel to Nepal for the purpose of supervision of the research (preferably for approximately two weeks at the beginning of the research). Note: See AID funded project with University of Florida at Dschang, Cameroon for an example of this principle already in action.

The areas of study for the advanced degree could be initially identified with one or more of the following six fields which appear to be high in priority for higher level agricultural manpower in Nepal in the future (alphabetically listed; no priority intended):

Agricultural Economics	Agronomy
Agricultural Engineering	Animal Science
Agricultural Extension	Horticulture

The further development of the faculty at IAAS will enhance their capability for teaching B.Sc. Ag. and B.Sc. Ani. Sc. students. It will also increase their capability to conduct research. Freeman has noted that "scientists of five to eight disciplines and at least two in each (discipline) is an essential minimum critical mass for any serious research effort." (Freeman, p.33).

The present research capacity at IAAS is greater than generally acknowledged by officials in the Ministry of Agriculture. Currently there are thirteen Ph.D.'s on the campus at Rampur. When the persons now on study leave return, there will be at least 26 faculty with Ph.D.'s.

One of the critically important points for action now is: how to develop the appropriate linkages, both institutional and personal, between the MOA and IAAS so as to maximize the contributions of the "critical mass" of IAAS agricultural scientists to the solution of agricultural and animal science problems in Nepal. The research role must be enhanced just as the teaching role must be strengthened.

The quick answer often given is either explicitly or implicitly guided by the "Land-Grant model." Such a response denies both fundamental basis for the evolution of the Land-Grant universities in the United States with their roles in teaching, research and extension. It also denies the reality of existing research and extension organizations and institutions in Nepal.

The U.S. Land Grant model evolved with broad-based farmer and state support; in a nation with a democratic form of government at a time when the rural/farm representation in government was a strong majority; from a point in time when the U.S.D.A. did not exist and state departments of agriculture were non- existent or insignificant; when there were no organized extension services for farmers; and there were no research centers for agriculture. In other words, the present-day Land Grant type institutions "grew up" in a new nation, with the pressure coming from the "bottom up" and with some state legislatures already having established state financial support for such colleges.

Today in Nepal there are significant efforts being made to reorganize the agricultural research operations. An attempt is being made to redesign the present arrangements into a national agricultural research system. It is within this current contect in Nepal that the organizational and personal linkages must evolve in such a way that IAAS is in the system, not sitting on the sideline.

Tribhuvan University has established that both teaching and research roles should be considered when determing the "load" for faculty members. A small amount of Rupees has been included in the budget from TU to IAAS. One of the requirements is a larger budget, supported by both TU and MOA, so that IAAS is firmly linked into the system which determines farmers' needs, selects research priorities and targets, monitors the effectiveness of the research and allocates resources to conduct the research.

IAAS can and must make a significant contribution to the development of trained manpower in Nepal for research and extension. Upgrading the level and the quality of education at IAAS should receive a high priority. The preparation of additional faculty at the M.Sc. and Ph.D. levels is part of is needed. Also needed is an increased level of budget support for maintenance and other recurring costs, coupled with increase budget for research. Expecting those increases from GON in the near future is not realistic. Meanwhile, continued investment by donors like AID, World Bank, Winrock and others is essential. It is investment in both the present and the future of Nepal. In

brief, AID should continue to invest in degree programs for IAAS faculty and should look for ways to strengthen the linkages of IAAS with NOA. (Collaborative efforts among donor agencies are suggested as one strategy).

