PD-ABK-173
ISN 92447

TIPAN

Transformation and Integration of the Provincial Agricultural Network

Northwest Frontier Province, Pakistan

Office of International Agriculture
University of Illinois at Urbana-Champaign

In collaboration with
Southern Illinois University at Carbondale

PD-ABK-173

TIPAN FINAL SUMMARY REPORT

21 NOVEMBER 1984 - 31 JULY 1994

Submitted to the
Northwest Frontier Province
Agricultural University
Peshawar, NWFP, Pakistan

and

the U.S. Agency for International Development
Mission to Pakistan

A Report of Contract 391-0488-C-005001-00
The Transformation and Integration of the Provincial
Agricultural Network (TIPAN) Project

by

Office of International Agriculture
University of Illinois at Urbana-Champaign
Southern Illinois University at Carbondale

"THE MISSION OF THE NORTHWEST FRONTIER PROVINCE AGRICULTURAL UNIVERSITY IS TO PROVIDE QUALITY ACADEMIC TRAINING IN AGRICULTURE AND RELATED DISCIPLINES, TO CONDUCT PROBLEM-SOLVING, FARMER-ORIENTED RESEARCH, AND TO PROVIDE EDUCATIONAL AND RESEARCH LINKAGES VIA OUTREACH AND CONTINUING EDUCATION TO AGRICULTURAL EXTENSION AND THE AGRICULTURAL COMMUNITY OF NWFP."

Mission Statement Adopted by the NWFP Agricultural University
December 1992

TABLE OF CONTENTS

PAGE

I. EXECUTIVE SUMMARY 1

II. PROJECT SUMMARY 3

A. Background 3

B. Goal 3

C. Purpose 3

D. Project Components and Activities 4

E. Anticipated Outcomes 4

F. Implementing Arrangements 6

III. PROJECT ACCOMPLISHMENTS 6

A. Project Components 6

B. Complementary Activities 18

IV. CONSTRAINTS 20

V. LESSONS LEARNED 24

VI. EPILOGUE 26

APPENDICES

A. NWFP-AU Personnel Receiving Training Under TIPAN Project 27

B. U.S. Faculty and Support Personnel Providing Services to TIPAN Project ... 36

C. Reports Prepared by Individuals Providing Services to TIPAN Project 40

D. Expenditures for Technical Assistance, Training and Commodity Support ... 43

ACRONYMS

TIPAN	Transformation and Integration of the Provincial Agricultural Network
NWFP	North West Frontier Province
NWFP-AU	North West Frontier Province Agricultural University
AU	Agricultural University
USAID	Unites States Agency for International Development
UIUC	University of Illinois at Urbana-Champaign
SIUC	Southern Illinois University at Carbondale
PACD	Project Activity Completion Date
GOP	Government of Pakistan
GONWFP	Government of the North West Frontier Province
SOM	Skidmore Owings and Merrill
ACE	Agricultural Commodities and Equipment Project
TDY	Temporary Duty Assignment
BPS	Basic Pay Scale
NGO	Non-Governmental Organization
TOEFL	Test of English as a Foreign Language
TAT	Technical Assistance Team
A&E	Architectural and Engineering
USG	United States Government
DTSP	Development Support Training Project
ARP--II	Agricultural Research Project--Phase II
MOU	Memorandum of Understanding
PC-I	Planning Commission Document--I
SNE	Schedule of New Expenditure
MART	Management of Agricultural Research and Technology Project

I. EXECUTIVE SUMMARY

New buildings, modern facilities, state-of-the-art equipment and well-trained personnel are the characteristics of the Transformation and Integration of the Provincial Agricultural Network Project, known by the acronym TIPAN. The functional merging of education, research, and outreach is more than a discrete project; it is the basis for innovation, excellence and service aimed at strengthening agricultural and rural development and serving the people of the NorthWest Frontier Province.

Agricultural research and education in NWFP have a long and varoable history. Research was started at Tarnab in 1908 and higher agricultural education at the venerable Islamia College in 1933. During the 1950's new research stations were established and a College of Agriculture became part of Peshawar University. The College was upgraded to the Faculty of Agriculture in 1974 and it was given University status in 1981. In 1987 the educational programs of the Agricultural University and the crops and livestock production research programs of the NWFP Department of Agriculture were merged, further strengthening service to agriculture and the people. A teaching-research-outreach system in NWFP is now in place to meet agricultural challenges of the 21st century.

Teaching. AU's teaching system has expanded considerably. Comprising five faculties and 19 teaching departments, it is staffed by about 170 academic personnel. Newly constructed facilities will provide room for expansion beyond the current level of 1200 undergraduate and graduate students. The annual intake for the BSc. course approaches 300. Since the 1993 academic year, some 100 additional students have been admitted annually under a self-financed scheme. Demand for these seats appear to be increasing. Female student enrollment has increased significantly, averaging about 100 for the 1992-1994 academic years.

The quality of instruction has improved through revision and updating of curricula, better trained faculty, use of more appropriate instructional methods and teaching aids, and strengthening the library and other academic services. Courses in mathematics, statistics, biochemistry, agricultural program management, agricultural communications and computer science have been added. A major emphasis has been placed on improving English language proficiency. The language of instruction at the university is English.

The involvement of research scientists in teaching and the initiation of collaborative research programs is helping to improve the relevance of teaching materials to the peculiar needs of agriculture in NWFP.

Research. Research capabilities have been strengthened considerably through the provision for international training of a large number of scientists. The supply of essential laboratory and field equipment, installation of computers and establishment of meteorological observatories have helped improve the quantity and quality of research output. A research agenda has been devised to tackle the existing and emerging problems of NWFP agriculture. Current research focuses on varietal improvement, soil fertility, disease and pest control, and livestock production; it is almost wholly adaptive or applied in nature. Technical review committees and working groups help streamline planning, implementation, and monitoring of research

Good linkages exist with other institutions in Pakistan through the University Grants Commission, the Pakistan Agricultural Research Council and national coordinated research programs. Adaptive trials test technologies before they are disseminated to farmers for adoption. The farming systems approach adopted by the AU has been successful in packaging improved technologies. Small farmers and commercial producers have been involved in the development of the research agenda through participation in workshops, field days and on Technical Working Group Committees.

Outreach. A Directorate of Outreach, supportive of the mission of the provincial Extension Division, has been established in the AU. Staff have developed a systematic approach to the identification of problems, development of packages of technology, and their efficient dissemination to farmers through the Extension Division. An Outreach Advisory Board, a Technology Development and Transfer Committee, and several Technical Working Ggroups on different commodities and in different disciplines have been established for planning, implementing and monitoring.

The Outreach Directorate has conducted several diagnostic surveys, farming system research programs and field-problem based campaigns. Field staff, farmers and women have benefitted from training programs organized by the Outreach Directorate. Bulletins for farmers were published in Urdu and widely distributed.

Human Resources Development. The TIPAN Project has made a lasting contribution to the strengthening of the agricultural human resource base for teaching and research. Over the life of the project, 142 faculty and staff were deputed for international long-term training. One hundred twenty-nine advanced degrees were awarded to this group, including 48 Ph.D degrees. Of the 142 staff deputed half came from the research system and half from the AU campus. In addition 73 staff members were sent abroad for short-term training to pursue special interests. The capabilities of the AU system personnel have been strengthened considerably.

A Directorate of Continuing Education has been established at the AU to carry out the planning, implementation and evaluation of all training, short courses, workshops, seminars and conferences, both on- and off-campus.

The NWFP Agricultural University is positioned to play an important role in the development of human resources for agricultural development in the province, nationally, and other developing countries of the region, especially Afghanistan and the Central Asian Republics. Concerted efforts by the Government of Pakistan, the Government of the Northwest Frontier Province and the donor community will allow this potential to be fulfilled.

Administrative Structure and Governance. Within Outreach a Directorate of Continuing Education was formed and has sponsored numerous short courses and workshops. With the training facilities and the hostel available to this directorate, it has a promising future and will establish and strengthen the NWFP-AU as being a service institution. The Directorate of Communication and the Learning Resources Center is currently being coordinated by the Director of Continuing Education, thus ensuring cooperation, coordination and strong leadership and representation.

A computerized financial management system was implemented by sub-contracting a leading accounting firm (KPMG Peat Marwick) to develop a software program to meet the unique needs of the NWFP-AU system and to train the financial and personnel staff of the university and research system.

Facilities The construction component of TIPAN provided approximately 500,00 square feet of new, and badly needed, space relief to the previously overcrowded campus. The expansion and upgrading of campus facilities provides the needed physical plant to achieve the multiple goals of the Agricultural University.

The project also provided extensive equipment and materials to support the new buildings, faculty and research staff. New textbooks and journals have been added to the library; laboratory equipment has strengthened classroom and graduate education and research; field equipment has improved land preparation, planting, tillage and harvesting operations; a variety of audio-visual aids are supporting outreach and continuing education programs; and computers have been provided throughout the system for timely reporting of activities and improved research analyses.

The new equipment and materials available within the NWFP-AU system provide a sound base for teaching, research, and outreach activities.

II. PROJECT SUMMARY

A. Background

In April 1983, the NorthWest Frontier Province Agricultural University (NWFP-AU) began a long-term collaborative effort with the University of Illinois at Urbana-Champaign (UIUC), cooperating with Southern Illinois University at Carbondale (SIUC), and the United States Agency for International Development Mission to Pakistan (USAID) for the purpose of designing and implementing a comprehensive institutional development project to integrate agricultural research in the province with agricultural education at the university level. The intent of the project was to raise the productivity, economic well-being, health and general welfare of the provincial agricultural sector by improving the quality of education and research and by strengthening the linkages with agricultural extension through development of a problem-solving, client-oriented research and outreach program at the AU.

The project was named the Transformation and Integration of the Provincial Network Project, and became generally known by its acronym, TIPAN. TIPAN had two major program components, 1) construction of new classroom, laboratory and support facilities, and 2) improvement of academic and research activities through curriculum reform, integration of agricultural research and education with linkages to extension, training of faculty and staff, and supply of supporting operational hardware. The two components were addressed through separate contracts, one for the construction program and the second for technical assistance. This report concentrates on the TIPAN technical assistance contract, although reference is made to elements of the construction component throughout.

B. Goal

The primary goal of the project was to increase the NorthWest Frontier Province's agricultural yields, agricultural production, farm income and rural employment. The secondary goal was to transform the agricultural technology transfer network in the NWFP.

C. Purpose

The purpose of the project was to integrate agricultural research in the NWFP with agricultural education at the university level; improve the quality of education offered and research undertaken by the university; and strengthen linkages with agricultural extension through a problem-solving farmer-oriented outreach program. Achievement of the project purpose would be demonstrated by the existence of an environment in which the AU:

- is a dynamic force for improved agricultural development in the NWFP;
- is producing high-quality graduates who are staffing the public and private agricultural sector;
- is generating improved technologies which are relevant to NWFP farmers and their problems through a directed provincial research program; and
- is integrating outreach activities with provincial extension efforts, effectively delivering new technologies to potential users and other client groups.

The goal and purpose of the project was sustained in the 1989 Project Paper Amendment authorizing the continuation of the project and the addition of funds to fully finance the project through the Project Assistance Completion Date (PACD) of 29 August 1994.

D. Project Components and Activities

The project focused on seven components which, if successfully achieved, would put the Agricultural University on the path to long-term sustainability as a dominant force in the provincial agricultural network. In summary, they included:

- new university programs in teaching, research, outreach and enrollment of women;
- establishment of special university support centers for continuing education and learning resources;
- modification of the university's organizational structure and staffing pattern;
- construction of new physical facilities and renovation of existing structures;
- technical assistance requirements;
- human resource development; and
- equipment, supplies and commodity support.

The requirements for the improvement of physical facilities were of sufficient magnitude and complexity to warrant separate contracts for construction and oversight activities. The remaining six components were aggregated into an institutional development, Title XII collaborative assistance contract administered by the University of Illinois at Urbana-Champaign on behalf of its cooperating partner, Southern Illinois University at Carbondale. The Project Paper Amendment of 1989 continued emphasis on these components, identifying a number of sub-activities in each area.

E. Anticipated Outcomes

For each of the project components listed immediately above, certain outcomes were projected, the satisfaction of which would result in a dynamic center of agricultural technology to support the farming and agri-business sector of the NWFP.

New university programs in teaching, research, outreach, and women's enrollment formed the foundation for the restructured institution. The curricula for BSc. and MSc. programs were to be reformed to provide a more rigorous study program leading to careers in the public and private sectors. A two-term system, with emphasis on progressive internal evaluation and a revised admissions policy to broaden the pool of qualified applicants were proposed. Agricultural research conducted by AU faculty and personnel of the NWFP Department of Agriculture was to be merged for increased productivity and quality. Outreach, a new concept, was proposed as the key mechanism linking the merged education and research functions with the Department of Agriculture's Extension Division and other organizations within the province conducting extension-type activities. To facilitate the inclusion of women in the profession of agriculture the project provided for the reservation of seats for female students, construction of a women's hostel (financed from GOP resources) and hiring of additional professionals in student programming and outreach, as well as in traditional disciplines.

Special university support centers were planned to integrate the new functions of the AU with the provincial agricultural community. A Continuing Education Center would serve the outreach and research functions as an in-service center for short courses and conferences to be offered to extension workers, farmers and other agricultural development workers. A Learning Resources Center would serve the combined requirements for teaching, research, and outreach. It includes the university library, a communications services unit and a computer laboratory. The library would serve as the provincial center of agricultural knowledge, closely linked to the PARC library

system and world agricultural data bases. The communications unit would provide editorial and production services for research and outreach publications and would serve as the center for preparation of mass media information; it would also house a language laboratory for AU students. The computer laboratory would be an instructional center for students and faculty developing proficiency in the application of computer science to agricultural problems and an instructional resource for continuing education programs.

Changes in organizational structure and staffing were planned to reflect the multi-function development thrust of AU and the expanded demands placed for administrative support. These included the establishment of a Deputy Vice Chancellor, directors for each of the functions of teaching, research, and outreach, restructuring of the existing academic organization into four faculties, each headed by a dean and acting as the basic unit for support personnel and services. Administrative requirements for new units, (e.g., the Learning Resources Center) and program thrusts, (e.g., women's programming and student services) were delineated. Staffing requirements were determined in view of the expanded role of the AU; campus-based staff size was projected to nearly double over the life of the project, and the merger of the research service would bring approximately 325 additional professional personnel into the AU system.

To meet the challenge of revitalizing the provincial agricultural system, a massive program of construction of new physical facilities and renovation of existing structures was planned in conjunction with the renowned architectural and engineering firm Skidmore, Owings and Merrill (SOM). SOM prepared a comprehensive master plan for the AU, including teaching and laboratory space, administrative buildings, hostels, staff housing, recreational fields, health facilities, maintenance facilities, landscaping requirements and the infrastructure to support them. Preliminary plans to renovate existing space for new requirements were drawn, and attention was given to rehabilitating some off-campus facilities.

Technical assistance requirements were determined for long- and short-term personnel to support general administration, the four planned faculties, and the learning resources center. Heavy emphasis was placed on short-term technical assistance to discourage overdependence on expatriates, to support program development in specific disciplines and to guide in-country thesis research of participants.

Participant training requirements were generated from an inventory of current faculty (in terms of numbers and qualifications) in comparison with staff requirements over the life of the project and beyond. Heavy emphasis was placed on the training component in view of AID's long experience in agricultural university development that indicated returns to training inputs are relatively high and long-lasting. One hundred forty-two faculty, research and administrative personnel were slated for advanced degree programs, evenly split between MS and PhD programs. An additional 65 short-term training slots were programmed to provide specialized training in non-academic areas. In-country thesis research was projected for a high proportion of degree-seeking participants to better prepare them for their re-entry into the provincial research and education system and as a means to strengthen participant-adviser relationships leading to sustained collaborative research opportunities and disciplinary networking.

