A REVIEW OF CURRENT PROGRESS AND SUGGESTIONS FOR FURTHER DEVELOPMENT OF THE INSTITUTE OF AGRICULTURE AND ANIMAL SCIENCE, RAMPUR, NEPAL

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by

Andrew J. Sofranko, Ph.D.
Professor of Rural Sociology

and

Russell T. Odell, Ph.D.
Professor of Agronomy

both from

University of Illinois

MUCIA/USAID/Nepal

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INTRODUCTION

The Institute of Agriculture and Animal Science (IAAS) is a fledgling institution struggling to fulfill its intended role as one of the main producers of trained agricultural manpower in Nepal. It is now almost a decade since MUCIA/USAID have been involved in the development of IAAS, a relatively short period in the life of an academic institution. Still, during this period considerable changes and progress have occurred, in the Institute's mission, its size and complement of facilities, quality of staff, and the level and quality of training provided students. Even though there have been dramatic changes and advances since the Institute's inception, there are, figuratively speaking, miles to go before it becomes a recognized quality institution.

It is to be expected that some will view the progress that has been made as falling short of expectations, as it probably has. The expectations with respect to how quickly an institution can be created were perhaps unrealistic, given the array of things that had to be initiated. Many of the present dissatisfactions get tempered rather quickly, however, with a recounting of the advances that have been made in the last ten years.

IAAS is neither a mature nor a beginning institution. Much of what has been instituted is rather fragile. It is struggling with many of the same issues that face more established institutions, as well as those confronting new institutions trying to establish some degree of credibility and prominence. A foundation has been built, even though it continues to shift and adjust to the exigencies of staff training, external support, and redefinitions of mission. But while minor shifts

and changes continue, there is a clearer vision of a direction of IAAS than just a few years ago. Therefore, it is appropriate at this point to begin planning for the next decade, when programs and administrative procedures should be improved, when existing gaps in facilities and programs will have to be filled in, when improvements will have to be made in what is already in place, and when adjustments will have to be made in light of possible forthcoming educational changes and projected national manpower needs.

IAAS is at a critical juncture in its development. Much of the projected growth has taken place, graduates are being placed, most of the facilities are in-place, the faculty is relatively well trained, and many of the rules and procedures that guide the institution exist, at least in rudimentary form. Along with this degree of institutional development it is to be expected that additional demands will be placed on IAAS by the government, employers, and students. These new demands are going to be in the areas of improvements in quality. Already some of these demands are being heard, and it is to these which the IAAS staff will have to respond in the next decade.

The terms of reference for this report are presented in a statement of the requirements for long-range campus planning developed by Professor James Miller in October, 1983. This statement (Figure 1), details the types of information that will be needed to formulate a campus master plan for the next decade and beyond. The data requirements of a master plan consist of both empirical information on what exists, or is projected, as well as more subjective information on expectations and aspirations of the Institute and staff. As much as possible, this report attempts to address these dual requirements.

There is also a secondary purpose to be served by this report, and that is to respond to questions raised about the operation of selected aspects of the Institute. Questions have been raised, by MUCIA, AID, and the staff of the Institute themselves, about the teaching, research, and outreach efforts, and particularly about the effectiveness of the changes that have occurred in these areas over the past few years. Since one of the authors served on an evaluation team two years ago, such comparisons were expected, and inevitable. In every respect, there was complete cooperation by AID, MUCIA, and the Dean and staff of IAAS. The candidness and openness of the staff of IAAS over the years to the queries of evaluators is a testimony to their desire for a better institution.

This report is based on information from numerous documents made available to the authors, various in-country reports dealing with conditions in Nepal, and from seven man-weeks of interviews, data-collection and observation at IAAS. This study is restricted almost entirely to the Rampur campus and thus deals only tangentially with the two branch campuses at Paklihawa and Lamjung.

The authors hope the material presented here will be, first and foremost, useful in developing a campus master plan, but also provide insight into various aspects of the Institute's teaching, research and outreach programs. There is the additional hope that it will point in the direction of what is going to be needed in the future in order to secure IAAS's role as a premier agricultural institution meeting the needs for trained manpower in Nepal.

EXECUTIVE SUMMARY

The Institute of Agriculture and Animal Science (IAAS) is a relatively new institution in which significant developments have occurred, but in which many improvements still remain to be made. The focus of this report is to assess current programs and facilities and then indicate priority needs for program improvements and facilities during the next 5 to 10 years.

To date, major emphasis has been placed on providing physical facilities and training staff members. We believe they should receive relatively less emphasis during the next phase of developing a better-balanced IAAS.

During the next decade, major emphasis should be given to establishing better administrative arrangements within IAAS and to developing improved programs in teaching, applied research, and effective outreach. A faculty evaluation system should be implemented and then faculty members should be promoted on the basis of performance and productivity, rather than according to the current system. The above improvements will require work and dedication by the IAAS staff, rather than a large infusion of funds. Staff members should place more emphasis on developing IAAS and less on their personal status. Development of the Experimental Farm is long overdue; it must be given high priority immediately to provide relevance to the teaching, research, and outreach programs.

During the next phase of development, continuing attention needs to be given to the following items, which are listed according to our perception of their priority.

1. Postgraduate training is suggested for 17 staff members -- 8 for the Masters degree and 9 for the Doctorate degree. First priority should be given to training staff members in Agricultural Engineering and Animal Science. After this training is completed, approximately one-half of the staff at Rampur will have Doctorate degrees.
2. Further technical assistance is suggested with long-term advisors in Animal Science, Academic Administration, Agricultural Engineering, and Experimental Farm Operation (total of 108 person-months). In addition, a total of 40 person-months of periodic short-term consultant services is suggested.
3. During Phase II, a hostel for 80 female students and another 100 male students should be constructed.
4. There is a serious shortage of staff offices and research laboratories. A total of 20 staff offices (150 square feet each) and 4 research laboratories (each contining about 750 square feet) should be constructed, possibly within one building.
5. Upgrading some of the staff housing would be desirable. Better maintenance (including cleanliness of classrooms and laboratories) of all buildings should be practiced.

HISTORICAL BACKGROUND

IAAS grew out of the Agriculture College in the Ministry of Agriculture, Kathmandu. In 1971, the National Education System Plan transferred the College to Tribhuvan University, thus creating the Institute of Agriculture and Animal Science. In the same year, the first Dean of IAAS was appointed. In 1973, the Institute was moved to Rampur in the Chitwan District to the site of an earlier Panchayat

Training Center. In 1975, MUCIA was awarded a contract to assist in the development of IAAS, a role it has undertaken to the present time. In 1976, a branch campus of IAAS was started at Lamjung to train JTA's, and in 1978 another branch campus was started at Paklihawa, also for the purpose of training JTA's, as well as I.Sc. Ag. (JT's) certificate students. The first group of B.Sc. graduates was formally admitted in 1977 and graduated in 1980. Further details on the history of IAAS are provided in the APROSC report (1984) and the WUPI report (1983).

Over the life of the Institute the curriculum has evolved from an emphasis on vocational agriculture and pre-professional training to the present 1984/85 five-year B.Sc. curriculum proposed by the IAAS Faculty Board in February 1984. The IAAS has evolved into an institution with teaching, research, and extension functions from one whose mission was initially teaching and training. The specifics of this evolution follow in the next section.

Purpose of the Institute

During the period of MUCIA involvement in IAAS, the purpose of the Institute has shifted considerably. In 1976, HMG envisioned in Rampur an institution which would provide practical agricultural training for teachers of vocational agriculture education in the secondary school system, as well as provide practical/technical training in one- and two-year certificate courses (JTA's and JT's) designed for employment in the Ministry of Agriculture as field-level staff. The formal part of training at IAAS was thus to train vo-ag teachers and persons for extension-level positions. Beyond this formal training, however, it was also envisioned that there would be training for farmers through short-courses and non-formal educational programs for out-of-school youth and

adults. Until the latter part of the 1970s, formal training centered primarily on students at the JT and JTA levels. Training of vocational education teachers was phased out between 1977-79, at about the time a B.Sc. (ag.) curriculum was being introduced. There is no evidence that formal farmer training or the training of out-of-school youth and adults was ever actually implemented by IAAS, although periodic demonstrations and training sessions are held for local farmers.

In an intervening period, roughly 1977-83, IAAS's focus shifted toward training of JT's and JTA's, but primarily toward training professional agriculturalists at the B.Sc. level. During this same period, more emphasis was being placed on incorporating research and extension/outreach functions into the Institute's mission. This shift was facilitated by the availability in 1982 of MUCIA/AID research funds and by the encouragement given by technical advisors to farm-oriented research and extension outreach.

At this time, 1984, the Institute is once again on the verge of a minor shift in focus with the inauguration of a five-year B.Sc. program following the school leaver's certificate (SLC). In the 1984/85 school year, IAAS will have JTA programs at its branch campuses, and at Rampur the first class of a 5-year B.Sc. program, a two-year intermediate science (I.Sc.) program, a JT program, and two classes in the three-year B.Sc. program. Although a decision has been made to terminate the training of JT's, they continue to be admitted, and will be for the next two years. Students with intermediate science training (I.Sc.), or an intermediate science in agriculture certificate (I.Sc.Ag.), will be permitted to enter year three of the five-year B.Sc. if they meet the entrance requirements. JTA training will shift entirely to the branch campuses. One additional curriculum change is expected in 1985/86 with

the proposed enrollment of students into a specific animal science curriculum. Whether this will materialize depends on additional external support beyond the present contract period. Also, faculty discuss the possibility of starting an M.Sc. program; but that is undesirable at the present time, given the current needs of the Institute for improving rather than expanding educational offerings.

The present mission of IAAS is to prepare students in the basic and applied agricultural sciences. The shifts in purpose of the Institute that have occurred over the past decade have been described as creating a series of "discontinuities," and that they have. Barring any unforeseen events, the course of the Institute has been more or less set for at least the next few years. The changes yet to come are not going to be as visible as those in the past. What will and must take place over the next decade are moderate expansion and improvement of facilities and substantial improvements in teaching, research, and extension. The emphasis should be more on quality and institutionalization of what is in place rather than on growth.

As a footnote to the above, it is worth noting that a recent report by the Royal Commission on Higher Education (RCHE), recommended that IAAS, and three other institutes, be granted autonomy. The report has been submitted to the King and the Ministry of Education, but there has been no further word on its acceptance or a tentative date for implementation. Several faculty members are convinced that implementation could be less than two years off. If autonomy were given, it would mean many more options regarding the adoption of a semester system, setting the school calendar, establishing the number of faculty members, shifting to internal examinations, etc. So once again, IAAS may be faced with a

series of very important decisions which could have a profound impact on the curriculum and operation of the institution.

MANPOWER NEEDS

IAAS as one of the major agricultural institutions in Nepal, is principally responsible for providing the trained manpower needs of the country. Estimates of manpower needs at present, and for the future, are varied and inconsistent. Also, estimates of the proportion of IAAS graduates (237, total) finding employment fluctuate widely, although there is a widely-held view that many are unemployed. The frequently-cited figures on vacancies at different government employment levels (26 percent) are taken as evidence that manpower needs are presently not being met, or that quality of graduates is poor and vacancies will remain until the quality of training improves. There is also the possibility that many of the vacancies consist of positions which have been authorized but not funded. In the absence of good data, it is doubtful whether one can get a grasp on the exact nature of the manpower situation.