Appendix 25

Lists of equipments for current Fiscal Year 1986/1987

No.	Description	Quantity
1.	Vehicles	
	(a) Bus - (seat capacity 61)	One unit
	(b) Car	One unit
2.	Farm Equipments	
	(a) Farm tractor with accessories	Two units
	(b) Power tiller	One unit
	(c) Tractor-mounted lawn mower	One unit
	(d) Manual lawn mower	Three units
	(e) Plate farm balance (AVERY)	One unit
	(f) Diesel operated lawn mower	One unit
	(g) Tractor-drawn water tank (5000 lt.)	One unit
3.	Lab. equipments and materials	
	(a) Analytical balance	Six units
	(b) Triple heavy balance	Six units
	(c) Wiley mills	Two units
	(d) Water stills	Six units
	(e) Hot plates	Six units
	(f) Microscope	
	(i) Student (teaching microscope)	Twenty-four units
	(ii) Advanced microscope	Six units
	(g) Laboratory line explosinon proof refregerator	Four units
	(h) Hot air oven	Two units
	(i) (i) Kerosene incubator	Two units
	(ii) Electric incubator	One units
	(j) Muffle furnace	One unit
	(k) Soil testing kits with chemicals	Six units
	(l) Kjeldahl unit	
	(i) Kjaldahl distiliting unit	Two units
	(ii) Kjaldahl digestion unit	Two units
	(m) Gas plant	One unit
	(n) Winning fan	Two units
4.	Wireless set	Two units

THE FUTURE IAAS ROLE

Some Comments

IAAS has a prominent role in training agricultural manpower for Nepal now and in the future. It is, however, at an extremely crucial juncture in its evolution. Substantial significance must be attached to decisions that will be made over the next few years to come. The logical growth towards M. Sc. programs in a limited number of disciplines most crucial to Agricultural development in Nepal has already started. The dimensions and rate of that growth need careful and judicious consideration in terms of realistic calculations of costs and numbers of M. Sc. graduates needed.

The corresponding relevance of IAAS striving for a Royal Charter has emerged and will take more positive shape over the next decade. The Institute faculty will spend much energy defining academic excellence, research relevance and collaborative linkages. Beyond that the faculty must then demonstrate its ability to achieve and sustain the goals defined.

What should be the nature of Nepal's primary agricultural institution? Its impetus has flowed partially out of Nepal's relatively short experience with an agriculture educational institution. But it has also been influenced by the Western model of the agricultural university and by regional institutions that arose out of similar influences. While the basic concepts and underlying philosophy of those models may be relevant initially, does Nepal's scale, resource base and needs require the same kind of mature institution currently existing in the West or in India, for example ?

There seems little question about the need for growing technical excellence based on relevant research experience. But is research capability the only need that Nepal will have in the agriculture sector over the next 10-20 years? If not, then IAAS should not prepare along a narrow, technical path only. There should be a growth in the number of individuals who can bridge between technical agriculture and the policies that guide direction in agricultural development and relate that direction to what is happening in other sectors, public and private. A major element in Nepal's policies for the future must certainly be human resource development. IAAS must take some leadership responsibility in the agricultural sector.

The MOA is a major employer of agricultural manpower and currently has a cadre of persons. Various projects are on line to not only provide preservice, but also inservice training for this growing cadre. What can and should be the role of IAAS in the preparation of persons who can be the trainers, the multipliers, that keep this technical cadre updated both in

numbers as well as knowledge and skills? The early agricultural colleges of the United States evolved to meet both the need to develop a system for extending technical knowledge to the rural areas as well as to extend that knowledge. The States of the United States did not have a cadre of personnel under a national system who could provide a variety of services to farmers. Nepal has such a system, but also has a need to keep the personnel in that systems updated in technical knowledge and skills and in the skills of how to best disseminate, or transfer, or extend those technical skills to farmers.

The IAAS faculty represent a critical mass of knowledge and expertise. Many of the faculty members are products of agricultural institutions in the United States. An increasing number of them have emerged from regional institutions where the organizational arrangements in agriculture are similar to Nepal, but on a substantially different scale and resource base. The IAAS faculty will be among the important doers and thinkers and shapers of Nepal's premier agricultural institution. Their challenge is not to pattern IAAS after the best US or Indian institutions, but rather to pioneer in shaping an institution which will integrate technology, policy, research and training trainers as it prepares people to perform the several functions required by Nepal's unique agriculture.