The need for equipment, supplies and commodity support over the life of the project was estimated in terms of value, with specifications to follow as program needs became known. A limited amount of commodity support was detailed in the program design, including major telecommunications and computer equipment, vehicles and farm and research center machinery. Indicative needs in other areas were projected. Total resources programmed for this component were $5.2 million, combining $3.2 million from a companion USAID project (Agricultural Commodities and Equipment/ACE) and $2.0 million from TIPAN funds.

F. Implementing Arrangements

The implementation plan called for a three-phased approach over 11 years, beginning in 1984 and ending in 1995. The project's two elements, construction and institutional development were planned in an integrative process, but contracted to separate organizations The construction program was designed to accommodate and reflect the schedule and requirements of the institutional development program. However, the phasing of the two components was not synchronized because of the need to allow time for construction design activities and to properly schedule the construction work so as not to disrupt the on-going AU development program.

The University of Illinois at Urbana-Champaign, with Southern Illinois University at Carbondale as its collaborating partner, was contracted under the collaborative assistance mode for design and implementation, and was given responsibility for all non-construction aspects of the project, including technical assistance, training and commodity support to the AU. The construction program entailed elements of planning and quality control oversight, and physical construction. The architectural and engineering firm of Skidmore Owings and Merrill (SOM), was contracted to perform the planning and oversight services, and a U.S. firm, ENCORP, AMCA INTERNATIONAL, was contracted to carry out the U.S.-funded, largely campus-oriented portion of the construction plan. A Pakistani firm, MARK INTERNATIONAL was contracted to carry out the GOP-financed portion of the program across the nulla from the AU campus.

Contracts were executed in the fall/winter of 1984 with both Illinois and SOM. Mobilization activities, including team formation and orientation, articulation of construction and institutional development planning, and pre-assignment TDYs, extended through the spring of 1985. The Illinois field team arrived in Peshawar during the summer of 1985 and the TIPAN Project got underway.

III. PROJECT ACCOMPLISHMENTS

The seven project components proposed in the Project Paper were the foci of activity throughout the life of the project and significant progress was made in each area. Many, but not all, project targets were met, not surprising in a project of the scope and magnitude of TIPAN. These are summarized below.

A. Project Components

New University Programs

Teaching. New or restructured programs in teaching, research, and outreach were initiated, beginning with the reformation of the B.Sc. program, the basic academic program of the university. The recommendations of the Design Team for a completely revamped four year curriculum, arranged in a semester mode, were adopted and implemented even before the Contractor's field team was in place. The curriculum included a core of courses taken by all students in the first two years, core and specialization courses in the third year, and all specialized courses in the fourth year. An internal examination system was adopted. Eight new courses were introduced to strengthen and balance the core program. The pool of incoming students was expanded by opening admissions to pre-engineering F.Sc. graduates, in addition to the pre-medicine F.Sc. graduates from which it traditionally drew new students, leading to a larger number of better qualified applicants. A number of admissions were reserved for women applicants and the first group of five female students enrolled in the fall of 1984. Transcripts were introduced, providing a concise record of performance for each enrolled student.

Concurrently, substantial effort was given to faculty development programs to facilitate the transition from the "old" system to the "new." Teaching seminars were held in the early years to provide

an enrichment dimension for faculty development. Workshops, meetings and individual conferences were used to improve instruction. Publications related to improvement of instruction were distributed to teaching faculty. Faculty from campus and research units attended special classes in computer training, research methods, preparation of technical and other reports, and English.

Student services were established to complement the new curriculum and spirit of education. A student handbook was developed to better inform the students about the rules pertaining to them. A student advisory program for first- and second-year students was initiated in 1989, but was never fully adopted. A foreign student advisor was appointed by the Provost to work with the limited number of international students enrolled at AU. A placement office was organized and continues to function. An internship program was established in 1986 with the semester system and proved to be popular with the undergraduate students. Declining financial resources, combined with limited hostel development at the research stations, have caused the program to be suspended, but it could be revived rapidly if resources to support it are once again made available.

Measures were taken to control and reduce cheating in the examination system. Historically, the widespread use of unfair means in examinations in Pakistan's universities has been deplored by internal and external critics. It is demoralizing to the honest student and demeans the worth of the degree in the worldwide body of the academy. Under the leadership of the administration, especially the third Vice Chancellor, and with the full support and participation of the faculty and teacher's association, the problem has been brought under control. This is a major step in developing effective and constructive student evaluations.

Research. The TIPAN design advocated the integration of the NWFP crop and livestock production research activities, administered by the Department of Agriculture, and the educational programs of the NWFP Agricultural University through merger. This concept was adopted by the parties and included in the program agreement. The merger entailed:

- transfer to the university of the research system's recurrent and annual development program budgets;
- assignment to the university of all the research system's professional and support staff; and
- transfer to the university of all physical facilities under the control or use of the research system.

All parties recognized that such fundamental change would encounter some resistance, take time to accomplish and require sustained effort on the part of the participating organizations. Considerable progress was made in both process and product of research integration, but the ten- year life of project proved to be an insufficient time period to conclude a complete, effective merger of the functions.

The first formal steps in merger, obtaining legislative approval, took somewhat longer than anticipated, but by mid-May 1987 the legislative assembly had passed an act and set the effective date for handover. The act did not fully meet the three conditions mentioned above, however, as it gave dual control of the research staff to the Department of Agriculture and the Agricultural University, unnecessarily creating a sense of rivalry between the two organizations.

On balance, both process and product have benefitted from the attempt to merge. In terms of process improvement, TIPAN introduced a number of desirable elements including:

- analysis of the existing research program;
- development of a staffing and training plan for the faculty and research staff;
- introduction of a peer review process for research projects;

- emergence of collaborative research by station and campus-based researchers stimulated by special research grants to returned participants to facilitate re-entry and foster collaboration; and
- preparation of a master plan of research for the province.

In terms of product improvement:

- sixty-five of the 129 participant trainees who obtained U.S. degrees under the program came from the research system;
- improved varieties and cultural practices have been and are being developed at research stations and proved and demonstrated in on-farm trials;
- recent releases of improved varieties of cereals are commonly grown;
- farming systems approaches are being implemented in multiple districts;
- teaching faculty have focused thesis research on sets of related issues so that thesis research products are cumulative and contribute to an increasing knowledge base; and
- research relationships have been developed between and among crops and livestock researchers as a first step in understanding the factors limiting livestock productivity.

Outreach. A major component of the TIPAN Project, the Outreach Program was proposed and designed to link the teaching and research functions of AU to the various extension services that work directly to serve farmers and their families. Whereas agricultural teaching and research have a long tradition and history in the province, Outreach was a totally new endeavor. Thus, it is not surprising that the process to establish Outreach evolved slowly over the life of the project.

When parties progress beyond the semantics of outreach vs. extension it seems clear that the function of outreach, as a linking mechanism, is reasonably well accepted. From this base, AU, the Department of Agriculture's Extension Division, and the various other extension services operating in the province can mobilize resources and expertise to address client needs. This is occurring with increasing frequency at the operational level.

Contractor assistance to Outreach was constant over the life of the project. Four resident advisers were assigned to different aspects of the program--Outreach Organization and Administration, Animal Husbandry and Livestock Outreach, Training and Continuing Education, and Continuing Education and Outreach. The variety in specialist designations reflects the focus on education, appropriate to a university system, as opposed to an emphasis on input supply and services observed in many traditional extension organizations.

Progress has been incremental, but real. The first order of business was to define, organize and mobilize an AU Outreach Directorate, co-equal with the Directorates for Teaching and Research, a process that culminated with the appointment of the first Director of Outreach in January 1987, followed by appointment of most Regional Program Leaders by February 1988.

Concurrent with the organizational thrust, field work was undertaken in adaptive research and the formation of farmer seed-increase groups, initiating a pattern of cooperation with other donor-funded projects, provincial organizations, and the Extension Division of the Department of Agriculture. By the end of the tour of the first resident specialist, the basic administrative and support structure of the Outreach Directorate was in place. Livestock outreach and in-service training activities were aggressively pursued in the middle years of the project. The importance of livestock to the agricultural sector, especially the small farmers, was recognized by AU faculty and research staff and a series of activities was initiated in collaboration with the provincial Livestock and Dairy Development Department. These included documentation of herd sizes, on-farm trials to provide farmers with simple cost-effective technology to increase the nutritive value of wheat straw, studies on the meat retailing process and its effects on meat production, development and

implementation of a record keeping and analysis service to local dairy farmers, and development of recommendations for the improvement of sheep and goat breeding programs in the province.

In-service training programs, short courses, workshops, seminars, and conferences were offered in a staff development program in the middle years of the project. A survey of staff training needs formed the basis of the program, reaching a total of 247 faculty and staff in a two-year period. Among the more successful programs were:

- technical writing and research proposal workshops;
- management skills workshops for personnel at the BPS-19 level;
- computer training on basic and advanced word processing skills, research methodology, desktop publishing and library database management; and
- economic analysis of research.

Training programs were developed and implemented for 398 workers in the Extension Division, primarily agricultural officers and field assistants. Special training was organized for personnel associated with other donor-funded development projects in the province. These included programs for the Gadoon-Amazai Project, the Buner Development Project and the Malakand Fruit and Vegetable Development Project. In addition, Outreach staff members authored more than 50 farmer bulletins, printed in Urdu and distributed through the Extension Division.

The final phase of technical assistance to the AU Outreach program concentrated on building capacity in the Continuing Education Division and in further developing the concept of subject matter specialists within the faculty and research staff to support the Outreach function.

Although the Continuing Education Center and Outreach Hostel, under construction but not completed, was not available for programming, the Director of Continuing Education, organized 34 short courses in 1992/93, enrolling over 800 Extension staff, AU faculty and researchers, Afghan agriculturalists, and others. When the new Outreach Center becomes operational,the Continuing Education facility will be among the best in Pakistan, capable of meeting the in-service and continuing education needs of provincial agricultural workers and others on a regional basis. The Continuing Education division appears to be sustainable beyond the life of the TIPAN Project.

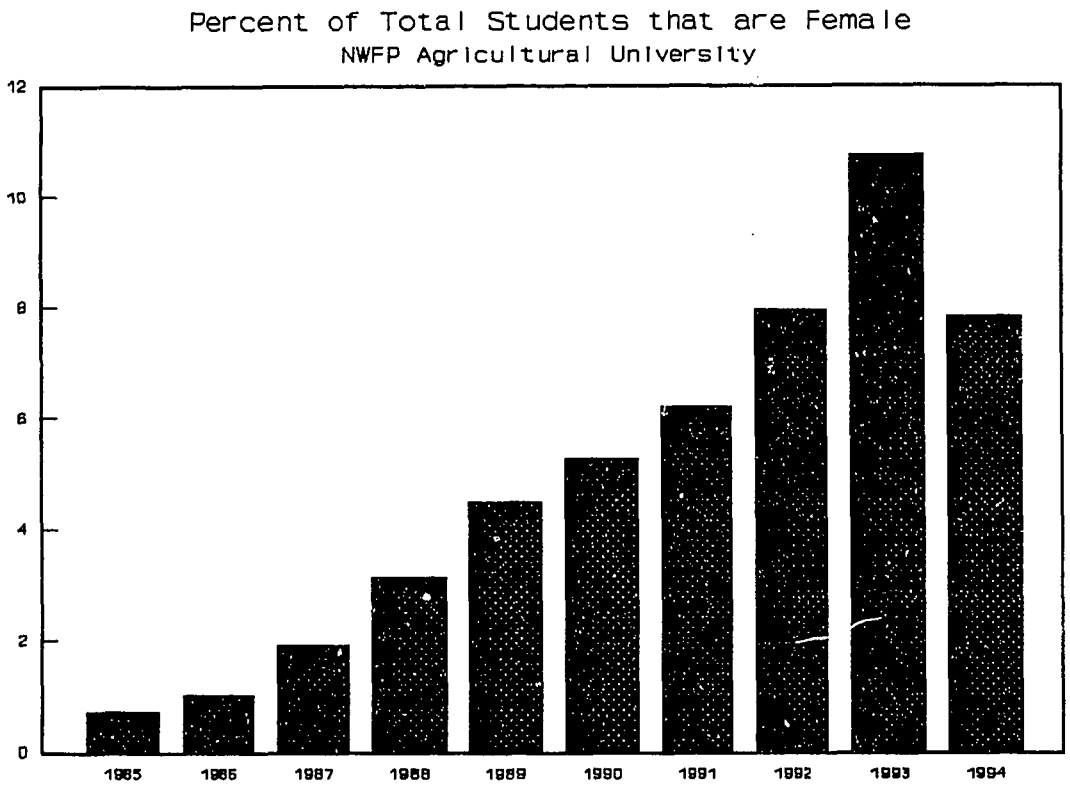
After a false start in arranging an inter-governmental transfer of a qualified female to serve as Program Leader in 1989, Women's Outreach progressed with the appointment of a Program Leader in January 1993. Workshops on foods and nutrition and livestock and poultry management were offered to female staff of different agencies. The Program Leader organized educational meetings for village women, female extension workers of the Fruit and Vegetable Development Board and non-governmental organizations, and taught extension methods to the Fruit and Vegetable Development Board Women's Project.

Enrollment of Women.

The Agricultural University committed to providing opportunities for female students in the professional agricultural curriculum during the design phase. Women make up a substantial portion of the agricultural workers in the province, yet their representation in the profession of agriculture was minimal. There were essentially no female faculty teaching agricultural courses or conducting agricultural research. There were no female Agricultural Officers or Field Assistants in the Extension Division. Some organizations, e.g., the Fruit and Vegetable Development Board, had begun to hire females to carry out village extension activities, at a para-professional level.

Through TIPAN, AU began recruitment of female students as a first step in developing a body of female professionals who would eventually be employed as teachers, researchers, extension workers, or in other capacities in the provincial agricultural system. The first group of four female

students was enrolled in the fall of 1984. This number has steadily grown to the current (1994/95) academic year enrollment of 93, of whom 76 are enrolled in B.Sc. and 17 in M.Sc.programs.



Currently about 10% of the undergraduate students are female. University officials report that the female students are equal or superior to the male counterparts in academic performance and that their presence has had a positive influence on the student body. General behavior in terms of conduct and language in the classroom and on campus are improved when compared to all, or nearly all, male population. Early indications are that the female graduates are finding employment with government agencies and NGO's working in the province. The Agricultural University has employed six female graduates as faculty, of which four have been employed by the research system.

University Support Centers

Two major support centers--the Learning Resources Center and the Continuing Education Center--were designed to provide capacity and emphasis to the expanded mission of the AU. The concept of a comprehensive learning resources center, as opposed to an enhanced library, was adopted to promote a proactive academic support structure serving a highly motivated student body and a rejuvenated faculty. The Continuing Education Center would provide the physical and intellectual base for AU outreach and service to the agricultural sector of the province.

The Learning Resources Center incorporated the library, a computer laboratory, and a language laboratory. Located in contiguous structures, the Center would serve as the heart of the new AU. Significant progress was made in preparing for the eventual occupation of the new space. Two

units, the library and the computer laboratory, were strengthened and operated throughout the life of the project in temporary space. The language laboratory concentrated on preparation of faculty to qualify for TIPAN participantships and has not, as yet, aggressively met the challenge of supporting student English programs.

The collection of material used to prepare the faculty and research staff to achieve qualifying TOEFL scores was transferred to the Continuing Education Center so that the AU can offer TOEFL classes on a fee basis and supply self-instruction and enrichment material for the student body and others in the Learning Resource Center. This considerable collection of materials for teaching English as a second language included volumes of different books, tapes, videos, sample TOEFL exams and tape player/recorders.