There are two sets of data reflecting current anticipated manpower needs. One report[1/] shows a surplus situation for those with higher-level training (Ph.D., M.Sc., B.Sc.) by 1985, but a deficit of 1,035/year at the middle level (JT's, JTA's). By 1990, however, according to this report, deficits are anticipated at both levels, 304/year at the higher levels and 1,073/year at the middle level. Another study[1/] presents much higher estimates of needs for the 1985-1990 period. At the higher level there is an estimated annual need for 350/year trained agriculturalists, while the need at the middle level is estimated to be

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[1/] *The reports referred to here indicated they were not to be cited.*

1,140/year. An analysis of this latter study suggests that more realistic estimates would be roughly half of what was estimated. In that case, the need for higher level training would be about 175/year.

Amidst the confusion of widely varying estimates, two generalizations are warranted. First, needs are much greater at the middle level than at the higher level, and second, at the higher levels needs are likely to remain modest (in the 150-250/year range for at least the next 7-8 years). The implication for the Rampur campus is that there appears to be no pressing need to expand enrollment beyond present levels, except perhaps among specifically targeted groups - students from the hills areas and females. Even if enrollments remain stable, however, expansion of facilities will have to occur to accommodate current students as well as the additional numbers, if any, created by selective recruitment.

Preliminary Assessment of Graduate Employment

Some light might be shed on the issues of educational quality and manpower needs by examining recently-collected data from a survey conducted by B. N. Pokharel of IAAS. The study was designed to collect information on employment of recent B.Sc. graduates from IAAS, as well as information from their supervisors and subordinates regarding on-the-job performance. Much of the data is untabulated and in preliminary form, but it still provides some tentative assessments of how well graduates have fared. As far as can be determined, 178 graduates (of 237) were contacted, but responses were obtained from only 48 who were in employment where they could be rated by both supervisors and subordinates. The remainder were in the process of changing jobs, or not in the type of employment where the research design applied. It appears that all 178 are employed

in some capacity, but a majority are not in the type of employment they wanted. The major secondary source of employment is as teachers in secondary schools. The following highlights are based on the 48 respondents, with slight variations in numbers due to non-response on certain questions.

1. Less than half (43 percent) are employed in their "field of interest".
2. About a third (32 percent) are in permanent employment.
3. A majority (65 percent) felt they were "adequately trained" at IAAS to perform the job they are presently in. Of those who felt they were not, 63 percent reported their training was weak its in "practical" aspects; 37 percent felt the training was weak in theory as well as practicals; none felt they were weak in theory only.
4. 87 percent felt "confident performing (their) job".
5. Supervisors rated the graduates' job performance as follows: Excellent, 32 percent; Good, 65 percent; Fair, 3 percent; none said "Poor".

Other findings should be forthcoming from this study, which was funded by MUCIA/AID. Acknowledging the necessary caveats about sample size and research design, some inferences are possible. Clearly, most students are employed, although not getting employment in their field of training, and even among those who are, many are not in their "preferred field". Whether this reflects on the job market, their ability, or quality of training one doesn't know. Second, supervisors seem to be somewhat satisfied with the job performance of the graduates. Relatively few gave either high or low marks to the graduates' performance. If one assumes that the best students are getting employment there appears to be some credibility to suggestions that quality of instruction should be

upgraded. Employment may also be influenced by various ties which each graduate might have, as well as by their grades.

Recruitment Targets

A majority of the population in Nepal is in the hills areas and practicing a different type of agriculture from that found in the Terai. For this reason and the reason that the more remote areas have relatively few trained agriculturalists, a decision has been made to recruit students aggressively from the hills areas. The present residential disposition of B.Sc. (Ag.) students does show (Table 1) a substantial portion coming from the zone in which IAAS is located (32 percent) and adjacent zones, Janakpur (21 percent), and Gandaki (23 percent). Given the way zones are demarcated, it is possible that some portion of the students in the latter two zones are from hills areas, but it is believed few are. In most of the other zones that are more clearly hills areas (Karnali, Seti, Mahakali) there is a total of 6 students among the new 1983/84 enrollees (cf. Figure 2). It is envisioned by USAID that eventually there will be some scholarships for students from the remote areas. It is not likely, however, that this will push enrollments up by much, but simply change the composition of the IAAS student body.

A further effort will be made to recruit female students. At present, there are two female faculty members and 16 female students, 12 of whom are in the I.Sc. (Science) program and 4 are studying for the B.Sc. (Ag.). This alone is a dramatic change from two years ago. Over the next several years it is expected that scholarships will be offered to 15 female students/year to bring up the female enrollment. The Dean of IAAS anticipates attracting approximately 80 female students in the next five years. This is certainly a factor which has to be taken into

account when designing facilities. At present, there is no dormitory space for females, except for the two MUCIA trailers, which accommodate only four students. The remainder live in the surrounding area. Nor are there other facilities for females, such as recreational. One of the immediate needs is for the construction of a dormitory capable of housing 80-100 female students. Its location relative to the existing male dormitories will also have to be determined.

Long-Term Employment Trends

For all practical purposes, the GON is the only current employer of trained agriculturalists. Some are hired on externally-funded projects and some in corporations, which are also governmental. There is only one reported instance of a student being offered employment in the private sector, as a farm manager. Any future manpower study should attempt to project employment growth, if any, in the private sector over the next decade or so.

STUDENTS

There is no readily agreed-on number of students attending IAAS or living in the dormitories. The attrition rate is not known. Poor record keeping and irregular attendance checks are part of the problem, but peculiarities of the exam system make some slippage in numbers inevitable. Present enrollment is estimated to be 611 (Table 2), depending upon one's assumptions about attrition or the number of past students who may still be on campus studying for make-up exams. In practice, few students get formally dropped, and as a result the size of the student body fluctuates. Records are kept on the number of new students taken in each year, but not on the carry-over from year to year.

In light of these constraints, it is impossible to make good estimates of what future enrollment will be, or even what additional facilities will be needed. There is some upper limit to the number of students that can be accommodated in the campus hostels or in Rampur village, to the number of students that can fit into the existing classrooms, and to the willingness of teachers to teach additional sections of courses if enrollments should expand. What is required is an effort to set some reasonable enrollment targets, stick to them, and not try to find out what the upper limits are. It is also important that detailed records be kept and attendance be monitored so that student progress can be gauged. If this is done, there will be a better accounting of who is and is not in school.

The Dean states the present capacity of IAAS is about 500 students, but over the next five years the enrollment will be above 600. He also feels existing hostel space accommodates about 400 students, with the rest either crowding into existing hostel space or living in the area. Some students commute daily from their homes. That's fine, and should be permitted; but those students who would prefer on-campus housing but are forced to find housing elsewhere should be accommodated. If the Dean's figures are accurate, it is quite likely that the Institute has already exceeded its student housing capacity. In the 1984-85 school year there will probably be 150 or so students who will have to be forced into existing space, if one assumes the student body will be 709, and about half of the excess over 400 will reside off-campus. There will also be efforts in the next few years to attract female students, with an enrollment target of 80-100 by the end of the decade. At present, there is no actual housing for female students, except in MUCIA trailers,

and so an additional hostel housing at least 80-100 female students will be required.

At present, there are only educated guesses as to what the enrollment will be over the next several years. Going beyond such guesses is risky because so many assumptions have to be made, but it is felt there should be some attempt to set in writing some numbers that could guide a planning effort. Table 2 attempts to do just that by combining the Institute's targets for each class, by year, with some expectations based on trends and likely occurrences. The table projects the student enrollment to the end of the decade. The figures are based on the assumptions that: (1) JT training will be cut off after 1985/86 - there are good indications it will; (2) the three-year B.Sc. will be phased out in the next two years and the five-year B.Sc. will be started in 1984/85; (3) the target enrollments projected, by type of curriculum, are adhered to; and (4) the attrition rates are approximately 10 percent.

Given these assumptions, student enrollments over the next 7-8 years will range between 576 and 709; but, for most of the years, enrollments will be between 600 and 650 (Table 2). After 1984/85, when 709 students are expected, enrollments will decline slightly and then stablize. Across the next 8 years (Table 2), the average production of B.Sc. graduates will be 87 if the estimates in the table are reasonably accurate. That appears to be a reasonable number of graduates, given the manpower needs for higher-level trained persons. Once again, however, numbers are not as important as the type and quality of training the graduates have received.

It is recommended that IAAS develop a plan such as that developed by the authors of this report and illustrated in Table 2. The target enrollments are those of IAAS, but the projected flow-through was

provided by the authors. The table provides a guide to what the student numbers will be if the targets are adhered to and if certain other conditions hold. IAAS should begin this type of effort at understanding what the future will look like. If attrition levels exceed those assumed, enrollment adjustments can be made. With such a plan it will be possible to know how many students there are, how many should have graduated, and what class sizes ought to be.

STAFF

Academic Staff

The current academic staff includes 59 persons at Rampur (Table 3). In addition, there are 8 faculty members at the Lamjung Branch Campus and 19 faculty at the Paklihawa Branch Campus.

At IAAS, Rampur, the faculty includes 5 persons with Ph.D. degrees, 48 with Master's degrees, 3 with Bachelor's degrees, and 3 with lower qualifications (Table 4). Staff qualifications are lower at the two branch campuses than at Rampur.

Training Needs

Significant improvement in staff qualifications will occur when current trainees return to IAAS (Tables 5 and 6). A preponderance of the current trainees will have Ph.D. degrees.

However, further staff development is necessary, both to fill existing gaps, as in Agricultural Engineering, and to strengthen most departments. After consultations with several people, we suggest that the needs for graduate training of academic staff during Phase II, <u>in order of priority</u>, are as follows:

Department	Field of Training	Level of Training and Number	
		M.Sc.	Ph.D.
Agricultural Engineering	Irrigation and water management	1	
Agricultural Engineering	Power, machinery, grain storage	1	
Animal Science	Animal breeding		1
Animal Science	Veterinary medicine		1(D.V.M.
Agricultural Economics	Agricultural marketing		1
Soils	Soil conservation		1
Soils	Soil physics and water use		1
Rural Sociology/Extension Education	Extension	1	
Agronomy	Agro-forestry	1	
Agronomy	Forage crops		1
Humanities and Basic Science	Home science	1	
Horticulture	Pomology		1
Animal Science	Environmental physiology		1
Animal Science	Fisheries	1	
Unallocated		2	1
Total		8	9

After the trainees proposed for Phase II return to IAAS, the number of academic staff who hold Ph.D. degrees will have increased six-fold (from 5 during 1983-84 to 31 in 1991-92), and more than one-half of the academic staff will have Ph.D. degrees by 1992 (Table 6). The number of academic staff at IAAS, Rampur, should remain near 60 persons (Table 6), since the projected student enrollment is expected to be 600-650 through 1990-91 (Table 2).

Eight members of the administrative staff left in June 1984 for short-term training at the University of the Philippines, Los Banos. This type of short-term training is needed to upgrade the performance of administrative and support staff in library management, student records, personnel administration, maintenance and property managment, etc. In-service training is also needed for other support staff, such as laboratory assistants, secretaries, drivers and mechanics, maintenance personnel, etc.

There is an urgent need for more training in the English language, for both students and staff members. English training for staff members should include preparation for passing the TOEFL examination before they are considered for graduate study abroad. There is a Listening Center on campus, but it should be located in the library where it would be more readily available.

Possible Role for Peace Corps Volunteers

Well-qualified Peace Corps Volunteers might be helpful in teaching certain subjects, such as English or basic sciences, or as helpers in action programs such as the Pilot Extension Program or in developing the Institute farm. In these latter examples, it would not be desirable to have Peace Crops Volunteers assume leadership roles, for it would delay training of IAAS for staff positions they will have to assume eventually. In order to obtain well-qualified persons, the Institute should arrange with the Peace Corps to submit their specific needs (including skills required) a year or so in advance of the time each volunteer is needed, and then review Peace Corps nominees as they would a prospective staff member before making final selections.

Faculty Evaluation

There is an urgent need to revise personnel policies and practices at IAAS in order to encourage and reward superior performance. The current practices of awarding annual increments without regard to performance and promoting persons on the basis of seniority are counter-productive.

Official recognition should be given to the teaching, research, extension, or other responsibilities of each staff member each year, and

the appointment should document this agreed-upon division of effort. For example, the appointment of one person (with a heavy teaching load) might be 75 percent teaching and 25 percent research; or another could be 50 percent teaching and 50 percent extension. The Dean and department chairmen would have responsibilities in all areas of activity. During the ensuing year, each staff member would be evaluated upon his or her performance in the agreed-upon activities.

The IAAS faculty has prepared a lengthy and detailed set of guidelines for "Job Performance Evaluation". It sets forth the methods and criteria for evaluation in teaching, 50 percent of which is based on number of courses taught and the remaining 50 percent on students' evaluations, lesson planning, departmental chairperson's evaluation, assistant dean's or dean's evaluation, peer evaluation, and self-appraisal. In the area of research, evaluations are based 50 percent on providing a final report on a project, 20 percent on getting a research proposal funded, 20 percent on mid-term reporting, and 10 percent on adhering to the proposed research schedule. The evaluation of extension/outreach and other activities will also be made, under the category of "other assignments". The draft proposal of the evaluation document which was submitted to the Dean in August of 1983, and formalized in a document dated December, 1983, reflects a considerable amount of serious thought and planning. It's a very good first step toward faculty evaluation.

However, as consultants we believe that there is undue emphasis on the number of courses taught as a performance measure. It is a quantity, not quality, measure and weights the job performance index heavily in that direction. Some other indicators which might be considered are development of class handouts, meeting one's classes regularly, actually

conducting practicals, etc. Whatever criteria are used, it is imperative that the next step be taken; and that is actual implementation of a formal evaluation mechanism.

Teaching Load

One of the more difficult tasks in evaluating adequacy and productivity of staff is determining what the average teaching load is. What makes it difficult is that there is no reporting procedure which yields accurate data. The one used at IAAS lets faculty report contact hours and students taught, but since many of the courses are team taught or co-taught, the figures reported are frequently inflated. A lot of double-counting occurs. As a result, from the staff's perspective they appear to be heavily involved in teaching with a large number of students and contact hours/week; from the independent observer's perspective the teaching loads appear to be low.

In order to get some estimates, and these are simply crude estimates, we decided to make some simplifying assumptions and approach the issue of teacher load through determining the number of class periods and lab/practicals periods that have to be covered by the staff per week. These basic data are presented, by curriculum, in Table 7. The column totals permit a rough estimate of the number of class periods ("hours") that can be divided by the number of faculty to get an average teaching load.

On this basis, the average teaching load is between five and seven hours a week. If the first year of the proposed new five-year B.Sc. is actually put into effect in 1984-85, the average, based on 52 faculty members (the total staff known back at the beginning of the year), will be between 6.8 and 7. Taking into account administrative responsibilities,

the average will be between 8.5 and 8.7 hours/week. None of these figures would indicate a heavy teaching load. If one assumes two hours of preparation per class, the numbers would total, under present conditions, between 15 and 20 hours of teaching a week. Again, these figures would indicate a less than full-time teaching load.

There are some necessary qualifiers. First, we have not taken into account the relative sizes of the various departments and number of courses each offers. Second, we have not been able to take into account extension/outreach or other administrative types of responsibilities. Third, we have had to make estimates of the number of sections and size of the classes for the students in each curriculum. These may be on the high or low side. At this point, we can't determine it for certain. Fourth, our estimates of staff load may be on the high side, if the labs/practical are actually less than specified in the curricula guides and course outlines. Finally, with a certain amount of fluidity in the number of faculty away from campus for one reason or another, there may in effect be fewer teachers than our estimates specify.

Our uncertainty about some of the averages points to a real need, and that is for getting an accurate measure of teaching loads. Nevertheless, we feel somewhat justified in suggesting that the teaching loads are probably not high. Additional staff may be required in certain areas, but not simply to allow existing staff more extension and research time. We also feel there is ample latitude in the system for recommending that some research-oriented staff be given full-time research appointments if they wish, and likewise with extension/outreach. The gap they would create in the teaching area would be easily filled by presently underutilized staff.

These data and recommendations are tentative and should be amended by a careful study of what actually exists.

Needs for Technical Assistance

As is explained in the section concerning the "Underlying Rationale for Recommendations", the two problems which most urgently need attention at IAAS are: (1) improving administrative capability and functioning throughout the institution and (2) establishing a balanced curriculum and teaching program plus viable research and outreach programs in facilities that are well-suited to their implementation. Guidance in the above areas will require well-qualified advisors with successful administrative experience and a special interest in working with people on policies and administrative problems. In addition, technical assistance is especially needed at IAAS in three areas: Agricultural Engineering, Animal Science, and in development of the experimental farm. Short-term consultant services on a periodic basis would also be helpful in upgrading programs in several of the departments.

In the light of the above needs, the following technical assistance schedule is suggested:

School Year	Animal Science Advisor	Academic Administration Advisor	Agricultural Engineering Advisor	Experimental Farm Advisor	Person Months
1984-85					12
1985-86					24
1986-87					36
1987-88					12
1988-89					12
1989-90					12
1990-91					--
Total person months	36	24	24	24	108

The work of the current Animal Science advisor should be continued to further strengthen that department. The Academic Administration advisor should be provided as soon as Phase II is activated in order

to institutionalize more effective administrative procedures and improved programs in teaching, research, and outreach. The Experimental Farm advisor should be provided as soon as IAAS employs a capable farm manager on its staff and has development funds; hopefully, this would be earlier than is estimated on the above schedule. Likewise, the Agricultural Engineering advisor should be available soon after IAAS employs a qualified Agricultural Engineer in order to develop this important area. The Experimental Farm advisor would be a very special kind of person and probably difficult to find. He should have broad experience in experiment field management. He must be well organized and be able to get jobs done on time. Since he would work with academic staff, students, and subordinates, he must have the ability to work effectively with a wide range of people.

Periodic short-term consultant services will also be needed. For example, a short-term advisor with skills in various media and the preparation of teaching materials might be very helpful. Periodic assistance, such as David Krauss of MUCIA provided in 1983, in maintaining and operating laboratory equipment should be helpful. A total of 40 person months of short-term consultant services should be provided as needed to help on specific technical problems.

ACADEMIC PROGRAM

The strength of an institution lies in its curriculum and teaching. It must be able to produce students who have the breadth and depth of knowledge required to assume a productive role in the nation's economy. IAAS's specific role is to provide the trained manpower for meeting the essential and long-term needs of the agricultural sector, and all that

that implies. How well that role is performed depends on several factors:

1. The range of subject matter covered in a student's career relative to the types of employment responsibilities he/she is expected to carry out.
2. The proper mix of basic and applied training required by potential employers.
3. The quality of the training, in both its basic and applied aspects.
4. The extent to which intellectual learning takes place, beyond that required for graduating and securing employment.

Two years ago (Wilson and Sofranko, 1982) several deficiencies were noted in the Institute's curriculum. The curriculum was seen to be relatively fluid, extremely ambitious, demanding of students, and lacking in practical training. To a large extent these deficiencies still exist, though in all fairness progress has been made. The inability to move more rapidly on fixing the curriculum, and particularly one with a thought-through rationale, is attributable to recent changes from a semester to an annual educational system with externally-administered exams, the turnover in staff caused by opportunities for advanced training, and the deliberateness with which the staff has pursued curriculum change and associated teaching reforms.

A recently (February, 1984) proposed curriculum presented to the IAAS Faculty Board attempted to address several perceived inadequacies in the present curriculum: large classes; over-ambitious curriculum; insufficient electives; improper sequencing of courses; and uneven distribution of contact hours. The curriculum revision, based on a five-year program, will not alleviate these problems. First, the number of courses and contact hours is still high; in fact, higher in some

cases than before. Second,. the opportunities for specialization via electives are still quite limited; and third, the WEP (Work Experience Program) has been cut back dramatically in the new proposed curriculum. It thus appears that the curriculum reforms have not solved the problems they were attempting to address.

The basic issues still to be addressed with respect to the problems surrounding the curriculum are:

1. Reducing the number of contact hours/week from the present 30+ hours/week. Some IAAS staff members do not consider 30+ student class hours/week to be a problem.
2. Allowing for more electives from the present maximum of three, all of which are in the fifth year.
3. Building into the curriculum some of the practical experiences being demanded by employers.
4. Deciding whether the prescribed courses are necessary for all students, and/or whether some specialization could occur earlier in a student's program. At present, there are no opportunities for a "major" in one area of agriculture.
5. Reducing the number of courses taken simultaneously by each student. Use of a semester system would cut in half the number of courses a student would take each term.

Curricula

At the present time there are three separate courses of study at IAAS, one for the two-year J.T. (I.Sc. Ag.) program, one for the three-year B.Sc. degree, and one for the two-year basic science certificate (I.Sc.). The courses and number of periods/week are as follows:

	Theory hrs/wk	Practical hrs/wk	
J.T. Training			
Year 2:			
Chemistry	3	2	
Physics	2	2	
Botany	3	2	
Mathematics	2	2	
Zoology	3	2	
English	3	2	
Nepali	4	0	
Nepal Studies	3	0	
Total	23	12	35 hrs/wk
B.Sc.			
Year 1:			
Agronomy	4	4	
Social Science	3	4	
Plant Physiology and Biochemistry	2	2	
Agricultural Engineering	2	2	
Introduction to Animal Science	4	2	
Agricultural Statistics	2	2	
Agricultural Economics	2	0	
Total	19	16	35 hrs/wk
Year 2:			
Horticulture	4	2	
Genetics and Crop Improvement	4	2	
Entomology	2	2	
Plant Pathology	2	2	
Lactation, Breeding and Forage	4	2	
Extension Education	3	4	
Total	19	14	33 hrs/wk
Year 3:			
Post-Harvest Technology	2	2	
Soil and Water Management	2	2	
Livestock Production and Management	4	2	
Farm Management and Marketing	2	2	
Rural Development	1	2	
Electives	-	-	
Total	11	10	21 hrs/wk plus electives
I.Sc. (Basic Science)			
Year 1:			
English	3	2	
Physics	2	2	
Chemistry	3	2	
Mathematics	2	2	
Botany	3	2	
Nepali	4	0	
Total	17	10	27 hrs/wk

Year 2:

Not available. 1984/85 will have the first second-year class.