The Computer Center was an immediate success, opening in the first year of field operations with strong support from the administration, faculty, and students. The first center director received short-term training on the UIUC campus and took charge of center operations upon his return to the AU campus. A large room was renovated, air conditioned, wired and furnished with appropriate hard and software. Support staff were trained and they were available to assist faculty and students as they progressed in the new technology of personal computers. Alternative brands of computer hardware were tested to provide for the differing requirements of software. The computerization of document preparation, research analyses, library collections and financial management (at least on the campus) is a continuing legacy of the TIPAN Project.

The library underwent a complete metamorphosis; from an antiquated, traditional system of a "locked" collection and limited circulation, to open shelves, improved circulation services, and initiation of computer and CD-Rom capacity to access international data bases. The librarian benefitted from a combination of graduate training leading to an MLS degree and continuing support from a TIPAN library and information consultant who served multiple short-term assignments in support of the library program. With support from the AU administration and faculty, the library has moved into the top ranks of Pakistan's university libraries.

The Continuing Education Center will provide a modern venue for conferences, workshops, training courses, and a variety of activities designed to create a synergism between and among the faculty and research staff of AU, the professional extension staff of the Department of Agriculture, farmers and agribusiness. With a mandate extending beyond the borders of NWFP, the center should be a national and international resource. It is the principal educational arm of the Outreach Program.

The Continuing Education Center will soon become operational in the newly constructed space released to the AU. While waiting for the center buildings to be completed, the AU has moved aggressively in preparing for its central role in providing various forms of educational activities by working through the teaching and research staff to conduct numerous short courses and workshops. Since 1992 over 70 workshops and short courses have been offered under the continuing education program of the Outreach Directorate. Many of these have been held in hotels, Extension Division facilities, or at other locations, including research stations of the expanded AU. In the future, most of these will be held on the AU campus, providing a constant reminder of the value of the educational enterprise to provincial agriculture.

Wisely, the AU adopted a gradual process of institutionalizing the Continuing Education Center. With the certainty that construction would not be completed until the final years of the project, the AU moved to develop a sense of service among teaching faculty and research staff to share their knowledge and expertise with Agricultural Officers and Field Assistants in the Extension Division, and with extension workers supported by other governmental or donor sponsors. Many field days were conducted in collaboration with Extension Division personnel, reaching appreciative farmers directly.

A faculty member and former AU Registrar returned upon completing doctoral-level training in adult education and was appointed Director of Continuing Education. Since assuming his position, the Director has provided leadership in organizing, promoting and conducting a variety of educational offerings. He has worked to improve AU and provincial capacity to identify and meet training needs of Extension Division personnel and extension workers of other governmental and donor-sponsored programs.

A short-term consultant worked with the new director to develop and implement organizational and operational requirements of a full-service residential conference center similar to ones found on many U.S. university campuses in preparation for the assumption of the new facilities constructed. The new facility is the equal of any in Pakistan and will feature well-equipped class and conference rooms, staff offices and a modern residential facility with food service and other amenities.

Organizational Structure and Staffing Pattern

The modernization of AU, as provided in the project design, included a restructuring of the institution to balance faculties (colleges), making them the primary administrative unit of the university, merging the education function carried out at the Peshawar campus and research in crops and livestock production administered by the Department of Agriculture, and forming a new administrative model for the overall coordination and management of the enterprise. Changes in the staffing pattern were also planned to provide flexible career paths for teachers and researchers and to promote joint assignments in the three areas of teaching, research, and outreach.

Changes in the administrative structure of the AU were central to the adoption of the broadened mission of the institution. It seemed logical to the project planners that the process of decentralization, freeing the Vice Chancellor from the minutia of detail to deal with policy issues relating to mission, governance, academic programs, university/client relationships, acquisition of resources, and other issues of institutional sustainability would require an administrative organization that placed increased responsibility for day-to-day operations on a cadre of faculty-based managers. Since the departmental organization included many small units, some with as few as two or three staff, the primary academic unit of the AU was set at the faculty (college) level, with the dean, rather than the department chair, as the responsible office. A new administrative strata of functional coordinators for academic programs, research, and outreach was set in place, and directors of each function were appointed. Linking programmatic operations and institutional policy formation, the created position of Pro- Vice Chancellor was recommended to oversee system operations and help the Vice Chancellor in his important role as the principal voice for the AU.

Other administrative appointments relating to the special university support centers, student services (including special services for female students), personnel, fiscal management and physical plant services were recommended. In several instances personnel were already assigned these responsibilities, but lines of reporting were changed to minimize the direct and pervasive contact with the Vice Chancellor that characterized the traditional structure.

For the most part, the proposed academic restructuring plan was adopted and put in place. Directors of Teaching, Research, and Outreach were named and functioned. A Pro-Vice Chancellor was appointed from the senior staff, but never functioned as the day-to-day administrator that was envisioned for the position. When the incumbent retired, the position was not filled and the position was discontinued. The four faculties operating at the time of design eventually reorganized into five, each with a dean. A few new departments were created, but none were eliminated or combined, as had been envisioned. Departments continue to be the basic academic unit of the AU. The Vice Chancellor continues to exercise administrative control over too many units.

Changes in the pattern of staffing the AU system have been adopted, but more at the administrative level than at the cutting edge. The concept of joint appointments, common in the U.S. university system, proved difficult to implement, and a functional "split assignment" concept is being utilized until such time as accountability issues can be resolved. The new AU system has found it difficult to allocate personnel budgets to the three functions--teaching, research and outreach--although the "split assignment" of duties among these functions is gaining acceptance. Neither the AU budget from the GOP nor the AU budget from the GONWFP allows for split appointments which are critical for the functioning of a merged system of teaching, research and outreach. Because the proposed merger of the research system and the AU has not been completed through a unification of the personnel systems of the two organizations, the realization of this modest objective awaits resolution of the larger issue.

The process of educating the faculty and research staff on the importance, utility, and professional satisfaction of joint activity has been a continuous activity of TAT and has resulted in acceptance on the part of an increasing number of faculty and staff. Early in the effort two members of the research staff--one each from the Cereal Crops Research Institute, Pirsabak and the Sugar Crops Research Institute, Mardan--were given additional teaching assignments on AU campus and ultimately accepted campus appointments while retaining their ongoing research station programs. Other researchers have taught occasional courses or given lectures on campus. Teaching faculty have become increasingly active in research and have taken opportunity to utilize the off-campus facilities of the research system as well as the large Malakandher Farm adjacent to the central campus.

Nowhere was the concept of the multi-functional professional emphasized more than in the continuing effort to inculcate a service element into the thinking of faculty and research staff through the introduction of the Outreach Directorate. The element of service, of second nature to those in the U.S. land-grant institutions, was new to our Pakistani colleagues. To their credit they recognized that knowledge and generation of new technology had to be shared with the wider community, and they grew to realize that this function need not be the exclusive purview of the Extension Service, although that service was appropriately the lead organization for farmer education.

The retention of a dual personnel system resulting from less than complete merger of the AU and research system has contributed to the delay in fully implementing a staffing pattern featuring a multi-functional professional. The concept, however, continues to be promoted, particularly in relation to encouragement of the program of the Outreach Directorate. The observations by 129 returned degree participants, with their experience working in the US with academic advisers holding joint responsibilities for some combination of teaching/research/extension, is beginning to be reflected in an acceptance that faculty and staff can contribute to more than a single facet of the AU mission. Many of the 73 short term participants were also in programs which introduced or reinforced the concept of the multi-functional professional.

Construction of Physical Facilities

A magnificent new campus, with 500,000 square feet of classroom, laboratory, office, living and support space, provides an academic setting second to none in Pakistan.

The design phase of the TIPAN Project featured close collaboration between the technical assistance contractor and the architectural and engineering contractor to coordinate program requirements with bricks and mortar. Articulation between the introduction of academic and administrative changes and on-line provision of new space was provided. A construction schedule was developed on a three-phase basis, with USAID support limited to the first two phases. This was

later modified to combine phases one and two into a single USAID-funded phase. The Government of Pakistan was responsible for the construction of faculty housing and other support elements, including some campus infrastructure.

Implementation of the construction program was delayed due to a dispute relating to the process of contractor selection. After resolution, a lengthy period of bidding/contracting/mobilizing ensued, further delaying the breaking of ground for the new facilities. Construction began in December 1988, with a target completion date set for late 1991.

The construction program never recovered from the early delays. The planned absorption of new space as the early groups of participants returned from overseas training did not materialize. Equipment ordered and received had to be assigned to temporary locations in several instances, and there were planned delays in ordering specialized equipment for some of the special support centers, e.g., communications, audio-visual, language lab, etc. As the process of building turnover began, in the spring of 1994, a number of problems surfaced, some serious, that pushed the final date of space utilization beyond the limit of the technical assistance contract.

The full report of the construction program will be made by the A&E contractor, SOM. The inability to deliver urgently needed new academic and support space to facilitate administrative and program reforms over a ten-year period had a most serious and negative impact on the effort to convince the faculty and staff, the Provincial Government, and the farmers and agri-businessmen of the Province that the TIPAN Project was a viable resource. The fact that USG support is being withdrawn due to the Pressler Amendment at the time the new space is ready for occupancy precludes an operational phase in which technical assistance is available to effect a smooth transition in the utilization of these new physical resources--a "shake down" period.

Technical Assistance

Technical assistance personnel requirements were identified in close collaboration with AU faculty and staff. Initially, 486 person-months of long-term and 388 person-months of short-term technical assistance were programmed in two broad areas:

- policy and program development and management to effect the structural changes and program thrusts of the project; and
- technical and management assistance in particularly discipline weak areas.

The level of long-term personnel was held to a minimum for a project of this magnitude and complexity, reflecting USAID policy toward the posting of resident expatriates in the NWFP. The early years of the project coincided with the resolution of the Afghan struggle to oust its Soviet-backed government, and there were legitimate security concerns in the Peshawar area. A heavy reliance on short-term technical assistance was adopted to reduce expatriate presence.

By the end of the project 16 individuals had provided 465 person-months of long-term technical assistance; two of these died at post. The average tour of duty was 30 months. A total of 52 short-term technical and 15 administrative personnel contributed 112 person-months of service. Early restrictions on the size of the expatriate team reduced the overall planned level of effort. Short-term technical assistance was utilized fully and successfully in the last two years of the project. However, greater success in the delivery of short-term technical assistance was hindered by three factors which combined to produce a lower than planned output:

- fewer participants than anticipated returned to Pakistan, with their academic advisors, to conduct thesis research;

- a pervasive belief among some AU administrative personnel that funds intended for short-term technical assistance, but not utilized, would be reprogrammed in other areas, e.g., training or commodity support; and
- the absence of having new facilities available as scheduled in the project design, prevented many of the new initiatives in Outreach and the Learning Resources Center from being staffed until the last year of the project.

Human Resource Development

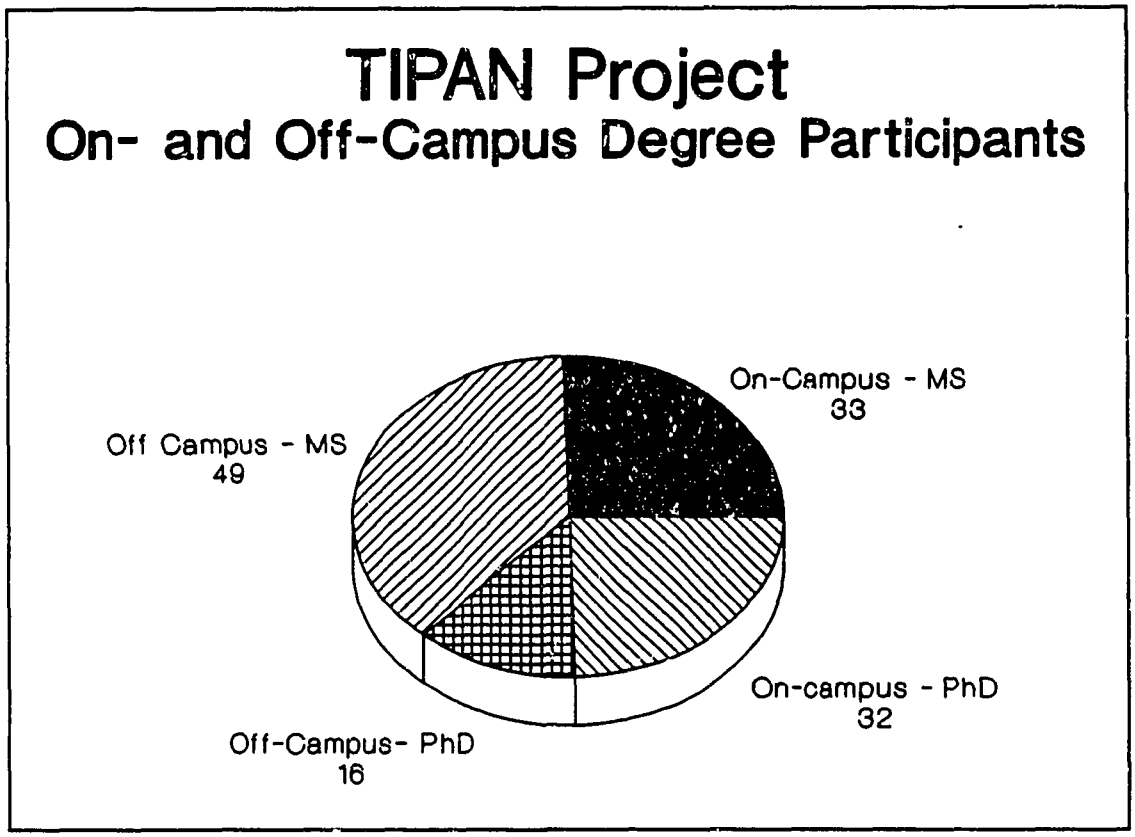
The most successful output and sustainable benefit of the TIPAN Project was the participant training program. One hundred forty-two AU system faculty and research staff, equally divided, were sent to U.S. universities to pursue M.S. and Ph.D. programs. A total of 35 universities, representing all agro-climatic regions of the country, participated as training sites for this advanced-degree training. Fewer than 25 percent of the long-term participant trainees were enrolled in the two Illinois universities. Twenty participants conducted their thesis research in Pakistan.

Notably, 129 individuals successfully completed requirements for a graduate degree. Health and family related problems were the main contributing factors for the 13 participants who could not com-plete their programs. The incidence of academic failure was less than three percent. Of note also, is the extremely high incidence of return following training, indicating strong professional and family ties to the university, province and home community.

Short-term training was a significant component of the training program. Altogether, 73 short-term training programs were designed, involving 66 individuals. The variety of programs ranged from formal short courses to specially designed activities that included both technical and administrative content. USAID also provided invitational travel to selected administrative or government officers whose understanding and support were important to project success.

Appreciation is extended to USAID for their flexibility in including the participant training component in the technical assistance contract. The Mission policy, at the time of project design, was to subsume training programs within the Mission-wide Development Support Training Program (DSTP), administered by another contractor. The TIPAN Project was excepted from this policy, and given responsibility for training management. This allowed flexibility to structure a participant program that was more responsive to and supportive of institutional needs. For example, when it became apparent that TOEFL requirements of U.S. universities would prove difficult to meet, TIPAN was able to initiate and develop a special English program to assist faculty and research personnel to reach the level of language competence needed for successful graduate study. This was a major contribution to the low incidence of academic failure among the trainees.