Class Size

As a general rule, every student in a particular curriculum is required to take every course listed. As a result, knowing the number of students in the curriculum will give the approximate number of students in each class. The exceptions are the electives, where the classes are generally smaller (10-30), and the courses of study where more than 100 students are enrolled. In the latter case, it is quite likely that the students will be broken into two sections. This is what is reported to occur; still, several faculty report having taught classes in excess of 100.

Proposed 1984/85 Five-Year B.Sc.

Within the next few months the first class of students will be admitted under a new five-year B.Sc. curriculum. So for the next two years, at least, there will be four different courses of study: J.T. (I.Sc. Ag.), B.Sc. (Three-Year), B.Sc. (Five-Year), and I.Sc., Basic Science. In summary form, the new five-year B.Sc. curriculum will consist of the following number of courses and contact hours, by year:

Year	Number of Courses	Contact Hours/Week (Theory and Practicals)
1	9	32
2	9	35
3	9	32
4	10	34
5	8 (plus 2-3 electives)	24

According to the comparison of the new and old curricula for the B.Sc. presented in the proposal, a much greater proportion of the contact hours will be given to agronomy, botany, animal science. Disciplines which are scheduled for reductions in proportion of contact hours are rural sociology, soil science, and a few others. Most

reductions, however, are minor. The one area from which more class time will be made available is the Work Experience Program (WEP), which appears to be scheduled for elimination. By most faculty accounts it has failed. Very few faculty appear to be meeting the students for the WEP, and few students want to participate. It may be advisable to disband the program and place greater emphasis on working practicals into the curriculum and implementing the practicals as indicated in the new curriculum. With the large number of contact hours already built into students' schedules, it is not surprising that they are unwilling to spend time in the WEP since no "marks" are given for it.

Consultants' Reactions to the Proposed Curriculum

There is no need for wholesale changes in the proposed Five-Year Curriculum. It may not be the best curriculum one could design, but it exhibits collective faculty involvement in academic planning at IAAS and therefore should be adhered to as much as possible. Some fine tuning, however, could be made. Some things which should be considered by the faculty are:

1. There are still too many required courses and contact hours. Perhaps one less course/year and the substitution of an elective for another course would begin to address the problem.
2. The curriculum is still top-heavy in theory. It is still attempting to make each student an expert in almost every aspect of agricultural science.
3. There could be a course in what might be called Household Economics, which would include a sizeable component on the role of women in farming and household decision-making, nutrition, kitchen gardening, etc. There is nothing like this in the present proposed curriculum.

4. The social science area should be represented more in the new curriculum. There are no "Rural Development" courses in year 1 or year 2, yet these are some of the more practically-oriented courses on the campus. Why not substitute a rural development course for a proposed course in each of the first two years?

Practicals in the Curriculum

As was pointed out elsewhere, there is a perception that the curriculum falls short in its training of students in the practical aspects of agriculture. Some students say this, and it's reported also that employers say it. Yet, if one looks at the practicals listed in the course outlines and observes what individual instructors are doing in the way of practicals with their students, it's hard to make a blanket generalization about the lack of practicals. Some practical training is, in fact, occurring, and more now than two years ago.

It seems that practicals which require either no, or minimal, use of the labs are more likely to be taught/conducted. On the surface, at least, it would appear then that the labs ought to be equipped, maintained, upgraded, etc. The faculty believe that if that were done more practicals would be undertaken. They may have identified the problem, but the broader, unaddressed issue seems to be what is the best way to do this. There are a couple of approaches that could be followed:

1. Proceed, as in the past, to draw up new lists of equipment needs and then order it. A substantial amount of money has already been spent on lab equipment, but the results have not been as good as was expected. The problem with this approach has been that such lists tend toward being "wish lists", based on the argument

that anything less than completely equipped labs will be inadequate for teaching/research. From this perspective, the labs will probably never be widely used. Some of what was ordered in past years is not in the labs, has not been operated, or is in need of repair. At this point it might be wise to have someone go over the practicals presented in the course outlines and determine which practicals can be done and which can't at the present time. There should be a determination of what can be done with what is already in place.

2. Proceed from a "bottom-up" approach and equip the labs to the extent that they are likely to be used. One might start by examining the types of equipment needed for the practicals faculty want to conduct or that are required for the research they are proposing. If faculty could commit to doing a certain number of practicals, equipment and supplies could then be purchased to permit those practicals. Likewise with research - if equipment is required to carry out a proposed research activity it should then be ordered. There ought to be a better match between what is ordered and what is likely to be used.
3. A third approach might be to simply repair or put in order what is already in the labs and discard what can't be repaired.

There is no assurance that lists generated under the first two approaches won't come out looking alike. In any case, there will have to be some external control (by the long-term advisors and/or USAID) over the lists that will be generated, to both curb excesses and fill in the gaps. The problems with the labs aren't going to be solved quickly or easily. In terms of some cost-benefit ratio, the labs have not produced much in the way of teaching or research. Changes are occurring in the labs, but very slowly. The necessary supporting services and

staff required for operating and maintaining the labs are not available and, as a result, deterioration sets in quickly. Keeping the present labs and equipment clean would greatly increase their usefulness. Lab facilities are being converted into storage and office space, equipment isn't being cleaned, stored properly or maintained. The list could go on. The staff is now to the point where it is asking for additional labs. An emphasis on a quality education would suggest that expansion is not a good substitute for developing the teaching labs that are already in place. There is some legitimate concern that additional labs would simply mean more partially utilized labs unless they were designed specifically for conducting ongoing research or that which has been approved by the Research Board.

The Issue of a Quality Education

There have been many references to the lack of "quality" in the training of IAAS students, and these references have arisen in a variety of contexts. In some cases, lack of quality is inferred from employers' comments that the courses contain too much theory and not enough practical training, and in others from the fact that the courses are poorly taught and students perform poorly on external exams. There is probably a great deal of truth in both inferences, but the remedies are different.

On the matter of quality from the employer's perspective, the problem could be solved by structuring more practical training into the curriculum. How this can be done, given the already heavy demands on the students' time, remains a question. Beyond that issue, however, there is the more basic question of what potential employers perceive practical training to be. Is it the ability to operate machinery and instruments, lay out plots, conduct tests, do statistical analyses and conduct surveys, or simply have the ability to communicate with

farmers? Or is it all of these things? At this point one can't determine the nature of the charge. It is not the case that students are receiving no practical training. In most departments, faculty insist students <u>are</u> receiving practical training, and clearly more now than a few years ago. There is reason to believe they are, for there are several notable cases of students doing field work among farmers as part of their course work practicals, and some students are receiving hands-on training as part of their courses. And if one assumes that some portion of the practicals listed on course outlines are being conducted, there is some basis for optimism. Still, there is the external perception that has to be dealt with, and the internal reality as well. There are several possible approaches to this problem:

1. A systematic study should be conducted to find out exactly what employers define as good "practical training". This might result in discovering what they're seeking in students and thus allow the Institute to build more of it into the curriculum. Perhaps, more importantly, such an inquiry might build a link with the major employers of graduates. This could have pay-offs in more ways than one.
2. The curriculum might be changed to provide a larger block of time toward the end of a student's career for fairly intensive training, for which the student would get "MARKS". To think that the current WEP is providing much in the way of practical training is an illusion. It could, but it isn't. Training toward the end of a program might be concentrated in one specific area, and be a good substitute for some of the theory courses. No complaints have been heard that students are not getting enough theory. In the proposed

new 5-year curriculum some more concentration, with electives, is being introduced.

3. It might be suggested that employers conduct more on-the-job training. In many countries this is what actually occurs. The Horticulture Trip Report (January, 1984) points out that the Pakhribas Agricultural Center, which employs five IAAS graduates, gives a year of on-the-job training, after which the graduates perform quite well. If employers are not in the position to do on-the-job training, and many are probably not, it is not likely that this idea will go very far.
4. The Institute might provide students who have satisfactorily completed an extensive practicum with a certificate attesting to that fact. Such a certificate, stating specifically what the student did and for how long, and signed by the Dean and supervising faculty member, could then be used by the student when seeking employment.

These are possibilities. It is hard to tell which will be effective. Whatever is tried will require some thought, planning, and organization. Opportunities abound at IAAS for innovative approaches; but innovative individuals don't readily surface, or the approach gets drawn out endlessly so that it effects very little changes.

Proposed M.Sc. Program

There have been numerous references by faculty to starting an M.Sc. program at IAAS. The justifications are generally in terms of the prestige it would lend to the faculty and institution, and in terms of permitting the faculty to conduct more research. It is difficult at this time to envision an M.Sc. program before the end of Phase II.

There is clearly no reason to expect that the Institute could develop a quality M.Sc. program until their B.Sc. program is improved. The prestige of the Institute does not hinge on a M.Sc., nor is the lack of research assistants the constraint on research productivity at the present time. An inoperative lab is an inoperative lab, whether used for B.Sc. or M.Sc. training or for research.

The inadvisability of a graduate program is also based upon the present questionable need in the country for more persons with higher-level training. Several recent manpower studies point to the fact that, at the higher levels of training, present output is probably adequate. There is great need, however, for persons trained at the lower levels. This is not to argue that there won't be a need in the future for more M.Sc. graduates, or that IAAS shouldn't develop a M.Sc. program. The more pressing issues should be developing an institution with a strong B.Sc. program, which is capable of providing employers with well-trained students, which takes its teaching function seriously, and demonstrates a capacity for research.

RESEARCH

Research is the lifeblood of vital teaching and outreach programs. Results of early research at IAAS were published in the first five issues of the IAAS Journal, 1977 to 1982. Most of the research conducted at IAAS since 1982 has been financed by MUCIA/USAID. Table 8 lists each of the 30 research projects funded by MUCIA/USAID from January 1982 to May 11, 1984, together with the current status of the work on each project. Nepal must provide more funds for research if the Institute is to develop into a vital agricultural institution.

The Canadian International Development Research Center (IDRC) funded two research projects beginning in 1983. A research project on "Poisonous Plants to Fish in Nepal" by K. T. Augusthy, Lecturer at IAAS, has been completed and reported on. A cooperative "Farm Forestry Project" between IAAS and the Institute of Forestry was started in April 1983. The major interest in this project is in trees on farms for fuel and/or fodder.

During recent years, the IAAS budget has included a small line item for research (Table 9). However, the annual amount for research has not exceeded Rs 16,000 ($1,000) except in 1982-83, when a larger amount was made available for development of the experimental farm. The IAAS must be provided much more research support in its budget in order to develop a viable research program. In addition, financial support for research should be sought from other agencies, such as the Ministry of Agriculture, with whom cooperative research projects could be arranged.

The experimental farm is currently being used to only a limited extent for research. Suitable land, animals, etc., are available, but they are underutilized for research by staff members. The experimental farm is discussed in more detail in the section concerning "Facilities".

Since the average teaching loads are relatively light for current staff members (see section on "Teaching Load") most of them have sufficient time to do more research than is not being done.

EXTENSION/OUTREACH

Two years ago it was noted that an effort was underway to incorporate an extension/outreach function into the work roles of a larger number of staff members. There was an awareness of the need to

provide assistance to farmers and, more importantly, to develop an understanding of farmers' problems in the immediate area. The rudiments of an ongoing outreach/extension program are presently in place and some of the problems of farmers are being addressed. Dealing with specific farmers' problems is, however, a minor part of the extension program, and perhaps that is how it should be.

The extension/outreach program at IAAS goes beyond the scope of activities typically encompassed by the role of extension adviser in the Ministry of Agriculture. Extension at IAAS has not been designed, for the most part, to compete with the formal extension system under the MOA. There is not the trained manpower to do this, there is not that much research available to extend and, more importantly, any expansion along the lines of the MOA is likely to raise charges of encroachment on the formal system. The extension activities of IAAS are thus, more appropriately, extension-as-practical-training in such things as developing techniques for disseminating technical information to farmers, learning how to systematically study farmers' problems and the constraints under which they operate, putting on a farmer-day on campus and, in one particular project, attempting to provide advice to farmers. The presence of the Rural Development advisor over the last two years has substantially raised the level of these types of activities, and the recent introduction of a carefully planned practical into the Extension Education course has taken a lot more students into farm households.

There are also outreach activities which more closely approximate a formal extension service, such as selling improved maize seeds to farmers, renting dusters and sprayers to farmers at a nominal fee,

establishing demonstration plots, selling fungicides and pesticides, providing price information, referring livestock and other problems to the appropriate source of help, etc. These types of activity, conducted through the individual departments and the Pilot Extension Program located on the campus, are fairly limited. On any given day no more than a few farmers will show up at the campus for advice, and most of the inquiries concern animal health. Even in those areas where specific help is/can be given, it is rather limited; only 100 kilos of seed were available for sale, and three of the five sprayers are not working.

It is likely that these two parallel types of activities, training in extension techniques through practical training and more quasi-formal extension activities, will continue on their present course. Neither one, however, should present a threat to the Ministry of Agriculture. The present Dean and the Rural Development Advisor have been the stimulus behind many of these activities and for conveying their importance to students and faculty. Some of the students are getting a fairly good practical training in what extension involves. Some issues that will surface in the near future are:

1. How to keep the momentum going once the current advisor leaves, and in the absence of a long-term advisor.
2. Deciding how far the Institute wants to go regarding the development of an extension system that might be perceived as competing with that in the MOA. To continue these activities beyond Phase II will require GON funding, and that may be questionable since it has not provided many indications that it is ready or willing to assume funding of research on the campus. And it will not likely fund an

activity which is viewed as competing with the MOA. What ought to be stressed are the teaching and training aspects of the extension/ outreach effort to neutralize any possible charges of direct competition.

3. Deciding how to reward or recognize the students who opt for the electives and practicals that provide them with extension-type experiences. One way of communicating to potential employers that students have had such practical training is by providing each graduating student with a certificate listing the number of practicals the student took and having it certified by a department head or the Dean.

4. Reaching out more to women farmers in the training aspects of the program. A recent study, "Planning Extension for Farm Women", (Integrated Cereals Project) shows that women are major farm-level decision makers. To ignore them is to ignore a large segment of the population engaged in farming. Perhaps as the female population at IAAS increases they can develop extension-type activities among women farmers in the area. However, working with women should not be restricted to female students. Local farm women are currently given training in a post-harvest training course and this type of activity should be continued and expanded.

5. Creating a link between the extension courses and activity on campus and the extension service in the MOA, maybe through inviting the formal extension staff in the area to give talks or conduct a part of the training. The local ADO already participates in the extension education course as a great lecturer, as does the Dean who has 17 years of experience with the Extension service. These efforts are

to be lauded, and their expansion encouraged. They might help defuse any antagonisms there are currently between the MOA extension and IAAS' outreach . There already seems to be some cooperation between the livestock people and the Pilot Extension Program, and this too could be expanded.

The mission of the IAAS is education, research, and training in extension. There is neither the talent nor resources to create a parallel extension system. It is unlikely the GON will allocate funds to extension at IAAS at the end of Phase II, if at all, if it was felt IAAS was creating a competing system.

IAAS may be missing a good outreach opportunity on its own campus-providing some training for faculty and scaff wives. One of the obvious areas is in English training, but there are also other possibilities in areas of agriculture and home science as well. In Phase II this might be something a Peace Corps volunteer could concentrate on.

FACILITIES

Details concerning staff housing are listed in Table 10, and similar information concerning buildings, hostels, and other structures is given in Table 11.

Classrooms

If the projected enrollments in Table 2 are realistic, there will be a total of approximately 600 to 650 students in the various curricula at IAAS, Rampur. The current classroom capacity may be summarized as follows:

New Lecture Building

3 large classrooms X 110 students each = 330 students
5 small classrooms X 60 students each = 300 students

Old Basic Science Lecture Building

2 small classrooms X 50 students each = 100 students

Old Administration Building*

1 classroom = 75 students
Total = 805 students

*There is also a Conference Hall on the North side of the Old Administration Building which can accommodate 125 persons and could be used for seminars or classes.

With proper scheduling, it appears that the 11 lecture classrooms listed above provide ample space for the projected enrollment of 600 to 650 students, even without using the two possible classrooms in the Old Administration Building. If the enrollment becomes greater than 650 students, a classroom (with gently sloping floor) for 150 students might be desirable in which lectures could be given to larger groups than can now be accommodated.

All of the classrooms are dirty and need regular cleaning. Natural light is inadequate, and electric lights are not maintained in functional order. Accoustics are poor (much echoing) in some of the classrooms, especially in the five small ones in the New Lecture Building. This could be corrected economically by adding accoustical tile as needed.

Teaching Laboratories

The teaching laboratories are in several locations, but most of them are in the following three buildings:

New Laboratory Building

4 large laboratories X 36 students each = 144 students

Old Basic Science Laboratory

4 laboratories X 30 students each = 120 students

New Horticulture Laboratory

2 small laboratories X 25 students each = 50 students

Total = 314 students

In addition, there are other laboratory facilities, such as the Agricultural Engineering shops, Dairy Laboratory, and Horticulture Shade House, which are used for specific courses.

At any one time, existing laboratories can accommodate 314 students, plus those scheduled in specialized laboratories (Dairy, English, Agricultural Engineering, etc.). Some courses, such as Nepali Studies and Extension Education, do not use laboratory facilities. Currently, most of the laboratory classes are scheduled during afternoons. If laboratories were used during both mornings and afternoons (with enough time for clean-up and preparation between sessions) it appears that there may be enough teaching laboratories for 600 students.

The New Laboratory Building is well constructed, but the laboratories are not clean. Accurate analytical work cannot be done in dirty laboratories.

Research Laboratories

There is a dearth of research laboratories at IAAS. A computer laboratory is functioning in the Library. In the New Laboratory Building, there are two research laboratories, each containing about 600 square feet, which are available for staff use. During school vacations, the teaching laboratories can be used for research by staff members. Some research can be done in the New Horticulture Laboratory.

The specific needs for research laboratories will depend upon the research programs which are developed and conducted by the staff. Some more research laboratories are needed now to stimulate staff research. If staff members respond and expand their research programs, more research laboratories could be added later. Therefore, it is suggested that research laboratories be considered in two phases - some to be built now, with more to be added later if the research programs warrant more space. It is suggested that four research laboratories, each containing about 750 square feet, be constructed during Phase II. These four research laboratories could be located on the second floor of the proposed office building, or the offices and research laboratories might be interspersed on the first and second floors.

The experimental farm and livestock facilities provide the best opportunities for research at IAAS, but they are underutilized.

Faculty Offices

Office space for academic and administrative staff is very inadequate at IAAS. With a projected enrollment of about 600 to 650 students (Table 2), the academic staff and administrative staff should remain stable at approximately 60 (Table 6) and 10, respectively, or a total of 70 senior staff members.

Table 11 indicates that existing buildings contain 47 offices, many of which are occupied by more than 1 person. In addition, 12 other small rooms (which were designed for other specific uses) in the New Laboratory are being used for offices.

It seems clear that approximately 20 offices should be added in a new office/research laboratory building during Phase II. The offices in the Old Administration Building should be refurbished and equipped

with file cabinets, bookshelves, fans, etc. in order to promote greater work efficiency. Further suggestions are given in the section concerning "Research Laboratories".

Student Hostels

Table 11 indicates that the hostels at IAAS, Rampur, contain 142 rooms. If three students are in each room, a total of 426 students could be housed on campus. Currently, a significant number of students live off campus. Twelve girls in the I.Sc. curriculum now live off campus, and four girls in agriculture live in two mobile homes near the MUCIA/USAID guest house.

During Phase II, a hostel for 80 female students and another hostel for 100 male students should be constructed. These new hostels would permit an increase in the number of female students, as is desired, and reduce the number of male students who would have to live off campus.

In comparison with the three recently-constructed hostels, which include many projections and much wasted space, the two new hostels proposed for Phase II should be designed more simply, with more attention to natural ventilation and comfort in hot weather.

Staff Housing

Table 10 indicates that for senior staff members there are three different kinds of housing, as follows:

- 41 families have 700 square feet or more per family
- 22 families have less than 500 square feet per family (some of these units were designed as bachelor's quarters)
- 17 families have less than 500 square feet per family, without modern plumbing

The smaller units, and especially those without modern plumbing, should be upgraded as more of the young faculty members become married

and return from overseas with post-graduate training. Although there is a housing shortage on campus, especially for returning staff members, it is likely that there will be a housing problem for some time to come. The housing ranges widely in style, quality, and size and it is these variations which will periodically cause foment, especially since no charge is made for housing.

A nominal rent should be charged for housing, in relation to the quality of housing, as an aid in allocating and maintaining the homes. In this way, families who want better homes can help pay for them. Likewise, charges should be made for electricity and water on the basis of usage in order to minimize wastage.

Maintenance seems to be completely neglected on the brick homes which were built a few years ago. Tile on the roofs of many of these homes have been loosened and blown off. If these tiles are not replaced properly before the monsoon rains come, serious water damage will occur inside the homes.

Experimental Farm

The Experimental Farm at IAAS is a valuable asset, but it is sorely underutilized. The most important reason is that no farm manager has been appointed to give leadership to this important enterprise. Development funds are necessary, and in the 1982-83 budget Rs 1,416,000 ($88,500) was approved for farm improvements. However, Rs 1,100,000 of this approved amount was not released for the intended purpose, and few farm improvements were made. A third facet of the farm utilization problem is that research programs of the staff are only beginning and to date have required only a small portion of the farm for research purposes.

The needed program for farm vitalization is clear and involves the following steps:

1. IAAS must appoint a capable farm manager to give overall leadership.
2. Obtain significant funds to make necessary improvements in the farm.
3. Recruit an experienced experiment station manager as an advisor to the IAAS Farm Manager to help him plan and implement a comprehensive farm plan for teaching, research, demonstration, possible seed increase and sale of breeding animals, and commercial farm production on areas not used for other purposes. During the farm development period, there will be more work to do than both the farm manager and advisor can accomplish.