A major feature of the training program was the series of summer workshops developed for the participants and held principally on the campus of Southern Illinois University at Carbondale. While the workshops had strong technical content, they also provided the additional opportunity of bringing together the future leadership of the provincial agricultural system, initiating, in many cases, relationships that will have significant impact on the conduct of agricultural research and teaching into the next century. A spinoff of the summer workshops, specifically those in the later years of the project focusing on professional re-entry, was the formation on the AU campus of the TIPAN Re-entry Committee. This is a support group of faculty and research staff who assist returning participants, particularly in the first months after resuming their duties at the AU. The Committee's activities are diverse, including meeting returned flights, scheduling seminars on "hot" topics, assisting in seeking out research funds, and coordinating with the teacher's union and the companion professional research officers union.

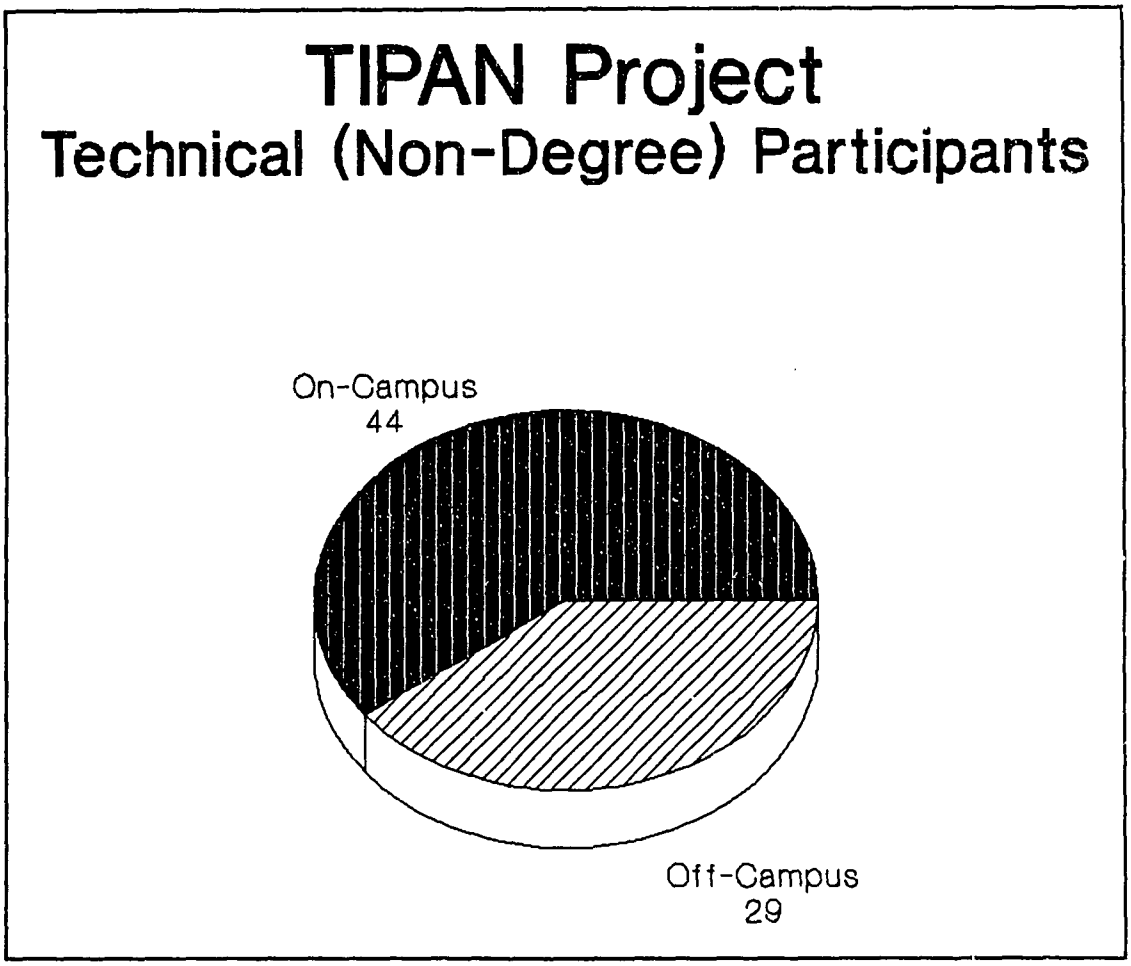


Each month the Home Office Training Officer provided a summary report detailing the status of all participants. The final summary report is included in the comprehensive appendix of project reports. An evaluation questionnaire was prepared at the end of the project for completion by returned long- and short-term trainees. The data is being analyzed and will be reported at a future date.

To give some perspective to the importance of the participant training program to the sustainability of the AU, consider the following anecdote. At about midway through the project, when the Contractor and AU were struggling to meet the ambitious goals set for the advanced-degree training component, a senior AU faculty member put the situation in proper context when he said "You must remember that when the TIPAN Project started this university had only two or three Ph.D. degree holders and a handful of faculty who held U.S. university masters degrees that were 15-20 years out of date." This recollection, contrasted against the training accomplishments reported above illustrates the contribution to personnel upgrading that TIPAN has made to agricultural education and research in the NWFP.

Commodity Support

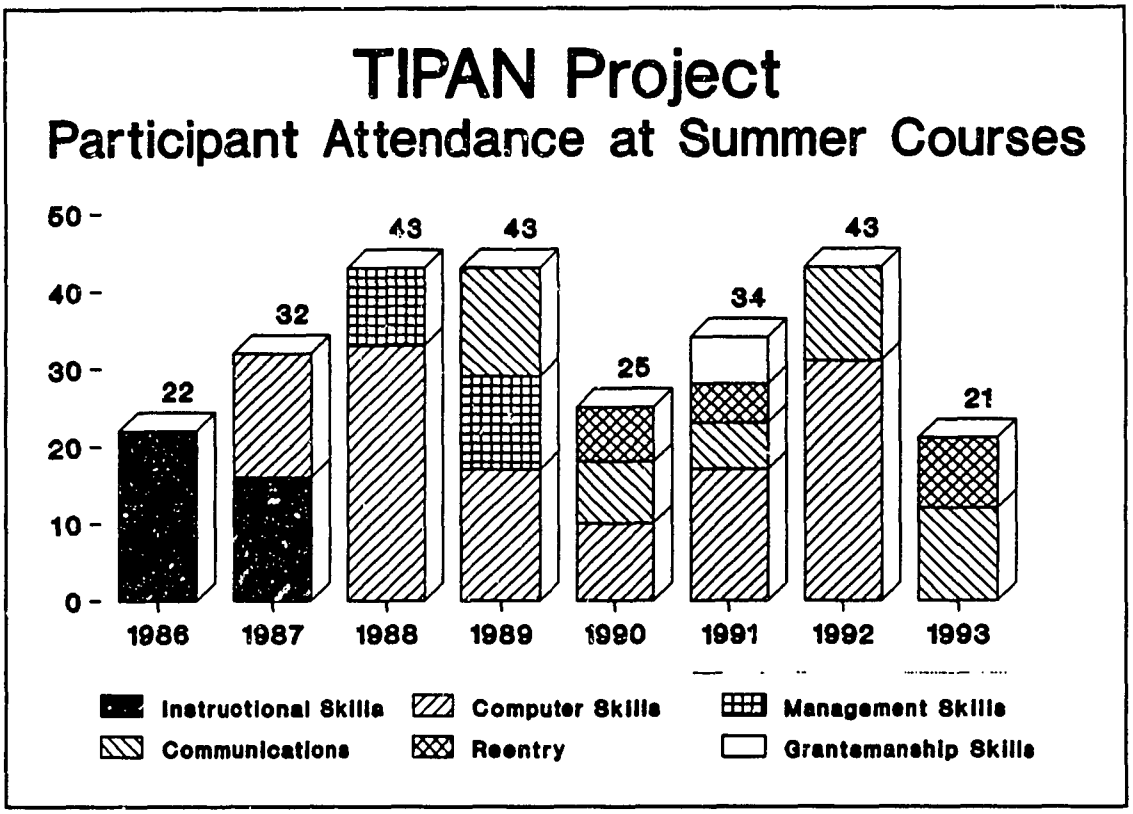
An expanded and transformed Agricultural University requires appropriate hardware--equipment, materials and supplies--to supplement the human capital in the conduct of its mission. The NWFP AU had multi-tiered needs for commodity support to service existing and newly constructed facilities, off-campus research stations and other uses. USAID provided initiative and flexibility in making available to the TIPAN Project adequate funds to supply these needed inputs by allocating up to $3.2 million from a separate project (Agricultural Commodities and Equipment/ACE) and up to $2.0 million from project funds, increasing the total available for commodity support to $5.2 million.



Procurement under the ACE funding component was successful in meeting immediate operational needs of the faculty and research staff working in existing space and, to a substantial degree, on the dispersed stations of the provincial research system. ACE funds were available until 1992 at which time the project ended. A special report detailing procurement activity supported by ACE was provided to USAID at the completion of the ACE portion of the commodity support program.

Commodity support under the $2.0 allocation of TIPAN Project funds continued to provide equipment and material to the research stations and central campus, with an emphasis in the final year to purchasing equipment specific to new space coming on line from the construction program. Procurement activity, chiefly receiving and distribution of project equipment to AU system units, continued throughout the final month of project activity.

Any commodity support program is fertile territory for the operation of Murphy's Law. TIPAN was no exception; however, the incidence of major problems was perceived to be far less than many projects in the Mission portfolio in the opinion of evaluation teams who conducted mid-project reviews, e.g., Devres and Chemonics International. Again, credit must be given to USAID for allowing the inclusion of commodities specialists in the mix of home office backstopping personnel. These specialists communicated well with the University of Illinois Purchasing Division and its professional staff, and worked with transfer and shipping agents to effect container shipments for greater security. An early USAID Project Officer was instrumental in establishing effective procedures for clearances of project-related material entering by sea at Karachi or by air through Islamabad. Instances of loss or damage in transit within Pakistan were greatly reduced as a result of his excellent work.



The range of purchases on a project as diverse as TIPAN was considerable. Computer hard- and soft-ware, laboratory equipment and accessories, research station equipment, instructional aids, audio-visual communications equipment, and library materials were the major groups in which procurement activity was heavy. As of 31 July, $4,626,000 had been expended on commodity support.

B. <u>Complementary Activities</u>

A number of project accomplishments fall in the serendipitous category, that is the successful operation or completion of activities that could be expected of a dynamic project, but which may not have been included in the comprehensive project planning documents. Among these are the following examples:

- Intensive English Language Training program. A comprehensive program to help prepare AU system personnel to meet the English language requirements of U.S. graduate schools was extended to interested faculty desiring to improve their competence in English. Precise figures are not available, but it is estimated that over 300 persons participated in the program. After the final group of trainees had left for their U.S. graduate programs, the program continued to provide quality English instruction through 1992, primarily supporting research officers at Tarnab and Pirsabak. At project's end, materials from the Intensive English Program were gathered and turned over to the English Language Laboratory, greatly enhancing its capacity. The usefulness of the effort is illustrated by the information that eight AU faculty being sent abroad under the ARP-II project in English speaking countries could qualify because they had achieved the required TOEFL scores under the TIPAN supported activity.

- Textbook writing project. In order to promote the adoption of indigenous expertise in teaching programs throughout Pakistan, an ambitious project to develop, produce and distribute ten textbooks was adopted. A coordinating editor assembled teams of qualified Pakistan academics to write the texts, with publication and marketing support from the National Book Foundation. Five texts have been printed--Extension, Horticulture, Crop Production, Animal Husbandry, and Plant Breeding and Genetics. Others in the series include Soil Science, Irrigation, Water Management, Plant Pathology and Entomology. Other donors will be solicited to complete the series.

- Development of weather stations. Meteorological stations were established on 12 research stations and the Malakandher Farm to provide basic data for a province-wide network to support agricultural research. Data are collected daily and monthly summaries are forwarded to the Peshawar Campus for screening, analysis, publication, and dissemination. Quarterly reports are issued to users throughout the province.

- Preparation of Provincial Master Research Plan. In close collaboration Campus and Station personnel developed a document to guide research planning over the 1993-2013 period. The plan provides direction for converting resources of the AU into useful products to improve living standards and quality of life of farmers and promote the sustainability of the natural resource base.

- Initiation of incentive programs. Three special programs were implemented to encourage research collaboration among recently returned trainees, emphasizing interaction between Campus and Station staff. Special research and outreach projects were jointly funded by the AU and TIPAN Project. Sixty-two research and 28 outreach projects were supported in 1992/93, involving more than one hundred teaching, research, and outreach personnel. The third program involved joint financing of presentation of research papers at international meetings, in which approximately 20 scientists from the AU system were able to disseminate their findings at various professional fora.

- Technical Working Groups. Sixteen groups, representing commodity and technical disciplines with representation from Campus, Stations and other agencies, were formed to study the current status, identify research, outreach and teaching needs, develop strategies to address the needs, and recommend priorities for funding support. These were to be ongoing groups to meet regularly to provide timely recommendations.

- Model seed development program. On the initiative of a returned trainee, with strong and strategic support from a TIPAN Crops Adviser, a beginning has been made toward developing a training program for the seed industry of the province. In its brief existence the Model Seed Program has begun to impact on farmers, researchers and teachers and shows income generating potential to allow for sustainability.

- Split assignment concept directed and accepted. The concept of the multi-functional professional was implicit in the TIPAN approach to integration of education, research, and outreach. An adaptation of the joint appointment model common to the U.S. land grant community, split assignments were the means by which AU system personnel could extend their capabilities over a range of functions in support of the expanded mission of the university. Slow to be implemented, misunderstood by most of the staff and administrators and therefore resisted by many of them, the concept began to catch on in the final years of the project. A significant influx of short-term TA supporting the Outreach Directorate, in which U.S. subject matter specialists from UIUC were programmed in several departments, was instrumental in demonstrating the efficacy of the concept. A complementary TDY by a SIUC department head, focusing on development of individual job descriptions, helped bring understanding and a greater degree of acceptance.

- Establishment of a Re-Entry Committee. Evolving from a series of re-entry workshops in the U.S., recommendations from a TDY and complementary to work done in the MART Project, the AU established a Re-Entry Committee in June 1992 to

  .. promote academic and research activities among returnees;
  .. welcome and assist long-term trainees upon their return from abroad;
  .. develop a conducive working environment for the returned scientists and provide opportunities for them to share their knowledge through seminars and other means; and
  .. develop linkages between AU Campus and Station scientists.

  The program has exceeded all expectations as a vehicle to capture the enthusiasm and vitality of newly returned personnel. Periodic gatherings of internationally-trained faculty and staff, now numbering in excess of 200 and including returnees from other donor-sponsored training, give evidence to the successful creation of "critical mass" in the AU system.

- Signing of Memorandum of Understanding linking the NWFP-AU, UIUC and SIUC. In June 1994 the Vice Chancellor signed a joint MOU to promote sustainable linkages among the three TIPAN institutions. The agreement provides for exchange of faculty and students, exchange of academic materials and information, joint research activities, and development of special programs. Liaison officers for the three campuses have been designated and the development of the first biennial workplan is underway.

IV. CONSTRAINTS

Projects that work toward modifying traditional patterns of thought and action face inertia, misunderstanding, resistance, and a myriad of human responses to change. Adoption theory and practice indicates that many of these responses can be addressed, challenged, sometimes reversed, and channelled toward common goals. TIPAN had its share of success dealing with various forms of resistance where the form was within our purview of control. Adoption of a new curriculum and academic year, adherence to standards for foreign study, the introduction of a modern fiscal and accounting system, acceptance of a functional administrative structure (albeit incomplete), and the increasing acceptance of split assignments as the norm for an agricultural professional are some examples.

There were a number of areas over which TIPAN had little or no control, which proved constraining to the realization of TIPAN's full potential. Some were external, others systemic, most were multi-dimensional, all were frustrating. They fell in three major categories:

- implementing constraints;
- resource constraints; and
- political constraints.