A soil map of the farm has been made. It and a detailed topographic map should be used intensively in developing the comprehensive farm plan so that each area is used properly.

In 1977, Wallace W. Nelson, Superintendent of the Southwest Experiment Station, University of Minnesota, prepared a report for MUCIA/USAID concerning the development and operation of the IAAS farm. Many of his suggestions are still valid and need not be repeated here.

It seems likely that the farm manager will need three superintendents under him: one for Animal Science, one for Agronomy, and one for Horticulture.

Currently, it appears that the Agronomy Department is using land and their field headquarters very sparingly. In contrast, the Horticulture Department has insufficient land for its use, while much of the IAAS farm lies idle. It seems that more land should be allocated to Horticulture, in line with their needs.

FINANCIAL SUPPORT

Nepal

Annual expenditures by GON for IAAS during the 12-year period 1972-73 through 1983-84 are listed in Table 12. Capital expenditures have ranged from Rs 267,000 to Rs 946,000 annually. Annual operating expenses have increased from approximately Rs 1,000,000 to more than Rs 4,000,000. During the latest 5-year period, 66 percent of the budgeted funds for capital operating expenses have been released by HMG.

Table 9 lists the approved budget for IAAS, subdivided into various categories, for each of the past four years. Salaries and allowances comprise the largest single item in each budget, as is typical for an educational institution such as IAAS.

MUCIA/USAID

During the approximately nine years that MUCIA staff members have been working with IAAS, a total of $5,000,000 has been spent for technical assistance, participant training, equipment and materials, research support, and other purposes (Table 13).

UNDERLYING RATIONALE FOR RECOMMENDATIONS

Improving Administrative Capability

During the early years of IAAS there were frequent leadership changes and periods of absentee leadership. This retarded the development of sound administrative policies and procedures which are necessary for the proper growth and functioning of the Institute. Improvements in leadership have recently occurred, but there is a backlog of administative problems which need to be addressed so that policies and lines of authority and responsibility are clear to everyone involved.

More objective planning should be done and fewer ad hoc decisions should be made.

Achieving a Balance Between Programs and Facilities

To date, more attention has been given to facilities than to programs at IAAS. The relative emphasis to each of these two important items now needs to be reversed.

Although IAAS has operated for more than a decade, the various curricula are still in a state of flux and no generally acceptable agreement has been reached on the proper balance between theory and practical training in agriculture. The proposed new five-year B.Sc. curriculum still has serious faults which were mentioned in the section entitled "Academic Program".

Academic records of student enrollment, performance, and graduation are very inadequate. We were unable to find a precise record of the students enrolled during the current term. An annual academic calendar should be approved and published 3 to 12 months in advance of the beginning of each school term, and the approved calendar should be followed. A proposed class schedule, indicating the time and place of meeting for each class, should be circulated one month before the beginning of each term so that necessary preparations can be made for the classes. A search for new teachers should begin as soon as a trainee's departure date is known, or when it is learned that a teacher will not return. Examinations should be graded promptly, and the results should be recorded immediately thereafter so that student records are kept current to indicate the progressive performance of each student.

Staff Evaluation and Promotion

An objective method should be developed to evaluate staff performance and productivity. Significant progress has been made in this area. However, implementation is the next step so that salary increases and promotions are made on the basis of performance and productivity rather than on the basis of standardized annual increments and according to seniority. This is discussed further in the section concerning "Staff".

Establishing an Operating Principle

Over the life of IAAS a substantial amount of money has been spent on campus construction, training abroad, and technical assistance (in excess of $9 million). It is difficult to determine if the quality of the Institute at the end of this ten-year period is commensurate with this level of funding. There are few guidelines with which to establish if the progress has been reasonable; and, if guidelines existed, it is unlikely they would strictly apply, given the fluidity caused in the system by the turnover of Deans and advisors and by faculty coming from and going to training, and the shifting of needs, priorities and objectives over the life of the Institute. Against this background, one could argue that IAAS has made reasonable progress, and particularly over the past couple of years. Some of these changes have been examined more fully in other portions of the report. The point here is that change has occurred.

A principle which seems to be lacking in the operation of IAAS is that of <u>reciprocity</u>. In simple operational terms this means that all parties to the contract have not been full participating partners in the change process. Some illustrations:

1. Large investments have been made in training abroad, and in high quality institutions, but there is not much evidence that the returning faculty have reciprocated by undertaking some of the often-cited necessary reforms required for improving the quality of instruction, developing resource materials, creating functioning labs, or engaging in professional and civic-minded campus-level dialogue and activities. Much of what happens at the Institute is shaped by private rather than public considerations. There is an inordinate concern for improving one's status, getting training, improving one's financial position and housing, etc. There is not the same level of concern for the improvement of the Institution.
2. AID/MUCIA has invested substantial sums of money in funding research, without GON's reciprocating in terms of increasing its level of funding for research.
3. Countless recommendations have been made by advisors and consultants regarding the types of reforms needed to operate the Institute's farms, without much evidence that the reforms are even being considered by HMG. It would be desirable to circulate these reports more widely to interested officials in Tribhuvan University, Ministry of Agriculture, Ministry of Education, etc.
4. Much criticism has been leveled (by insiders and outsiders both) against the large number of courses and contact hours students have in class each week, and recommendations have been made with regard to instituting a semester system and a system of internal evaluation for students. Still, there is no evidence that any of these reforms are closer than they were two years ago, and one must assume they won't change much over the next phase of IAAS development.

What is needed at IAAS is not necessarily an influx of more resources, more training, or more or less technical assistance but the establishment and recognition of an operating principle whereby resource inputs to IAAS become contingent on implementing some of the reforms consultants have been recommending.

Operationally, the principle would take the form of a series "if, then" propositions:

-- If HMG increases its level of funding for research by X percent over the next Y years, then contractor funds will continue to flow to IAAS at the level of ....

-- If IAAS is given autonomy in the operation and management of its farms, and if it is able to reinvest its farm income into further development of the farms, then AID will undertake the farm development portion of the project.

-- If faculty comply with recommendations regarding improvements in quality of education, if individual faculty demonstrate merit, then overseas training, study leaves, and scholar exchanges will be implemented.

Once the principle is established, there is of course the likelihood that it will have to be enforced, and perhaps painfully at times. There are no illusions about the difficulty involved in implementing these contingencies, but it is apparent that this is how one must introduce change into the IAAS system. And once changes are introduced, they should become institutionalized over time. The alternatives of continuing to foster the views that IAAS will become a quality institution without undergoing many of the changes that have been recommended over the past several years, that training is a "right" rather than a reward,

or that resources will continue to flow without any demands, are not desirable from the perspective of institutional development.

To the extent that this principle has operated at all over the past few years, it has done so largely because of the MUCIA advisors' presence at IAAS, and occasionally there have been some associated "costs". The role of the technical advisor has to a large extent involved imposing some constraints on how resources are allocated. Advisors thus represent one of the best and most effective means of imposing many of the types of linkage articulated above.

Problems such as those mentioned in this section must be resolved if IAAS is to achieve the objectives for which it was established.

LINKAGES WITH OTHER GROUPS

The administration and staff at IAAS should develop linkages with related groups in Nepal, such as the Ministry of Agriculture, Ministry of Education, international agencies who are active in the country, farmers, and agribusiness. As IAAS staff members become more competent they will become increasingly useful as part-time teachers at the Institute of Forestry, as contractors for research on- or off-campus, or as consultants for other agricultural projects in Nepal. This will help the staff keep abreast of current problems and needs and allow them to help solve the problems through research, extension, and consultancies.

IAAS staff members should have frequent interchanges with ICAR and nearby agricultural universities in India, as well as those in other countries in southeast Asia. Contact should be maintained with selected American universities, especially those where staff members received graduate training.

Close contact should be developed between IAAS staff members and international agricultural centers such as ICRISAT in India and IRRI in the Philippines. These centers have many materials which would be useful in Nepal, and they conduct short courses that would provide needed in-service training for IAAS staff members.

BEYOND 1984

MUCIA's involvement in IAAS is scheduled to end in a few months. The next several years are important, therefore, in ensuring that many of the activities already underway are maintained. In just about every aspect of the IAAS operation, administration and staff will be required to assess the worth of what is being left in place, and they will have to do it without the assistance of external advisors. Decisions will have to be made regarding continuation of support for many of the activities that have been introduced and supported by MUCIA. Without continued support or reinforcement, much of what is in place will erode gradually.

An institute operating in a more or less rationalized manner, according to recognized standards of quality, and in compliance with procedures and rules established by administration and staff will be less likely to experience "erosion" than one where decisions are ad hoc, standards are given little more than lip service, and involvement of staff is either minimal of conflictual. It is necessary for IAAS to begin thinking about the future beyond 1984, and the future will surely be quite different from the past. Much more accountability will be expected by employers and from students. There will be fewer opportunities to infer progress from physical growth and expansion of student enrollments. Many of the externally-imposed changes of the

recent past will probably not be experienced again since the trend seems to be toward more rather than less autonomy. As a result, the locus of blame or credit for what occurs in the future will lie more and more with the Institute.

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Figure 1

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 Plan 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.

Table 1

Number of Student from Different Zones in Nepal Who Entered the B.Sc.Agr. and J.T. Certificate Programs for the 1983-84 School Year at IAAS, Rampur

Zone*	B.Sc.Agr.	J.T. Certificate
Mechi	2	2
Koshi	4	
Sagarmatha	4	
Janakpur	30	33
Bagmati	1	2
Narayani	47	44
Gandaki	34	110
Lumbini	14	4
Dhaulagiri	2	7
Rapti	3	
Karnali	1	
Bheri	2	
Seti	1	
Mahakali	4	
Total	149	202

* *The zones are listed in order from eastern to western Nepal. Rampur is located in the Narayani zone.*