<u>Implementing constraints</u> reducing the size of the initial field team to five expatriate families forced a design change in the planned introduction of technical assistance. The project design planned for eight expatriates to be fielded in Peshawar during the first two years of operation. These would be evenly divided between administrative and technical specialists to articulate management and program reforms. Before the first field team members arrived, the total number of expatriate personnel was limited to five resident staff. Additionally, no more than three TDY personnel could be assigned at any given time. The reason for the in-country staff reduction had nothing to do with program considerations. It rested with the justifiable concern of the US Ambassador for the security of expatriate staff in the NWFP, and particularly in Peshawar.

The situation in Afghanistan, as the mujahaddin tried to wrest control of their country from the Soviet-backed Karmal regime, was extremely volatile, and Peshawar, as home to many refugee groups, was a prime target for mischief. Bombings, printed threats and other forms of intimidation were common; the Ambassador exercised his authority over a range of projects operating in the NWFP. The decision on the makeup of the field teams was left to the discretion of the implementing organizations, in this case the Agricultural University, USAID, and the contractor. The decision to focus on administrative reform meant that corresponding technical program development would be somewhat delayed. The reduced level of authorized TDY personnel served as the principal conduit for technical program input, reasonably consistent with the project design, but at a much lower volume. At the time these personnel levels were set, no one could have foreseen that the reduced levels would extend throughout Phase I. This reduced the technical assistance that could be devoted to the research sector and may have contributed to their resistance to the merged system.

Resource constraints include fiscal, physical and human resources. Fiscal problems plagued AU throughout the life of the project, particularly the timeliness and adequacy of the federal component. These problems were particularly evident in the latter half of the project. Budget appropriations were insufficient to cover faculty and staff salaries. Quarterly allocations generally were exhausted two-thirds of the way through a given quarter. The Vice Chancellors devoted considerable time and energy in meetings with University Grants Commission staff in efforts to resolve the problems. While the funding problems of higher education were national in scope, and affected almost all of Pakistan's universities, the uncertainty of drawing their monthly pay had a cumulatively deteriorating effect on staff morale and on their will to adopt the changes proposed under TIPAN.

Much of the fiscal problem could be traced to the national economy, and the ability of the GOP to raise the revenues necessary to provide the level of support agreed to in the project design. For example, the total resources pledged by the Government of Pakistan to support the many activities of the TIPAN Project were reduced by approximately $9.5 million from Phase I to Phase II without counterpart reduction in expected output. This reduction in funding and the failure to fund PC-1 positions affected implementation of TIPAN initiatives and has impacted on program sustainability.

The funding from the provincial Department of Agriculture to support the research program generally was consistent with the established pattern, and some modest increases were provided. With the partial merger of the AU and the Research Division of the Department of Agriculture, provincial resources were allocated to the research system through the AU. A systemic problem restricting the flow-through of funds to station management, particularly operational funds, persisted throughout the life of the project. This problem was only partially due to funds flowing through the AU but, nevertheless, led to dissatisfaction among station personnel and charges of mismanagement. This had a negative impact on attempts to unify the two organizations.

Physical constraints relate to the construction program on the Peshawar campus. USAID and GOP provided for a state-of-the-art physical plant to carry out the expanded mission of the AU. For the U.S.-funded portion of the program, responsibility for the construction was contracted separately from the technical assistance program. Skidmore Owings and Merrill, authors of the design for campus facilities, continued their participation as overseer of construction and quality assurance. A U.S.-based construction company, ENCORP, was chosen as prime contractor with authority to sub-contract with qualified Pakistani firms. USAID oversight was exercised by the Office of Engineering, but overall project responsibility remained with the Office of Agriculture and Rural Development.

Early delays in the program have been referred to in the section on accomplishments in project components. As stated in that section, the construction activity never fully recovered from these early problems, with negative impact on the technical assistance side of the project. Parallel

delays were common on the portion funded by GOP as well, including much needed staff housing and the female student hostel. Discussion of the range of problems contributing to this situation is more appropriate for one of the organizations exercising responsibility for construction performance or oversight.

The effects on the technical assistance component, however, were substantial. Near the end of the ten-year project, building turnover began on a "substantial completion" basis. Only the Plant Science building has been fully occupied and made partially operational. The Administrative building has been partially occupied. Units in the Learning Resources Center and Continuing Education Center began moving in space identified for them in June 1994. Modifications of systems and buildings are still underway to make them operable and USAID is providing some support for this.

The effects of the inability to proceed according to the project design are several.

- Promised infrastructure to support academic, outreach, and research activities have not been available.
- Staff potential, particularly newly developed skills of returned participants, has not been fully realized.
- Training and on-the-job experience in operating and maintaining campus facilities has not been completed, with projected negative effect on the sustainability of physical plant operations.
- Erosion of the early confidence of AU personnel of the dynamism and synergism anticipated from the coupling of functional integration and physical facilities has been observed.
- Identification and purchase of some equipment needed to make the new-facility more functional could not be completed prior to occupancy.
- Modifications needed to make units functional, i.e., wiring, lights, etc., were required before the space could be occupied.

Human resource constraints were manifested through separate personnel systems of the AU and Department of Agriculture, barriers to employing additional personnel imposed by the GOP planning and budget process, and a "single function" mindset among many faculty,staff, and administrators.

The failure to achieve a full and complete merger between the AU and the Research Division of the Department of Agriculture left separate personnel systems in place. While generally similar, the two systems contained a few significant differences that mitigated against closer integration. Perceptions of unequal benefits in a merged system prevailed. The study of the merger by the respected Pakistani consulting organization, Asianics AgroDev Inc., suggested the establishment of an "anomalies committee" to rationalize differences. A similar suggestion was made at the start of the project when the merger was considered. This sensible suggestion was never implemented. The failure to bring about a unified personnel system, or at least a compatible one, in which faculty and research staff could be intermixed, featuring joint appointments or assignments to entice research staff to the Peshawar campus to teach classes and affording long-term research opportunities and facilities at off-campus stations to teaching staff, was a major constraint to overall success. The fact that a few such arrangements were made speaks to the progressive nature of those who were willing to take the risk.

The TIPAN Project included a number of new staff positions to supplement and/or increase faculty in new or growth areas. Some were administrative in nature, e.g., Pro Vice-Chancellor, directors, and student services. Some were indicated by the nature of new university support centers, requiring skills not traditionally found in the AU, e.g., staffing of the Continuing Education Center, Computer Teaching Laboratory, Language Laboratory, Communications Services Division, and

Computer and Laboratory Equipment Repair Units. Others were programmatic, e.g., Regional Outreach Program Leaders, Women's Program Leader, Associate Director of Research. An important segment included support staff at several levels. Although the AU statutes empower the university to appoint personnel, the process is closely tied to the planning and budget process through which funds are allocated by the University Grants Commission and provincial departments on the basis of PC-1 documentation.

The complexities of the PC-1 approval process proved to be a major constraining factor in achieving an appropriate level and balance of AU personnel. The Phase-I PC-1, approved at the initiation of program operations, authorized 194 new positions consistent with the design papers. While a few key positions were filled, many were not for reasons never fully understood by the contractor. As the TIPAN Project moved from Phase I to Phase II a new PC-1 was required. Controversy over unfilled positions from Phase I and justification for Phase II requests delayed approval of the PC-1 until September 1993. This means that the project operated for nearly four years in Phase II without a GOP approved staffing plan for new positions or other expenditures. New positions could not be filled, as there was no funding for them, impacting especially on the attempts of the AU to staff Outreach and other programs. Much of the problem in sanctioning new positions reflected a tight financial situation at the national level. Accomplishments during the project and sustainability after the project may have been compromised.

The concept of the multi-faceted professional, common to U.S. institutions, was a new and often misunderstood concept in the Pakistani context. Teachers taught, researchers conducted basic or applied studies on plants, soils, animals, or social structures. Extension personnel provided a variety of services to the agricultural community. TIPAN provided the opportunity for career growth and flexibility through the mechanism of joint appointments, enabling AU personnel to extend their talents and interests to areas previously closed to them. The merger of AU and research staff and the implementation of an outreach program, linking the education and technology generation functions to the service-oriented extension system was the key element. However, the failure to fully unify the two systems caused a shift in the concept of truly joint appointments--where faculty/staff appointments would be funded from more than a single source--to one of split assignments, in which faculty and research personnel agreed to devote a percentage of time to one or more functions in addition to their primary--and funded--function. To many, this took on the appearance of being asked to do more work with no additional compensation and was met with resistance. Gradually, and with the help and influence of returned participants, the concept of the multi-functional professional is gaining acceptance. A concentration of TDY assignments in Outreach in 1993/94, covering most of the disciplines in the Faculties of Crop Production Sciences and Crop Protection Sciences was instrumental in lending credence to the concept.

Political constraints were pervasive throughout. During the life of the project Pakistan passed through a period of rapid political change from a military government to one elected by popular vote. National and provincial governments changed and the political scene is perpetually active. Coalitions shift and the excitement of constitutionally approved opposition assures a lively climate. Internal political considerations had their effects on the implementation of many TIPAN initiatives, the merger of education and research chief among them. But two political constraints imposed by USG were of critical importance to TIPAN.

The first was the specific instruction that dealings and relationships with the provincial government, including key departments of agriculture and planning and development, were reserved to USAID through the Project Officer. Although somewhat relaxed in the last two years of the project, the lack of regular interaction with the Technical Assistance Team limited understanding by provincial officials. This effectively squelched development of close-working relationships that characterized the project design process.

The second was the imposition of the Pressler Amendment, a Congressional mandate which curtailed economic assistance to Pakistan when it could not be certified that it had not undertaken a nuclear weapons program. This closed the door for official U.S. assistance to the TIPAN Project beyond the second phase. A third phase, incorporating the advances realized in the first two--trained personnel, new physical facilities, and modern technology--would have provided greatly improved chances for institutional stability as the NWFP Agricultural University entered the twenty-first century.

V. LESSONS LEARNED

In a project of this magnitude and duration the lessons learned become so numerous that culling out the most prominent is an almost impossible task. Participants may differ on what defines "the most prominent" and total agreement is unlikely. Our approach at discussing lessons learned begins with three general statements and proceeds to several project-specific lessons that may have relevance to other institution building projects. Each lesson learned is followed by a brief statement of a suggested approach to reinforce, or ameliorate, a similar situation that may occur in a future project.

In his end-of-tour seminar, former MART Chief of Party Bill C. Wright presented three cogent statements that should be indelibly written in Mission archives as applicable to all developing country assistance projects.

- It takes time to change management practices.
- Assistance project goals are often overly ambitious.
- For assistance projects to be successful the recipient must sincerely want to accomplish, and must believe it is possible to accomplish, whatever is being attempted.

The TIPAN-specific lessons learned are enumerated below:

1. The Collaborative Assistance Mode of contracting (now referred to as Design and Perform) is an effective method of focusing USAID, host country and contractor organizations on a common objective to the extent that the level of collaboration exhibited in the design stage can be carried through implementation. The original intent of the TIPAN Project was to strengthen the teaching program of the NWFP Agricultural University. Following a comprehensive planning effort in the spring of 1983, USAID, the AU, and the contractor determined that an educational model, integrating agricultural education and agricultural research would produce a better prepared graduate and a more dynamic institution. Subsequent discussion between USAID and GOP at policy levels confirmed their support for this model, and a supplementary study to guide the integration process was conducted by a small team of contractor staff. The failure to conduct a more in-depth study of the officers and administrators of the provincial research system, in marked contrast to the AU study, relative to their belief and commitment that merger with the AU was in their long-term professional interests, left a void of support that opponents exploited. This may be avoided in future project design by allowing sufficient time and resources to review and build support for major project expansion areas not foreseen in the project identification phase with involved host country personnel.

2. The time horizon provided for the TIPAN Project was not as long as institution building literature suggests is required to attain a basic level of sustainability. Current limits on USAID programming, i.e., a maximum project authorization of 10-years duration, make this constraint difficult to address up front. Mechanisms to address out year support

should be sought and implemented. Post-project linkage arrangements, with some funding, should be incorporated in all institution building projects.

3. Governments, and forms of government, may change over the extended life of an institution building project. A change in government generally necessitates the re-education of the new polity to legitimize decisions of the former. To that end, USAID could have enlisted the assistance of its contract team in working with appropriate GONWFP departments to build support for overall project objectives through collegial interaction.

4. In institution building projects the development of human resources is closely linked with technical assistance, and is best managed by the contractor. USAID's recognition of this at the outset of the project was a major factor in the success of the participant training component. The TIPAN training program was driven by an institutional staffing plan developed by the AU with assistance from the technical assistance team and supported by the project's internally developed English training and pre-departure program as well as an institutionalized re-entry and re-integration program. This also promises greater success of post-project linkage programs since there is a feeling of commonality between the trainees and the contractor.

5. Of all the variables of the institution building model, the most important in the short to intermediate run is resources. In any institution building project, the preponderance of resources must come from the host government. This is not always given adequate emphasis in project implementation. Financial constraints affecting the (Pakistan) federal and state funding organizations have seriously impacted AU operations. Project conditions precedent relative to host-country funding commitments are negotiated between governments, and any relaxation in host-country funding commitment should be reflected in a modification of project expectations. Alternatively, arrangements could be provided for temporary support to be provided from donor funds for a short period to allow time for the host country to make necessary adjustments to its budget. This would allow additional staff to be hired, trained and implement mandated project initiatives. This was done to a limited extent for hiring operations and maintenance staff. It should have been done in the critical areas of communications services and computer and laboratory equipment repair.

6. Periodic high level reviews, perhaps annually but no less than biennially, are useful in defining operational policy. In hindsight, early initiation of project reviews that would have included senior personnel from Provincial and Federal Departments, AU, USAID, and Contractor organizations might have provided a forum for working out conceptual differences or misunderstandings about the project. New concepts, such as Outreach, were often misunderstood or misinterpreted by key Department of Agriculture personnel. Involvement in a regular review process would have provided information that would have emphasized the supportive and interactive nature of the TIPAN model. A more selective distribution of the various project reports might have improved understanding among those "outside" decision makers who influence the flow of resources to the AU. In spite of being such an extensively reported project, TIPAN was, in too many quarters, a misunderstood project.

VI. EPILOGUE

Necessity has been said to be the mother of invention. It is also the precursor to action, including bureaucratic or political action. With the ending of TIPAN assistance and the assignment of fiscal responsibility to the GONWFP for TIPAN's initiative of Outreach activities, including Continuing Education and Communications Service, decisions on a Schedule of New Expenditure (SNE) funding proposal and the merger had to be made. We are pleased that during the last part of July those decisions were made and were favorable to maintaining the TIPAN initiative.

The Agricultural University system has begun to fulfill its mission which translates into Serving Agriculture...Serving People. While looking back provides a historical perspective, a dynamic institution must look and work toward the future.

The essential human and physical resource base for the AU to serve agriculture and the people of NWFP is in place. With the support of the people and the governments of NWFP and Pakistan, the NWFP Agricultural University is prepared to develop into the center of excellence which was envisioned by its founders and stimulated by the TIPAN concept of transforming and integrating the agricultural system of the province.

APPENDIX A

ACADEMIC (DEGREE) PARTICIPANTS--TRAINING COMPLETED

Name	PIO/P Filed	Type Institution	Start End
Abdullah, Khalid (O)	92972 Forage Insects	Acad New Mexico St. (M.S.)	06/92 05/94
Ahmad, Efkar (0)	92951 Soil Physics	Acad UIUC (M.S.)	01/92 01/94
Ahmad, Gulzar # (O)	87614 Agronomy (Sugarbeet)	Acad U of Idaho (Ph.D)	08/87 01/91
Ahmad, Imtiaz (O)	91962 Crop Biotechnology (Maize)	Acad S. Dakota State (M.S.)	08/91 11/93
Ahmad, Mansoor (C)	91955 Instructional Technology	Acad Indiana University (M.S.)	05/91 08/93
Ahmad, Mukhtar (C)	90902 Ag. Econ (Resource Economics)	Acad Colorado State (M.S.)	01/90 02/92
Ahmad, Nisar (C)	87601 Ag. Engr. (Soil & Water Mgt.)	Acad SIUC (M.S.)	08/87 02/90
Ahmad, Saeed (O)	02086 Soil Fertility	Acad UIUC (Ph.D.)	08/86 01/91
Ahmad, Zahoor (O)	92971 Agricultural Meteorology	Acad U of Arkansas (M.S.)	06/92 05/94
Ahmed, Khurshid (C)	87615 Plant Breeding (Biotech)	Acad U of Minnesota (M.S.)	01/88 08/91
Akbar, Manzoor (0)	91961 Forage Breeding	Acad S. Dakota State (M.S.)	08/91 08/93
Akhtar, Shahnaz (C)	90921 Ag. Ec. (Quant. Methods)	Acad UIUC (M.S.)	08/90 03/93
Akhtar, Sohail (C)	88907 Animal Science (Cattle Feeding)	Acad Colorado State (Ph.D.)	08/88 07/93
Ali, Irshad (O)	89907 Plant Pathology (Mycology)	Acad U of Minnesota (M.S.)	03/90 03/92
Ali, Johar (C)	91954 An. Sci. (Poultry Management)	Acad U of Missouri (M.S.)	01/91 05/93
Ali, Nawab (C)	01386 Horticulture (Vegetables)	Acad UIUC (Ph.D.)	08/86 06/90
Ali, Shaukat (O)	91964 Hort. Biotech. (Tree Fruits)	Acad Cornell University (M.S.)	08/91 08/93
Aman, Khair (O)	91970 Fibre Crops Agronomy (Cotton)	Acad Alabama A & M (M.S.)	08/91 12/93
Amjed, Muhammad (C)	05017 Dairy Science (Nutrition)	Acad U of Minnesota (Ph.D)	01/86 11/90
Anwar, Mohammad # (O)	92968 Extension Education	Acad West Virginia (M.S.)	06/92 05/94
Asrar, Mohammad # (C)	00486 Educational Administration	Acad UIUC (Ph.D.)	06/86 06/90
Atta Ullah (C)	00886 Library Science	Acad U of Hawaii (M.S.)	09/86 08/88
Ayaz, Mohammad # (C)	00786 Print Media	Acad U of Wisconsin (M.S.)	08/86 09/88
Ayub, Muhammad (O)	91968 Plant Pathology (Sugar Crops)	Acad Colorado State (M.S.)	08/91 11/93
Badshah, Noor (C)	85023 Horticulture (Post-Harvest)	Acad Washington St. (Ph.D)	08/85 06/89
Bashir, Muhammad # (C)	87626 Ag. Econ. (Farm Management)	Acad UIUC (Ph.D.)	08/88 07/93
Bashir, Muhammad (O)	90920 Soybean Agronomy	Acad SIUC (M.S.)	08/90 05/92
Begum, Roshan Ara (C)	90922 Ag. Econ. (Project Planning)	Acad UIUC (M.S.)	08/90 09/92

Bhatti, Amanullah # (C)	01086 Soil Physics	Acad Washington St. (Ph.D.)	08/86 06/90
Chishti, Anwar F. (C)	87627 Ag. Econ. (Marketing)	Acad UIUC (Ph.D.)	01/88 03/94
Farhatullah (C) *	90919 Crop Biotechnology	Acad U of Wyoming (Ph.D.)	08/90 09/94
Haq, Izhar ul (O)	87616 Soil Fertility	Acad U.C.-Davis (Ph.D.)	09/88 09/92
Hassan, Ghulam (C)	92969 Plant Cytogenetics	Acad Alabama A & M (M.S.)	06/92 05/94
Hassan, Gul # (O)	88904 Agronomy (Weed Science)	Acad Oregon State (Ph.D.)	03/88 03/92
Humayun, Arshad (C)	92953 Human Nutrition	Acad UIUC (M.S.)	01/92 01/94
Hussain, Anwar (C) **	89905 Economics (Public Policy)	Acad U of Minnesota (M.S.)	01/89 09/93
Hussain, M. Zamir (O)	89901 Soil Science (Soil/Plant Rel.)	Acad U of Idaho (M.S.)	01/89 12/91
Hussain, Shaukat (C) **	92957 Plant Pathology	Acad Oregon State (M.S.)	01/92 02/94
Hussain, Syed Wajid (O)	87611 Agronomy (Sunflower)	Acad N. Dakota State (M.S.)	08/87 08/90
Idris, Mohammad # (C)	01686 Rural Sociology	Acad SIUC/UIUC (Ph.D.)	01/87 03/91
Inayatullah, Mian (C)	88906 Entomology (Taxonomy)	Acad U of Wyoming (Ph.D.)	06/88 05/92
Iqbal, Javed (C)	92970 Agricultural Meteorology	Acad U of Arkansas (M.S.)	06/92 05/94
Iqbal, Maqsood (C)	91958 Insect Pathology	Acad U of Missouri (M.S.)	06/91 08/93
Jabbar, Ghulam (O)	92959 Small Animal Management	Acad Virginia Tech. (M.S.)	01/92 12/93
Jadoon, Mushtaq (C)	92966 Agricultural Communications	Acad Iowa State (M.S.)	06/92 07/94
Jan, Hamidullah (O)	87609 Plant Pathology (Pulses)	Acad U of Idaho (M.S.)	08/87 12/89
Jan, Masud (O)	91976 Vegetable Breeding (Potato)	Acad Oregon State (M.S.)	01/92 05/94
Jan, Mohammad Tariq (C)	87605 Agronomy (Forages)	Acad New Mexico St. (M.S.)	01/87 12/89
Jan, Noora (O)	91971 Soil Testing	Acad SIUC (M.S.)	08/91 12/93
Khalil, Iftikhar (O)	92955 Plant Breeding	Acad Oklahoma State (M.S.)	01/92 12/93
Khalil, Mohd. Riaz (O)	88911 Plant Pathology	Acad Kansas State (M.S.)	08/88 12/90
Khan, Adalat (O) **	92954 Plant Pathology	Acad UIUC (M.S.)	01/92 12/93
Khan, Ahmad Nazir (O)	87610 Soil Fertility	Acad U of Florida (M.S)	08/88 08/90
Khan, Ajmal (O)	91956 Soil Science (Soil/Plant Rel.)	Acad S. Dakota State (M.S.)	05/91 11/93
Khan, Ali Ayaz (O)	89902 Vegetable Breeding	Acad U of Kentucky (M.S.)	08/89 12/92
Khan, Amjad (O)	91974 Horticulture (Tree Fruits)	Acad Michigan State (M.S.)	09/91 09/93
Khan, Aslam (C)	01886 Wheat Agronomy	Acad N. Dakota State (Ph.D)	09/86 08/90
Khan, Asmatullah # (C)	85013 Agric. Extension Education	Acad UIUC (Ph.D)	08/84 06/88
Khan, Atiq Ahmad (0)	92952 Processing Agriculture Products	Acad Cornell (M.S.)	01/92 01/94

Khan, Azim (O) **	91967 Postharvest Handling/Mgmt	Acad Mississippi State (M.S.)	08/91 07/93
Khan, Dil Rosh (O)	89909 Rice Breeding	Acad Louisiana State (M.S.)	01/89 01/91
Khan, Imtiaz Ali (C)	91973 Entomology (Stored Products)	Acad Purdue (M.S.)	08/91 12/93
Khan, Jan Baz (C)	01586 Rural Sociology/Ext. Education	Acad Pennsylvania St. (M.S)	01/87 08/89
Khan, Kiramat (O)	87613 Agronomy (Maize Breeding)	Acad U of Nebraska (Ph.D.)	08/87 11/91
Khan, M. Ata-Ullah (O)	91953 Animal Genetics	Acad Alabama A & M (M.S.)	01/91 10/93
Khan, M. Jamal (C) *	90914 Soil Salinity	Acad U of Arizona (Ph.D.)	08/90 10/94
Khan, M. Javed (O)	91972 Post Harvest Technology	Acad U of Arizona (M.S.)	08/91 11/93
Khan, M. Yusaf (C)	5008 Agricultural Statistics	Acad Texas Tech (M.S.)	06/84 05/87
Khan, Mahmood # (O)	01986 Plant Pathology (Soybeans)	Acad UIUC (Ph.D)	08/86 02/91
Khan, Masud Ahmad (O)	88901 Soil Science (Salinity)	Acad Utah State (M.S.)	09/88 09/91
Khan, Meera (O)	85022 Animal Science (Repr. Phys.)	Acad SIUC (M.S.)	01/86 03/88
Khan, Munir Ahmed # (C)	01486 Ag. Econ. (Marketing)	Acad U of Connecticut (M.S.)	08/83 08/89
Khan, Mustajab (O)	88902 Weed Science	Acad SIUC (Ph.D.)	01/88 02/92
Khan, Noor Palo (C) **	90912 Ag. Econ. (Rural Development)	Acad U of Kentucky (M.S.)	08/90 08/93
Khan, Rafiullah (C)	85026 Food Science	Acad UIUC (Ph.D.)	08/85 05/89
Khan, Saleem # (O)	88910 Weed Science	Acad U of Idaho (Ph.D.)	08/88 02/92
Khan, Saqib Bashir (C) *	92974 Tree Fruit Production	Acad SIUC (M.S.)	06/92 10/94
Khan, Shad # (C) *	89904 Agronomy (Crop Physiol.)	Acad New Mexico St. (Ph.D.)	08/89 10/94
Khan, Taj Mohammad (C)	85025 Animal Science (Sheep-Goats)	Acad U of Wyoming (Ph.D.)	08/85 10/89
Khan, Zuhar Dast (O)	87603 Soil Fertility	Acad New Mexico St. (M.S.)	08/87 12/89
Khattak, Md. Ibrahim # (C)	01286 Agric. Journalism (Edit.)	Acad U of Wisconsin (M.S.)	08/86 05/89
Khizar, Hayat (O)	88913 Sorghum Breeding	Acad U of Nebraska (M.S.)	08/88 12/91
Latif, Abdul (O)	88914 Entomology (Fruit Fly)	Acad U of Kentucky (Ph.D)	08/88 05/92
Malik, Arshad Salim (C)	87622 Educational Administration	Acad UIUC (Ph.D.)	08/87 05/93
Malik, Shafqat (C)	91965 Agricultural Statistics	Acad U of Missouri (M.S.)	08/91 08/93
Marwat, K. Bahadar (C)	85012 Agronomy (Weed Science)	Acad UIUC (Ph.D.)	08/84 06/88
Mian, Mushtaq A. # (C)	5006 Poultry Science	Acad N.Carolina St. (Ph.D)	01/84 07/87
Miankhel, Jan M. (C)	5016 Food Science	Acad Cal. Poly-SLO (M.S.)	09/85 01/89
Mirajuddin, Syed (C)	00986 Animal Science (Genetics)	Acad UIUC (Ph.D.)	08/86 04/91
Mohmand, Bashir A. (C)	5019 Agronomy (Seed Technology)	Acad Mississippi St. (Ph.D)	08/85 05/89

Mohammad, Ayaz (O)	92963 Vegetable Breeding	Acad New Mexico St. (M.S.)	01/92 01/94
Muhammad, Sher (C)	87602 Horticulture (Pomology)	Acad SIUC (M.S.)	08/88 08/91
Muhammad, Wali (O)	91966 Agricultural Extension	Acad U of Missouri (M.S.)	08/91 08/93
Nadir, Sher (C) *	90909 Animal Sci. (Rep. Phys.)	Acad Virginia Tech. (Ph.D.)	01/90 12/94
Naeem, Mohammed (C)	85015 Entomology	Acad UIUC (Ph.D.)	08/85 08/90
Nasiruddin (O)	87628 Agronomy (Wheat Breeding)	Acad Oklahoma State (Ph.D)	08/87 08/91
Nawab, Khalid # (O)	92973 Extension Education	Acad West Virginia (M.S.)	06/92 05/94
Paracha, Parvez Iqbal#(C)	00286 Human Nutrition	Acad U of Connecticut (Ph.D)	01/86 01/91
Quresh, Zar (O)	87623 Agronomy (Sunflower Breeding)	Acad N. Dakota St. (Ph.D)	03/88 10/91
Rab, Abdur (O) *	90924 Horticulture (Post Harvest Phys.)	Acad U.C.-Davis (Ph.D.)	09/90 12/94
Rafi, Abdul (C)	90906 Plant Pathology (Phytobact.)	Acad U of Nebraska (M.S.)	01/90 05/92
Rahim, Mohammad (O)	90910 Sunflower Breeding	Acad N. Dakota St. (M.S.)	06/90 06/92
Rahman, Anis ur (O) *	92958 Integrated Pest Management	Acad New Mexico St. (M.S.)	06/92 08/94
Rahman, Hidayatur (C)	5003 Agronomy (Maize Breeding)	Acad S. Dakota St. (Ph.D.)	08/85 11/89
Rahman, Masood Ur (C)	00386 Agricultural Mechanization	Acad SIUC (M.S.)	01/86 06/89
Rahman, Saifur (O) **	89903 Soil Science (Saline/Sodic)	Acad U of Wyoming (M.S.)	01/89 05/91
Raqib, Abdur (O)	92960 Entomology (Stored Ag. Products)	Acad U of Missouri (M.S.)	01/92 02/94
Rauf, Abdur (O)	89906 Maize Seed Production	Acad Iowa State (M.S.)	01/89 08/91
Rehman, Sadur (O)	91960 Cereal Tissue Culture	Acad Kansas State (M.S.)	05/91 07/93
Saeed, Mohammad (C)	50058 Food Science	Acad UIUC (Ph.D.)	08/83 08/87
Sahibzada, Qayum (O)	88917 Maize Agronomy	Acad U of Nebraska (M.S.)	01/89 09/91
Sahibzada, Rafiullah (O)	90916 Rapeseed Breeding	Acad U of Idaho (Ph.D.)	08/90 01/94
Shad, Gul (O)	92956 Veterinary Medicine	Acad Washington State (M.S.)	01/92 03/94
Shafi, Mohammad (C)	92961 Experiment Station Management	Acad U of Arkansas (M.S.)	01/92 12/93
Shah, Ghulam Shabir (O)	87621 Entomology	Acad Kansas State (Ph.D.)	08/87 06/91
Shah, Paigham (C)	85002 Agronomy (Oilseeds)	Acad UIUC (Ph.D)	01/85 06/88
Shahidin, Noor (C)	90905 Rural Sociology	Acad S. Dakota St. (M.S.)	01/90 12/91
Shahnaz, Khalida # (C)	87618 Rural Sociology	Acad UIUC (Ph.D.)	08/88 09/93
Shahsawar, Muhammad (O)**	92965 Pulse Breeding	Acad U of Idaho (M.S.)	06/92 05/94
Siddiqui, M. Mohsin (O)	89910 Animal Science (Rumen Phys.)	Acad Texas Tech (Ph.D.)	08/89 04/93
Swati, Zahoor (C)	85001 Agronomy (Wheat Breeding)	Acad S. Dakota St. (Ph.D.)	01/85 12/88

Ullah, Farman (C)	90907 Entomology (IPM)	Acad Oklahoma State (Ph.D.)	01/90 12/93
Ullah, Ghufran (O)	92967 Dairy Science	Acad Mississippi State (M.S.)	06/92 05/94
Wahid, Badshah (O)	88905 Food Science (Cereal Technology)	Acad N. Dakota St. (Ph.D.)	06/89 09/93
Yousafzai, Fida (C)	85024 Teaching English	Acad UIUC (M.A.)	08/85 09/88
Zakiullah (C)	90908 Computer Science	Acad SIUC (Ph.D.)	01/90 03/94
Zaman, M. Khaliq Uz (O)	88915 Potato Breeding	Acad U of Idaho (M.S.)	08/88 01/91
Zubair, Muhammad (C)	91975 Tissue Culture (Ornamentals)	Acad Colorado State (M.S.)	08/91 09/93
Zulfiqar, Mohammad (O)	91957 Plant Pathology (Fruits)	Acad U of Florida (M.S.)	05/91 07/93

TOTALS:

Printed 129 of the 215 records.
C = Campus Faculty
O = Off-Campus Faculty
# = Collected Thesis Data in Pakistan
* = Not supported by TIPAN beyond July 31, 1994.
** = Completed M.S. through TIPAN support, then returned to same university for Ph.D. study through institutional support.