Figure 2

Governmental Zones in Nepal

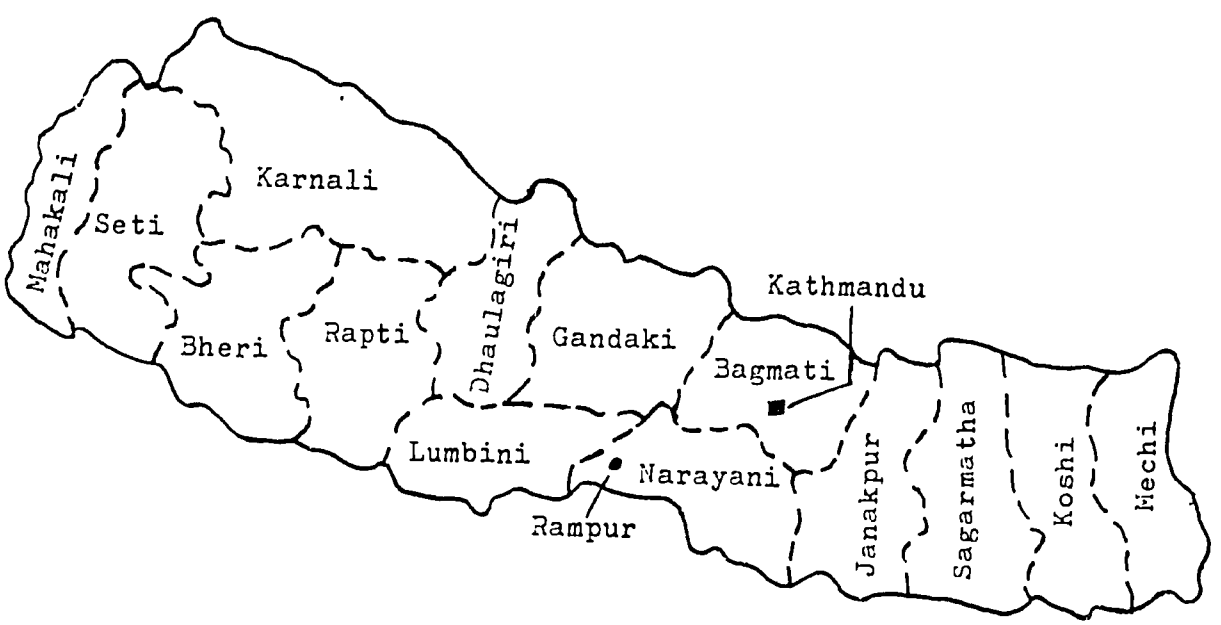

Table 2

Projected Enrollment, By Curriculum, for IAAS, Rampur, Through 1990/91

Curriculum	School Year							
	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91
B.Sc. (3-Year)								
Year 1	150	125	125	125				
Year 2	82	120	113	110	100			
Year 3	72	82	100	102	100	90		
B.Sc. (5-Year)								
Year 1			50	130	130	130	130	130
Year 2			45	45	117	117	117	117
Year 3				40	40	106	106	106
Year 4					36	36	96	96
Year 5						32	32	86
I.Sc. (Basic Sci.)								
Year 1	91	50	50	50	50	50	50	50
Year 2		82	45	45	45	45	45	45
J.T. (I. Sc. Agr.)	216	200	150	--	--	--	--	--
Estimated Total	611	709	678	647	618	606	576	630

Notes:

(1) Current enrollments and target enrollments for B.Sc. (3-year), B.Sc. (5-year), J.T.'s, and I.Sc. (Basic Science) have been provided by IAAS.

(2) Attrition is estimated to be approximately 10 percent.

(3) It is assumed that the B.Sc. and J.T. curricula will start and terminate in the years indicated.

Table 3

IASS Academic Staff and Expected Staff Additions, By Department,[1/] at the Rampur

Department	Total Staff May '84	Total Staff Fall '84***	Non-Permanent Staff* Temporary	Non-Permanent Staff* Contract	Expected Return** Less Than 1 Year M.Sc.	Less Than 1 Year Ph.D.	1-2 Years M.Sc.	1-2 Years Ph.D.	3-5 Years M.Sc.	3-5 Years Ph.D.
Agricultural Econ.	4	2	1	--	--	--	--	2	--	2
Rural Soc./Ext. Ed.	4	3	--	1	--	--	1	1	1	--
Agric.Stat./Math.	3	3	--	1	--	1	--	--	--	1
Humanities	5	5	3	1	--	--	--	--	--	--
Animal Science	8	6	--	--	--	--	--	1	--	2
Soils and Chemistry	7	7	--	1	--	--	--	1	--	--
Agronomy	7	7	1	--	--	2	--	2	--	1
Plant Protection	8	6	3	1	2	--	--	--	--	--
Horticulture	7	7	--	--	1	--	--	--	--	1
Agric. Botany	3	3	2	--	--	--	--	--	--	--
Physics/Engineering	3	3	--	2	--	--	--	--	--	--
Total	59	52	10	7	6		8		8****	

1/ Does not include 4 Extension staff on the Pilot Extension Project.

* These persons are included in total staff numbers.

** With the exception of those returning within the next year, the date of return is approximate. Includes returning staff members from branch campuses and those studying abroad.

*** Reflects known departures and resignations.

**** There is reasonable doubt whether one individual will return.

Table 4

Academic Staff Qualifications, By Department, at IAAS, Rampur

Department	Highest Degree					
	Ph.D.	M.A./ M.S./ M.Sc.	B.A./ B.Sc.	B.Vm.	J.T.	S.L.C.
Agricultural Econ.	--	4	--	--	--	--
Rural Soc./Ext. Ed.	1	3	--	--	--	--
Agric. Stat./Math.	--	3	--	--	--	--
Humanities	--	4	1	--	--	--
Animal Science	--	6	--	1	1	--
Soils and Chemistry	1	6	--	--	--	--
Agronomy	--	6	--	--	--	1
Plant Protection	3*	5	--	--	--	--
Horticulture	--	5	1	--	--	1
Agric. Botany	--	3	--	--	--	--
Physics/Engineering	--	3	--	--	--	--
Total	5	48	2	1	1	2

* *Includes one staff who just returned and one on contract.*

Table 5

Summary of Participant Training of IAAS Staff Through 1984

1. Returned and at IAAS 20
   Terminated employment at IAAS 2
   Studying abroad 12

2. Estimated return of trainees abroad:
   Less than 1 year 5
   1-2 years 7

3. Funding of trainees abroad:
   On own funds 5
   MUCIA 7

4. Trainees abroad by discipline:
   Return less than 1 year:
   - Plant Pathology (M.Sc.)
   - Rural Sociology (Ph.D.)
   - Plant Pathology (M.S.)
   - Post-Harvest Tech. (M.S.)
   - Animal Science (M.S.)

   Return 1-2 years:
   - Agricultural Economics (Ph.D.)
   - Poultry Science (Ph.D.)
   - Crop Science (Ph.D.)*
   - Crop Science (Ph.D.)*
   - Agronomy (Ph.D.)*
   - Agricultural Economics (Ph.D.)*
   - Agronomy (Ph.D.)*

5. Trainees scheduled to depart from IAAS, 1984
   - Dairy Science (Ph.D.)*
   - Dairy Science (Ph.D.)*
   - Agricultural Economics (Ph.D.)*

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* On own funds.

Table 6

Projected Adacemic Staff Training and Resulting Qualifications at IAAS, Rampur, 1983/84 to 1991/92

School Year	Highest Degree				Total Academic Staff	Contract Staff*	Trainees		
	Ph.D.	M.A./ M.S./ M.Sc.	B.A./ B.Sc./ B.Vm.	J.T. S.L.C.			Going To Study**	Return To IAAS***	Estimated Attrition
1983/84	5	48	3	3	59	7			
1984/85	9	45	3	3	60	5	3	6	
1985/86	12	42	3	3	60	3	4	4	
1986/87	15	40	3	2	60	1	4	4	1
1987/88	19	38	2	1	60		4	6	
1988/89	23	36	1		60		4	6	1
1989/90	25	34	1		60		1	5	
1990/91	28	31	1		60			5	1
1991/92	31	28	1		60			4	

* *These persons are included in total staff numbers*

** *The three persons going for Ph.D. study in 1984/85 will be on their own funds. The proposed 17 persons to be sent for graduate study on Phase II funds, beginning 1985/86 to 1989/90, would include nine persons for the Ph.D. degree and eight for M.S. study.*

*** *Includes staff members currently away on graduate study leave and those who will be going away for graduate study beginning 1984/85 to 1989/90.*

Table 7

Teaching Requirements, 1984/85, By Curriculum and Mean Teaching Load

Curriculum	Class Periods Per Week	Labs/ Practicals/Week	Total Contact Hours
1. I.Sc.Agr. (200 Students)	75*	40*	110
2. B.Sc. (3-Year Program)			
Year 1, (125 Students)[1/]	34**	32**	66
Year 2, (120 Students)	38**	28**	66
Year 3, (82 Students)	11***	10***	21
Electives[1/]	(4-6)	(2-4)	(6-10)
3. I.Sc. (Basic Science)			
Year 1, (50 Students)	17***	10***	27
Year 2, (Est. 82 Students)[1/]			
4. B.Sc. (5-Year Program)	(no students expected in 1984/85, cf Table 2)		
Total/week	196-201	132-136	323-332

Mean Teaching Load: Total contact Hrs. ÷ Faculty (N=59) = 5.5 - 5.6 hrs./week

N=49[2/] = 6.6 - 6.8 hrs./week

* *Figures are based on three sections for each course. Classes would thus average 67 students.*

** *Figures are based on two sections.*

*** *Figures assume 1 section.*

[1/] *Figures are estimated. Year 2 for I.Sc. (Basic Science) has not yet been taught; the figures on class periods, labs, and total contact hours are not available. Since they are not available, they aren't figured into teaching needs.*

[2/] *Assumes some administrative duties for 10 staff members.*

Table 8
IAAS Research Projects Funded by MUCIA/USAID, January 1982-May 1984

Project Number	Project Title	Leader	Month Approved	Funds, Rs		Status, May 1984	
				Allocated	Paid to IAAS	Activity	Reports
1.	Duck Cum Fish Culture	K. T. Augusthy	Jan. '82	289,889	261,444	Inactive	Construction complete no data
2.	Soybean Research and Extension in Chitwan	K. P. Sharma	Feb. '82	84,055	50,000	Completed	Manuscript
3.	Farming Systems: A Case Study of Shardanagar Panchayat	P. M. Tulachan	Feb. '82	72,942	36,700	Completed	Pt. 1-in press Pt. 2-final rpt.
4.	Mapping and Characterization of Major Soils of IAAS Farm	B. R. Khakural	Jan. '82	18,900	17,400	Active	Progress
5.	Evaluation of B.Sc. (Ag.) Program	B. N. Pokharel	Feb. '82	36,950	18,950	Active	Due
6.	Effect of Date of Sowing and Nitrogen Level on the Incidence of Rice Blast and Leaf Spot at Nursery Stage	S. M. Shrestha	Apr. '82	5,745	5,745	Completed	In press
7.	Effect of Certain Chemical (Applied Both as Seed Dressings and Foliar Sprays) on Seedling Health, Blast and Brown Spot Diseases of Paddy	L. N. Bhardwaj	Apr. '82	11,929	11,929	Completed	Delinquent
8.	Chemical Control of Root-Knot Nematodes on Okra and Eggplant	L. N. Bhardwaj	Apr. '82	3,390	3,390	Completed	Delinquent
9.	Survey and Identification of Plant Parasitic Nematodes in Chitwan	M. H. Khan	Apr. '82	10,846	10,846	Completed	Manuscript

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IAAS Research Projects Funded by MUCIA/USAID, January 1982-May 1984