TECHNICAL (NON-DEGREE) PARTICIPANTS--TRAINING COMPLETED

Ahmad, Mukhtar (C)	01186 Weed Science	Tech UIUC	08/86 07/87
Ahmad, Nazir (C)	93804 Outreach/SMS	Tech UIUC/INTERPAKS	07/93 08/93
Akbar, Sher (C)	91977 Agricultural Entomology	Tech UIUC	10/91 11/91
Alam, Sardar (C)	Building Oper. and Maint.	Tech SIUC	02/94 03/94
Ali, Farman (C)	88903 Farm Mgt. (FARMAP Package)	Tech AIT/Bangkok	02/88 04/88
Ali, Liaqat (C)	88903 Farm Mgt. (FARMAP Package)	Tech AIT/Bangkok	02/88 04/88
Ali, Liaqat (C)	93801 Development Planning and Mgt.	Tech USDA Graduate School	01/93 05/93
Ali, Sajid (C)	Building Oper. and Maint.	Tech SIUC	02/94 03/94
Ali, Syed Asghar (C)	93805 Outreach/SMS	Tech UIUC/INTERPAKS	07/93 08/93
Aqiqullah, Qazi (O)	93807 Outreach/SMS	Tech UIUC/INTERPAKS	07/93 08/93
Aqiqullah, Qazi (O)	88916 Outreach Administration	Tech UIUC/INTERPAKS	09/88 10/88
Ayaz, Mohammad (C)	93803 Agricultural Communications	Tech Iowa State/UIUC/SIUC	06/93 08/93
Aziz, Abdul (O)	87619 Maize Production	Tech CIMMYT (Mexico)	06/86 11/86
Baderuddin, Syed (O)	93814 Outreach/Org. & Mgt.	Tech UIUC/INTERPAKS	09/93 10/93
Bakhsh, Rasool (C)	40165 BioChemistry/Lab. Management	Tech UIUC	09/84 01/85
Din, Moeen Ud (C)	02186 Computer Applications	Tech AIT/Bangkok	09/86 11/86
Hamid, Abdul (O)	87604 Inoculum Production	Tech BNFRC/Bangkok	02/87 03/87
Haq, Inamul (C)	00186 Computer Science	Tech UIUC	11/85 02/86
Hassan, Sher (C)	91969 Plant Pathology	Tech Washington State	08/91 10/91
Hatam, Mir (C)	40160 Soybean Agronomy	Tech INTSOY/UIUC	05/84 08/84
Hussain, Ghulam (O)	87608 Research/Outreach Mgt.	Tech UIUC/Texas/USDA	05/87 07/87
Hussain, Nazir (O)	87620 Maize Production	Tech CIMMYT/Mexico	03/87 08/87
Hussain, Tajammal (C)	5004 Human Nutrition	Tech UIUC/other sites	01/85 07/85
Idris, Mohammad (C)	94801 English Teaching	Tech SIUC	01/94 04/94
Imran, Mohammad (0)	Sugar Cane Breeding	Tech Louisiana/Florida	06/89 07/89
Inayatullah, Hafiz (C)	30249 Horticulture	Tech UIUC	08/83 08/84
Inayatullah, Hafiz (C)	88912 Univ. Administration	Tech UIUC/SIUC/UMES	07/88 08/88
Iqbal, Muhammad (O)	93813 Outreach/Org. & Mgt.	Tech UIUC/INTERPAKS	09/93 10/93
Jehangiri, Gulfam Khan(O)	88916 Outreach Administration	Tech UIUC/INTERPAKS	09/88 10/88
Karim, Mohammad (C)	88912 Univ. Administration	Tech UIUC/SIUC/UMES	07/88 08/88
Karim, Mohammad (C)	20348 Agronomy/Student Affairs	Tech SIUC	08/83 08/84
Karimullah (C)	91951 Integrated Pest Management	Tech Florida/UIUC	05/91 06/91

Khalil, Iqtidar A. (C)	88909 Biochemistry/Nutrition	Tech UIUC/SIUC	08/88 07/89
Khalil, Jehangir Khan (C)	88912 Univ. Administration	Tech UIUC/SIUC/UMES	07/88 08/88
Khan, Akram (O)	93812 Outreach/Org. & Mgt.	Tech UIUC/INTERPAKS	09/93 10/93
Khan, Allah Bakhsh (O)	87608 Research/Outreach Mgt.	Tech UIUC/Texas/USDA	05/87 07/87
Khan, Allaud Din (O)	87608 Research/Outreach Mgt.	Tech UIUC/Texas	05/87 07/87
Khan, Ghulam Sarwar (O)	85196 Weed Science	Tech Oregon State	07/86 08/86
Khan, Imtiaz Ahmad (O)	93809 Outreach/SMS	Tech UIUC/INTERPAKS	07/93 08/93
Khan, Jamshed (O)	87606 Research Mgt./Sm. Ruminants	Tech UIUC/Cal. Poly	05/87 07/87
Khan, Meera (O)	93810 Outreach/Org. & Mgt.	Tech UIUC/INTERPAKS	09/93 10/93
Khan, Muhammad Ahmad (C)	89912 Economics/Res. Meth./Rur. Soc.	Tech UIUC	08/89 01/90
Khan, Mumtaz Ahmad (O)	93816 Outreach/Org. & Mgt.	Tech UIUC/INTERPAKS	09/93 10/93
Khan, Sherin (C)	00686 Agronomy/Irrigation	Tech CSUF/Utah St.	06/86 10/86
Khattak, Abdul Rauf (C)	87625 Extension Administration	Tech UIUC/INTERPAKS	09/87 10/87
Khattak, Abdul Rauf (O)	85201 Sugar Crops	Tech LA/FLA/CA/HI	07/85 09/85
Khattak, Ajab Khan (O)	87607 Food Technology	Tech Cal. State/Fresno	01/87 12/87
Khattak, Jehangir (C)	5010 Soil Chemistry/Computers	Tech UIUC/Auburn/CA	07/85 09/85
Lodhi, A. Farooq (C)	40158 Horticulture	Tech UIUC/SIUC/FLA/CA	06/84 09/84
Lughmani, Abdul Malik (O)	93808 Outreach/SMS	Tech UIUC/INTERPAKS	07/93 08/93
Manan, Fazle (C)	02186 Computer Applications	Tech AIT/Bangkok	09/86 11/86
Mian, Nurul-Islam (C)	Development Economics	Tech Minnesota/UIUC	06/89 07/89
Mohammad, Baz (C)	93806 Outreach/SMS	Tech UIUC/INTERPAKS	07/93 08/93
Mohammad, Baz (C)	88916 Outreach Administration	Tech UIUC/INTERPAKS	09/88 10/88
Qureshi, Bashir (O)	87606 Research Mgt./Sm. Ruminants	Tech UIUC/Cal. Poly	05/87 07/87
Rahman, Gul (O)	90923 Sugar Cane Breeding	Tech Louisiana State	09/90 11/90
Rehman, Habib Ur (O)	85020 Soil Chemistry	Tech UIUC/Auburn/CA	06/85 08/85
Shah, Basit Ali (C)	88912 Univ. Administration	Tech UIUC/SIUC/UMES	07/88 08/88
Shah, Basit Ali (C)	40159 Animal Science	Tech UIUC/SIUC/CSU/CA	06/84 08/84
Shah, Faridullah (C)	02186 Computer Applications	Tech AIT/Bangkok	09/86 11/86
Shah, Farooq (C)	88912 Univ. Administration	Tech UIUC/SIUC/UMES	07/88 08/88
Shah, Muslim (O)	90925 Forage Production	Tech New Mexico State	08/90 12/90
Shah, S. Iqbal (C)	5009 Ruminant Nutrition	Tech UIUC/NB/SIUC/CA	04/85 09/85
Shah, S. Iqbal (C)	93811 Outreach/Org. & Mgt.	Tech UIUC/INTERPAKS	09/93 10/93
Shah, Syed Nizakat (O)	93815 Outreach/Org. & Mgt.	Tech UIUC/INTERPAKS	09/93 10/93

Shahid, Mohammad (C)	00586 Entomology/Admin.	Tech UIUC	06/86 09/86
Siddiq, Mohd. (O)	89921 Research Management	Tech UIUC/Missouri	08/89 09/89
Siddiqi, Saeedul H. (C)	40164 Cytogenetics	Tech UIUC/KSU/Purdue	07/84 09/84
Syed, Abdul Qadim (O)	87608 Research/Outreach Mgt.	Tech UIUC/Texas/USDA	05/87 07/87
Taj, Fazal Hayat (C)	87624 Agronomy/Seed Tech.	Tech UIUC/Mississippi St.	08/87 08/88
Tariq, Mohammad (C)	40167 Agricultural Mechanization	Tech UIUC	08/84 08/85
Wadud, Abdul (O)	87608 Research/Outreach Mgt.	Tech UIUC/Texas/USDA	05/87 07/87
Zaidi, S. A. Hassan (C)	93802 Agricultural Communications	Tech Iowa State/UIUC	06/93 08/93

TOTALS:

Printed 73 of the 215 records.
C = Campus Faculty
O = Off-Campus Faculty

ACADEMIC (DEGREE) PARTICIPANTS--TRAINING TERMINATED

Hassan, Faiz Ul (O)	89911 Plant Pathology (Cereals)	Acad N. Dakota State	03/89 08/90
Irfanullah (C)	91959 Beef Production	Acad SIUC	06/91 07/93
Jamal, Mohd. Il (O)	01786 Wheat Agronomy/Econ.	Acad N. Dakota State	09/86 10/86
Khan, Adam (O)	87617 Food Technology	Acad Purdue	08/89 12/89
Khan, Farmanullah (C)	90913 Soil Conservation	Acad Washington State	08/90 09/90
Khan, Miskeen (O)	92964 Small Fruit Production	Acad California State U-Fresno	01/92 03/94
Khan, M. Nawab (C)	5007 Agricultural Economics	Acad UIUC	01/84 08/85
Malik, Ghulam Ali (O)	90904 Agronomy (Plant Physiology)	Acad Kansas State	01/90 02/90
Sadiq, Mohammad (O)	90903 Millet Breeding	Acad Nebraska	01/90 03/90
Sadiq, Wazir M. (C)	85014 Horticulture/Stone Fruits	Acad California Polytech.	09/85 10/85
Shah, Abrar Hussain (C)	91952 Vegetable Seed Technology	Acad U.C.-Davis	03/91 08/92
Shah, Mussawar (C)	90911 Rural Sociology	Acad Univ. of Missouri	08/90 09/90
Zaman, Muhammad (O)	87612 Entomology	Acad Univ. of Arkansas	08/87 05/88

TOTALS:

Printed 13 of the 215 records.
C = Campus Faculty
O = Off-Campus Faculty

APPENDIX B

PROJECT PERSONNEL

The following is a summary of TIPAN Project personnel from November 1, 1984 to July 31, 1994

I. RESIDENT FIELD STAFF

1. Team Leader & Institution Development Specialist	Errol D. Rodda	06/01/85-03/14/87
2. Institution Development Specialist	" "	03/15/87-08/20/87
3. Teaching Program Specialist	Martin V. Waananen	08/11/85-08/20/87
4. Research Station Development Specialist	Joseph H. Marion	09/30/85-09/30/87
5. Rural Social Sciences Specialist (Deceased)	Frederick C. Fliegel	08/30/87-09/11/87
6. Research Program Specialist(Deceased)	Raymond G. Cragle	07/13/85-03/14/87
7. Interim Team Leader & Research Program Specialist	" "	03/15/87-05/25/87
8. Team Leader	" "	05/26/87-08/20/87
9. Team Leader & Institution Development Specialist	" "	08/21/87-06/30/89
10. Outreach Program Specialist	R. William Seiders	06/21/85-08/21/89
11. Research Program Specialist	Jack J. Bond	02/01/88-08/20/90
12. Team Leader & Institution Development Specialist	Gilbert Kroening	07/24/89-12/01/91
13. Teaching Program Specialist	Everett D. Edington	06/06/88-12/31/91
14. Continuing Education/Outreach	Ronald G. Dedert	01/01/90-12/31/91
15. Animal Husbandry Specialist	Carl L. Hausler	01/22/88-02/24/92
16. Crop Sciences Specialist	Rodney Fink	02/01/90-01/31/92
17. Private Sector Specialist	" "	01/01/92-06/30/92
18. Rural Social Science Specialist	David W. Brown	03/21/90-05/31/93
19. Continuing Education Specialist	Donald E. Kuhlman	01/14/92-03/31/94
20. Crop Science Specialist	Farrell Olsen	02/01/92-05/31/94
21. Team Leader & Institution Development Specialist	Oval Myers	11/16/91-07/31/94

II. SHORT-TERM

A. Technical

1. Institution Development	Errol D. Rodda	03/15/85-04/05/85
2. Teaching Program	Martin V. Waananen	04/16/85-05/08/85
3. Telecommunications	Lawrence P. Bontempo and Lynn D. Lafferty	04/85
4. Rural Social Sciences (Deceased)	Frederick C. Fliegel	11/09/85-12/03/85
5. Animal Husbandry	Howard H. Olson	11/25/85-12/05/85
6. Microcomputing	Gary Johnson	02/05/86-03/07/86
*Microcomputing	" "	10/12/87-11/07/87
7. Improvement of Instruction & Horticulture	William George	03/29/86-04/29/86
8. Livestock Facility Design	James Curtis	03/29/86-04/29/86
9. Production Economist	Duane Erickson	05/03/86-05/30/86
" "	" "	07/19/91-08/21/91
10. Agricultural Mechanization	Robert Wolff	05/10/86-06/06/86
11. Program Planning and Developing Job Descriptions for Split Assignments	" "	12/28/93-01/28/94
12 Microcomputing	Zainul Azizan	02/05/86-03/07/86
13. Microcomputing	Anthony Kerber	02/08/86-10/31/86
14. Weed Control Specialist	Emerson Nafziger	02/07/87-03/10/87
" " "	" "	11/06/91-11/26/91
15. Rural Social Sciences	Andrew Sofranko	02/14/87-03/10/87
" " "	" "	07/04/90-07/29/90