Project Number	Project Title	Leader	Month Approved	Funds, Rs		Status, May 1984	
				Allocated	Paid to IAAS	Activity	Reports
10.	Year-Round Production of Vegetables at Rampur	R. R. Adhikari	Apr. '82	58,161	25,856	Completed	Final report
11.	Radio and Other Sources of Information to the Farmers in Chitwan	N. Kunwar	May '82	31,268	6,055	Completed	Due
12.	Effect of Levels of Rice Polishing on the Performance of Growing and Finishings Pigs	S. D. Sah	Apr. '82	34,500	12,200	Inactive	Delinquent
13.	Different Methods of Storing Perishable Fruits and Vegetables	R. R. Adhikari	May '82	2,090	2,090	Completed	Final report
14.	Chemical Control of Root-Knot Late Blight Diseases Complex on Tomato; Powdery Mildew on Pea; and Alternaria Leaf Spot on Mustard	S. M. Shrestha	Sep. '82	19,309	10,000	Completed	Due
15.	Fungicide Control Trial Against Stem-Gall of Coriander Under (i) in vivo Condition and (ii) Field Condition	L. N. Bhardwaj	Sep. '82	5,698	5,698	Completed	Delinquent
16.	Effect of Nitrogen and Sulfur Fertilizers on Yield and Oil Content of Mustard	S. C. Sah	Oct. '82	32,961	5,000	Completed	Due

(continued on next page)

Table 8

IAAS Research Projects Funded by MUCIA/USAID, January 1982-May 1984

Project Number	Project Title	Leader	Month Approved	Funds, Rs		Status, May 1984	
				Allocated	Paid to IAAS	Activity	Reports
17.	Biological Performance and Economic Effects of Raw Mustard Cake as Compared to Raw Ground Soybean With Swine	M. Sapkota	Oct. '82	62,466	40,000	Completed	Due
18.	Incidence of Liver-fluke Infection in Dairy Animals of Livestock Farm	I. P. Dhakal	Oct. '82	6,402	6,402	Completed	In press
19.	Contribution of Dew on Winter Wheat at Rampur	P. P. Sharma	Oct. '82	22,660	20,000	Completed	Manuscript
20.	Leucaena--I: Fodder Yield of Different Varieties of Leucaena leucocephala in Chitwan	K. R. Tiwari	Mar. '83	68,290	68,290	Active	Progress
21.	Variation of Certain Milk Constituents of Maryana Cows and Murrah Buffaloes Under Agro-Climatic Conditions of Chitwan	N. Sah	Mar. '83	27,140	15,000	Active	Progress
22.	Agronomic Studies of Moong (Vigna radiata) Sown at Different Dates and Row Spacing Population	D. N. Yadav	Mar. '83	20,742	15,000	Completed	Manuscript
23.	Collection, Maintenance, and Screening of Germplasm of Tomatoes for Disease Resistance in Nepal	G. Upreti	Sep. '83	39,589	12,350	Active	Progress

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Table 8

IAAS Research Projects Funded by MUCIA/USAID, January 1982-May 1984

Project Number	Project Title	Leader	Month Approved	Funds, Rs		Status, May 1984	
				Allocated	Paid to IAAS	Activity	Reports
24.	Bionomics of Lepidopterous Stem Borers on Ric and Maize	F. P. Neupane	Mar. '84	13,904		Beginning	
25.	Conservation Tillage Research on Summer Maize at Rampur	P. P. Sharma	May '84	29,216		Beginning	
26.	Fruit Cultivation in Chitwan-Problems and Prospects	D. D. Dhakal	May '84	20,350		Beginning	
27.	Off-Season Radish Crop Production in Chitwan	S. M. Shakya	May '84	14,630		Beginning	
28.	Physiological Studies on Grain Loss in Rice	S. B. Gurung	May '84	20,680		Beginning	
29.	Evaluation of Mulipurpose Milk/ Meat Sheep and Goat Production	I. P. Dhakal	May '84	84,280		Beginning	
30.	Effect of Feeding Wheat Straw Treated With Urea or Digested Biogas Slurry in Diets of Growing Buffalo	B. K. Sharma	May '84	23,860		Beginning	
		Total Rs		1,172,842	660,345		
		Total U.S. $*		78,189	44,023		

* *From January 1982 to May 1984 the conversion of Nepal rupees to U.S. dollars changed from Rs 13.1 = $1.00 to Rs 16.0 = $1.00. Rs 15.0 = $1.00 was used to convert the total rupees to dollars.*

** *Progress - Progress report submitted*
Due - Report due and expected
Delinquent - Report delinquent and submission questionable
Final report - Final report submitted
Manuscript - Manuscript prepared on research results
In press - Manuscript based on research results being printed

Table 9

Approved Budget for Four Most Recent Years for IAAS, Rampur

Item	1980/81	1981/82	1982/83	1983/84
	Rs	Rs	Rs	Rs
Salaries and allowances	1,420,000	1,694,000	2,126,000	2,570,000
Buildings	--	--	950,000	440,000
Roads, sewage, and fence	30,000	100,000	200,000	40,000
Electricity and water	380,000	224,000	180,000	200,000
Repairs and maintenance	250,000	250,000	500,000	700,000
Furniture	--	30,000	133,000	50,000
Scientific and office equipment	20,000	137,000	125,000	210,000
Books and publications	71,000	130,000	104,000	129,000
Vehicles	--	--	5,000	--
Fuel and transportation	52,000	40,000	55,000	71,000
Farm expenses	450,000	464,000	575,000	625,000
Scholarships	350,000	320,000	200,000	229,000
Student welfare	50,000	150,000	11,000	66,000
Chemicals and teaching materials	50,000	58,000	50,000	75,000
Research	12,000	16,000	316,000	16,000
House rent	5,000	6,000	3,000	3,000
Travel allowances	80,000	131,500	80,000	95,000
Sationery and printing	40,000	76,000	65,000	65,000
Stamps and bank charges	6,000	8,500	10,000	9,000
Miscellaneous office expenses	30,000	60,000	40,000	60,000
Examination expense	40,000	55,000	55,000	45,000
Guests and ceremonies	7,000	13,000	13,000	13,000
Miscellaneous expenses	15,000	25,000	20,000	20,000
Total	3,358,000	3,988,000	5,816,000	5,731,000

Table 10

Staff Housing at IAAS, Rampur*

Type of Quarters	Number of Buildings	Total Square Feet	Per Family: Number of Rooms	Per Family: Square Feet	Total Number of Families
Senior Staff (Academic and Administrative)					
)ean	1	1,742	8	1,742	1
,2duplex	4	11,996	4	1,500	8
'	8	10,558	4	1,320	8
·2	11	12,651	5	1,150	11
uplex	4	8,304	4	1,038	8
'arden	1	782	4	782	1
2	1	2,827	2	707	4
en-family	1	4,480	3	448	10
	3	5,314	2½	443	12
even-family**	1	3,411	2	487	7
ive-family**	1	2,651	2	530	5
emodeled five-family**	1	2,193	4	439	5
Subtotal					80
Junior Staff					
t animal farm	1	565	3	565	1
t animal farm**	1	982	4	491	2
t animal farm	1	370	1	185	2
ɔwer staff***	7	4,253	2	608	7
ɛon***	1	1,411	2	353	4
Subtotal					16

* *IAAS guest house and 4 MUCIA mobile homes not included.*

** *No attached bath and toilet.*

*** *No toilet facilities.*

Table 11

Buildings, Exclusive of Staff Housing, at IAAS, Rampur

Kind of Building	Number of Buildings	Total Square Feet	Total Number of Rooms	Number of Offices Included In Total Rooms
Academic Buildings				
Library	1	19,671	2 large + 5 small	4
New Laboratory	1	14,283	4 large + 20 small	8*
Old Basic Science Laboratory	1	3,449	4 labs. + 4 stores	
Horticulture Laboratory	1	1,711	3	
Dairy Laboratory	1	1,680	2	
New Lecture Building	1	13,086	8	
Old Basic Science Lect.	1	1,387	2	
Agricultural Engineering Shop	1	8,997	3 + 3 sheds	
Horticulture Shade House	1	1,550	1	
Subtotal		65,805		
Hostels				
New Hostels	3	48,924	90	
Old Hostels	1	15,551	52	
New Food Service	1	6,825	10	
Old Food Service	1	3,000	4	
Subtotal		74,300		
Other Structures				
Administration	1	2,600	8	8
Auditorium	1	15,876	7	
Old Administration	1	12,186	2 large + 29 small	17**
Old Basic Science Buildings	2	900	8	6
Horticulture Department Offices	1	1,504	7	3
Office Buildings at Animal Farm	1	600	5	1
Agronomy Farm Headquarters	1	16,827	7 + 2 sheds	
Agronomy Grain Bins	3	900	3	
Poultry Houses	3	2,976	5	
Cattle and Buffalo Sheds	7	12,084	10	
Swine Sheds	4	8,000	Pens	
Feed Store	1	1,248	2	
Milk House	1	270	1	
Pit Silo	1	1,440	1	
Dispensary	1	1,170	3	
Post Office	1	1,150	3	
Primary School	1	3,499	7	
Bank	1	2,076	7	
Pump House	1	152	1	
Water Towers	2			

* In addition to these 8 designed offices, 12 other small rooms (2 seminar rooms, 4 laboratories preparation rooms, and 6 storerooms) are currently being used for offices.

** This includes offices for 9 administrative staff members.

Table 12

Annual Expenditure and Its Percent of the Approved Budget for IAAS

Fiscal Year	Capital Items		Operating Items		Total	
	Rs	Percent Of Approved Budget	Rs	Percent Of Approved Budget	Rs	Percent Of Approved Budget
1972-73	445,000	99.9	938,833	63.9	1,383,833	72.3
1973-74	678,820	58.6	1,219,733	82.6	1,898,553	72.1
1974-75	691,175	37.3	1,364,924	75.1	2,056,099	56.0
1975-76	566,103	4.8*	1,422,427	68.0	1,988,530	14.3
1976-77	638,638	70.9	1,717,295	85.5	2,355,933	81.0
1977-78	730,339	79.1	1,930,976	75.3	2,661,315	76.3
1978-79	442,232	45.6	2,224,034	99.1	2,666,266	82.9
1979-80	455,693	84.7	2,660,500	79.5	3,116,193	80.2
1980-81	267,136	67.6	2,879,760	97.2	3,146,896	93.7
1981-82	344,921	68.7	3,503,450	100.4	3,848,371	96.5
1982-83	946,174	62.7	4,230,678	78.2	5,176,852	74.9
1983-84 est.**	566,740		4,427,739		4,994,479	
6-Year Average 1972-73 through 1977-78		58.4		75.1		62.0
5-Year Average 1978-79 through 1982-83		65.9		90.9		85.6

* *The approved capital budget for 1975-76 was Rs 11,831,194 but only 4.8 percent of this was spent.*

** *The 1983-84 approved budget is Rs 860,000 for capital items plus Rs 4,871,000 for operating items which total Rs 5,731,000. If 1983-84 actual expenditures follow the average pattern for the previous 5 years (1978-79 through 1982-83), the estimated 1983-84 expenditures would be Rs 566,740 for capital items and Rs 4,427,739 for operating items, or a total of Rs 4,994,479.*

Table 13

MUCIA/USAID Financial Support to IAAS,
December 1, 1975 - September 30, 1984

Item	Total Budget	Expenditures Through April 30, 1984	Budgeted Funds Remaining May 1, 1984
	$	$	$
Technical assistance	3,016,167	2,695,140	321,027
Participant training	1,106,336	1,034,693	71,643
Equipment and materials	500,136	542,058	(41,922)
Research support	162,500	49,020	113,480
Local (Nepal) costs	451,838	369,175	82,663
Other direct expenses	98,459	87,882	10,577
Total	5,335,436	4,777,968	557,468