*UIUC Funded

16. Monitoring and Evaluation	William N. Thompson	02/07/87-03/10/87
17. Forage Production	Herbert Portz	03/06/87-04/09/87
18. Pre-assignment Orientation	Carl L. Hausler	10/06/87-10/16/87
19. Pre-assignment Orientation	Jack J. Bond	12/12/87-12/23/87
20. Pre-assignment Orientation	Everett D. Edington	01/05/88-01/18/88
21. Plant Pathology	James Sinclair and R. E. Ford	08/06/88-08/19/88
22. Library Information Specialist	Jane S. Johnson	11/26/88-12/20/88
" " "	" "	07/01/89-07/25/89
" " "	" "	01/31/90-02/27/90
" " "	" "	06/26/91-08/01/91
" " "	" "	04/13/92-05/12/92
" " "	" "	01/20/93-02/20/93
23. Research Supervision	Kirvin L. Knox	01/21/89-01/31/89
24. Soils Research	Theodore R. Peck	03/04/89-04/14/89
25. Pre-assignment Orientation	Donald Kuhlman	04/15/89-04/25/89
26. Pre-assignment Orientation	Ronald G. Dedert	09/11/89-09/22/89
27. Pre-assignment Orientation	Rodney J. Fink	09/30/89-10/03/89
28. AU Foundation Plan	" "	03/01/93-03/31/93
29. Research Supervision	John Gallian	10/29/89-11/16/89
30. Audiovisual	Douglas Bedient	11/01/89-11/30/89
31. Technical Writing	Ray Woodis/Paul Hixson	11/29/89-12/16/89
" "	" " " "	04/28/90-06/22/90
32. Pre-Assignment Orientation	David Brown	12/10/89-12/17/89
33. Rural Social Science Specialist	" "	04/27/94-06-11-94
34. Research Supervision	Joan Fley	01/24/90-02/16/90
35. Quantitative Agricultural Policy Analysis	Alain de Janvry and Elisabeth Sadoulet	05/01/90-06/03/90
36. Agricultural Economics	Charles Nelson	10/20/90-11/20/90
37. Reentry & Professional Integration of Returned Participants	Oval Myers, Jr.	11/22/90-12/22/90
38. Development of Sheep & Goat Production	Warren Foote	09/07/91-10/12/91
39. Curriculum Specialist	William Doerr	10/03/91-11/13/91
40. Agrometeorology	Steven E. Hollinger	01/18/92-02/24/92
41. Communications Production Specialist	J. Cordell Hatch	04/29/92-06/19/92
" " "	" "	08/16/92-09/16/92
" " "	" "	10/20/93-05/02/93
" " "	" "	07/20/93-08/30/93
" " "	" "	01/28/94-07/15/94
42. Maize Breeding Program	Dale M. Steffensen	08/15/92-09/14/92
43. Dairy Improvement & Production Specialist	Roger Shanks	09/13/92-10/09/92
44. Outreach Specialist in Program Development	Peter Bloome	01/17/93-02/02/93
45. Research Supervision	Layle Lawrence	01/17/93-02/03/93
46. Research Management	Don Holt	04/02/93-04/30/93
47. Development of a Graduate School	Richard E. Falvo	04/03/93-04/22/93
48. Developing Insect & Plant Disease Management Programs for Fruit & Vegetables	Roscoe Randell and Steve Ries	04/13/93-05/13/93
49. Operations and Maintenance	Harry D. Wirth	04/14/93-05-12/93
" "	" "	03/29/94-04/13/94
50. Draft Master Provencial Research Plan	Don Oelsligle	05/01/93-05/30/93
51. Continuing Education	Linz C. Brown	05/05/93-06/02/93
52. Extension Methodology & Teaching Skills	Robert Frank and Dennis Thompson	05/11/93-06/11/93
53. Plant Protection Outreach Program	Kevin Steffey and H. Walker Kirby	10/06/93-10/28/93

54. Women's Outreach Program	Margorie R. Hamann	10/05/93-11/12/93
55. Research Station Management	Clarence J. Kaiser	11/17/93-12/22/93
56. Program Sustainability	Orville Bentley	12/02/93-12/12/92
57. Sustainability of Institutions	" "	03/16/94-03/30/94
58. Administrative Organization/Functions	James Tweedy	02/09/94-03/02/94
59. Operations and Maintenance	Bradley W. Dillard	05/25/94-06/18/94

B. Administrative

1. Interim Team Leader	William N. Thompson	02/07/85-03/25/85
2. Interim Team Leader	Thomas McCowen	04/01/85-05/31/85
Program Operations	Thomas McCowen	11/24/84-12/14/84
" "	" "	01/04/86-02/03/86
" "	" "	02/21/87-03/10/87
" "	" "	06/27/87-07/17/87
" "	" "	08/27/88-09/12/88
" "	" "	01/21/89-02/04/89
" "	" "	08/16/89-09/02/89
" "	" "	01/31/90-02/17/90
" "	" "	10/13/90-11/06/90
" "	" "	08/04/91-08/28/91
" "	" "	03/18/92-04/11/92
" "	" "	10/04/92-10/31/92
" "	" "	06/30/93-07/21/93
" "	" "	07/01/94-07/31/94
3. Participant Training	John Santas	11/23/84-12/14/84
" "	" "	11/15/85-12/03/85
" "	" "	10/05/87-10/22/87
" "	" "	04/10/89-04/22/89
" "	" "	02/03/90-02/20/90
" "	" "	05/15/91-06/01/91
" "	" "	03/18/92-04/09/92
" "	" "	07/03/94-07/21/94
4. Program Coordination	John J. Nicholaides	09/18/86-09/25/86
" "	" "	02/18/88-02/27/88
" "	" "	08/27/88-09/12/88
" "	" "	04/30/90-05/07/90
" "	" "	09/15/90-09/21/90
" "	" "	12/02/92-12/12/92
5. Executive Visit	John R. Campbell	03/14/87-03/27/87
6. Executive Visit	James A. Tweedy	03/14/87-03/27/87
7. Administrative Procedures	" "	06/13/87-07/03/87
8. Executive Visit	" "	03/25/89-04/08/89
" "	" "	04/30/90-05/07/90
9. Interim Team Leader	Russell T. Odell	10/06/87-11/24/87
10. Administrative Visit	Gilbert Kroening	11/23/87-12/22/87
" "	" "	08/27/88-09/12/88
" "	" "	05/17/94-06/10/94
11. Executive Visit	W. R. Gomes	03/25/89-04/08/89
12. Training Support	Pamela Woodard	10/13/91-11/06/91
13. Administrative Visit	Ovai Myers	12/07/93-12/28/93

II. HOME OFFICE PERSONNEL

1.	Principal Representative, SIUC	Gil Kroening	17%	01/01/87-07/23/89
	Principal Representative, SIUC	" "	25%	12/02/91-07/31/94
2.	Principal Representative, SIUC	Oval Myers	25%	07/24/89-11/24/91
3.	Campus Coordinator	Thomas A. McCowen	25%	11/01/84-07/31/94
4.	Senior Project Advisor	William N. Thompson	45%	11/01/84-08/20/88
	" " "	" "	0%	08/21/88-07/31/94
5.	Training Officer	John W. Santas	25%	11/01/84-08/20/86
	" "	" "	33%	08/21/86-12/31/88
	" "	" "	67%	01/01/89-07/31/94
6.	TIPAN Secretary, UIUC	Kimberly Oliver	100%	02/04/85-09/06/85
7.	TIPAN Secretary, UIUC	Beth McKown	100%	10/14/85-06/11/89
8.	TIPAN Secretary, SIUC	Shelia Tate-Wilson	50%	12/01/85-07/15/90
9.	TIPAN Secretary, Training Officer, UIUC	Dee Dee Hines	33%	07/16/86-07/31/94
10.	TIPAN Secretary, UIUC	Phyllis Sandwell	100%	10/31/89-07/31/94
11.	TIPAN Secretary, SIUC	Claudia Roseberry	50%	07/23/90-07/31/94
12.	TIPAN Accountant	Diana Glasgow	15%	02/28/86-07/31/94
13.	International Ag. Development Specialist	Karen Russon	50%	04/01/89-06/30/91
14.	International Ag. Development Specialist	Jodee Conner	25%	08-11/91-01/12/93
15.	International Ag. Development Specialist	Pamela Woodard	25%	01/01/90-05/19/93
	<u>Faculty Liaison Group Chairpersons</u>			
16.	Plant Sciences	James Sinclair, UIUC	8%	02/21/85-07/20/87
17.	Animal Husbandry and Principal Representative	Howard Olson, SIUC	8%	07/01/85-12/31/86
18.	Eng. Applications & Food Technology	James Curtis, UIUC	8%	02/21/85-08/20-86
19.	" " " "	Errol Rodda, UIUC	8%	08/21/87-08/20-88
20.	Rural Social Sciences	Andrew Sofranko, UIUC	8%	02/21/85-06/20/87
21.	Learning Resources Center and Continuing Education Center	John Behrens, UIUC	8%	02/21/85-08/20-85
22.	" " "	\Violet Malone, UIUC	8%	08/21/85-08/20/88

APPENDIX C

END-OF-TOUR REPORTS

1. Joseph H. Marion - Research Station Development & Management
2. Errol Rodda - Team Leader & Institutional Development Specialist
3. Martin V. Waananen - Agricultural Teaching Program Specialist
4. R. William Seiders - Outreach Specialist
5. Jack Bond - Research Program Specialist
6. Everett Edington - Teaching Specialist
7. Ron Dedert - Outreach Specialist
8. Gil Kroening - Team Leader & Institutional Development Specialist
9. Carl Hausler - Animal Husbandry and Livestock Outreach
10. Rodney Fink - Crop Science Specialist
11. David Brown - Rural Social Science Specialist
12. Donald E. Kuhlman - Continuing Education Specialist
13. Farrel Olsen - Crop Science Specialist
14. Oval Myers - Team Leader & Institutional Development Specialist

TIPAN CONSULTANT'S REPORTS

1. Martin V. Waananen - Teaching Program
2. Frederick C. Fliegel - Rural Social Sciences
3. Howard H. Olson - Animal Husbandry
4. William L. George - Improvement of Instruction and Horticulture
5. James O. Curtis - Livestock Facility Design
6. Gary V. Johnson - Microcomputing
7. Zainul Azizan - Microcomputer Laboratory Set-up
8. Duane E. Erickson - Production Economics
9. Robert Wolff - Agricultural Mechanization
10. Anthony S. Kerber - Microcomputer Instruction and Coordination
11. Andrew J. Sofranko - Rural Social Sciences
12. Emerson D. Nafziger - Weed Science Specialist
13. William N. Thompson - Monitoring and Evaluation
14. Herbert L. Portz - Forage Production
15. Carl Hausler - Orientation/Interview
16. Russell Odell - TIPAN -- A View after Design
17. Gary Johnson - Microcomputer Service and Software
18. Everett Edington - Orientation/Interview
19. J. B. Sinclair and R. E. Ford - Plant Pathology
20. Jane Johnson - Library and Information Specialist
21. Kirvin L. Knox - Research Supervision
22. Theodore R. Peck - Soil Science Research
23. Donald E. Kuhlman - Orientation/Interview
24. Ronald G. Dedert - Orientation/Interview
25. Rodney J. Fink - Orientation/Interview
26. Jane S. Johnson - Library and information Specialist
27. Doug Bedient - Audiovisual
28. Ray Woodis & Paul Hixson - Preworkshop Planning
29. David Brown - Orientation/Interview

30. Jane Johnson - Library and Information Specialist
31. Alain de Janvry and Elisabeth Sadoulet - Quantitative Agricultural Policy Analysis
32. Andy Sofranko - Rural Sociology & Agrciultural Economics
33. Ray Woodis & Paul Hixson Technical Writing & Research Proposal Workshops
34. Oval Myers - Reintegration of Trainees into the Teaching, Research and Outreach Programs
35. Jane Johnson - Library and Information Specialist
36. Duane Erickson - Production Economics and Farm Management
37. Warren Foote - Development of Sheep and Goat Production in Research, Extension & Institutional Needs
38. William Doerr - An Assessment of Various Aspects of the Teaching Program
39. Emerson D. Nafziger - Weed Science Specialist
40. Steven E. Hollinger - Agrometeorology
41. Jane S. Johnson - Microcomputer Systems Applications
42. J. Cordell Hatch - Communications Production Specialist
43. Rodney Fink - Private Sector Advisory
44. J. Cordell Hatch - Communications Production Specialist
45. Dale Steffensen - High Altitude Maize
46. Jane Johnson - Progress in Microcomputer Usage for Information Systems
47. Roger Shanks - Dairy Improvement and Production Specialist
48. Layle Lawrence - Research Supervision
49. Peter Bloome - Role of Outreach Specialist in the Transfer of Agricultural Technology
50. Jane Johnson - Sustainable Information Systems
51. Rodney J. Fink - Special Report, Attitudinal Survey
52. Don Holt - Research Management
53. Richard E. Falvo - Development of a Graduate School
54. Roscoe Randell & Steve Ries - Developing Insect and Plant Disease Management Programs for Fruit & Vegetables
55. Harry D. Wirth - Operations & Maintenance
56. Don Oelsligle - Draft Master Provencial Research Plan
57. Linz C. Brown - Continuing Education
58. Robert Frank & Dennis Thompson - Extension Methodology and Teaching Skills
59. J. Cordell Hatch - Communications Production Specialist
60. Walker Kirby & Kevin Steffey - Plant Protection Outreach Program
61. Margorie Hamann - Women's Outreach Program
62. James A. Tweedy - Administrative Policies
63. Clarence J. Kaiser - Research Station Management
64. Orville G. Bentley - Outreach Research and Education Linkages
65. Robert Wolff - Program Planning and Developing Job Descriptions for Split Assignments
66. Harry Wirth - Operations and Maintenance
67. Brad Dillard - Operations and Maintenance
68. David Brown - Rural Social Sciences
69. J. Cordell Hatch - Communication Production Specialist

ADMINISTRATIVE REPORTS

1. T. A. McCowen - 21 February - 10 March 1987
2. J. W. Santas - 5 October - 23 October 1987
3. T. A. McCowen - 21 January - 4 February 1989
4. J. W. Santas - 10 April - 22 April 1989
5. T. A. McCowen - 16 August - 2 September 1989
6. T. A. McCowen - 31 January - 17 February 1990
7. J. W. Santas - 03 February - 20 February 1990
8. T. A. McCowen - 13 October - 6 November 1990
9. J. W. Santas - 15 May - 1 June 1991
10. T. A. McCowen - 04 August - 28 August 1991
11. Pam Woodard - 13 October - 6 November 1991
12. J. W. Santas - 18 March - 09 April 1992
13. T. A. McCowen - 18 March - 11 April 1992
14. T. A. McCowen - 04 October - 31 October 1992
15. J. J. Nicholaides III - 02 December - 12 December 1992
16. O. G. Bentley - 02 December - 12 December 1992
17. T. A. McCowen - 30 June - 21 July 1993
18. Oval Myers, Jr. - 07 December - 28 December 1993
19. Gil Kroening - 17 May - 10 June 1994
20. J. W. Santas - 03 July - 21 July 1994
21. T. A. McCowen - 01 July - 31 July 1994

EXECUTIVE VISIT REPORTS

1. James A. Tweedy & J. R. Campbell - 14 March - 27 March 1987
2. James A. Tweedy & W. R. Gomes - 25 March - 8 April 1989
3. James A. Tweedy & J. J. Nicholaides III - 30 April - 7 May 1990

APPENDIX D

TIPAN EXPENDITURE REPORT

NOVEMBER 1, 1984 THROUGH JULY 31, 1994

I.	SALARIES		$4,888,970.33
II.	FRINGE BENEFITS		707,557.34
III.	INDIRECT COSTS		2,514,696.88
IV.	TRAVEL & TRANSPORTATION		1,133,075.46
V.	ALLOWANCES		862,804.56
VI.	OTHER DIRECT COSTS		1,463,256.95
VII.	TRAINING		9,513,818.45
VIII.	EQUIPMENT		4,622,988.88
	Ace	3,139,897.60	
	Project	1,483,091.28	
IX.	TOTAL		$25,707,168.85

*Additional expenditures relating to project operations and demobilization will be included in final billing to USAID