

82-101-209
15

END OF TOUR REPORT

OVAL MYERS, JR.

TEAM LEADER AND INSTITUTIONAL DEVELOPMENT SPECIALIST

DECEMBER 1991 - 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-00-5001-00
The Transformation and Integration of the Provincial
Agriculture Network (TIPAN) Project

by

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

Table of Contents

List of Acronyms.....ii

I. Summary.....iii

II. Project Description..... 1

 A. Background..... 1

 B. Goals and Objectives..... 2

 C. Activities..... 3

 D. Expected Outputs/Outcomes..... 7

III. Project Performance..... 10

 A. Achievements and Shortfalls..... 12

 B. Challenges and Constraints..... 39

IV. Learning from the Experience..... 41

Acknowledgements..... 58

List of Acronyms

ACE	- Agricultural Commodity and Equipment
ARP-II	- Agricultural Research Project-II
AU	- Agricultural University
CCRI	- Cereal Crops Research Institute
CIMMYT	- International Center for Maize and Wheat Improvement
CIP	- International Center for Potato
GONWFP	- Government of the Northwest Frontier Province
GOP	- Government of Pakistan
ICARDA	- International Center for Agricultural Research in Dry Areas
ICRISAT	- International Crops Research Institute for the Semi-Arid Tropic
IDS	- Institute of Development Studies
IITA	- International Institute of Tropical Agriculture
KPMG	- Peat Marwick
LDDD	- Livestock and Dairy Development Department
MAG	- Management Advisory Group
MOU	- Memorandum of Understanding
NARC	- National Agricultural Research Center
NWFP	- Northwest Frontier Province
NWFP-AU	- Northwest Frontier Province Agricultural University
PC-1	- Planning Commission Proforma-1
PIL	- Project Implementation Letter
SCRI	- Sugar Crops Research Institute
SIUC	- Southern Illinois University at Carbondale
SNES	- Schedule of New Expenditures
SOM	- Skidmore, Owings and Merrill
TAT	- Technical Assistance Team
TIPAN	- Transformation and Integration of the Provincial Agriculture Network Project
TWG	- Technical Working Group
UIUC	- University of Illinois at Urbana-Champaign
U.S.	- United States
USAID	- United States Agency for International Development

I. Summary

This report is for the period December, 1991 - July, 1994. The author served as the fourth and last Team Leader and Institutional Development Specialist of the Transformation and Integration of the Provincial Agricultural Network (TIPAN) Project which was designed in 1983 and began its implementation in 1984. Because this report is of the last Team Leader it is of a synthesizing nature rather than restricted to the last two and one-half years.

The Team Leader and Institutional Development Specialist role is basically twofold: one, to conduct administrative activities that respond to the various multi-client needs of the project; and two, to stimulate the institutional development process through program activities which empower both the Technical Assistance Team (TAT) and the primary clients, the Northwest Frontier Province Agricultural University (NWFP-AU).

The primary goal of TIPAN was to improve NWFP agricultural production, farm income, and family living standards in the NWFP. The secondary goal was to create an outward-looking, problem-solving, farmer-oriented center of teaching, research and outreach which serves the NWFP and the region.

The activities designed to accomplish such broad goals were in four major areas: education, research, outreach (service), and administrative structure. This report and the many other reports prepared by and about TIPAN discuss, evaluate, and make recommendations about these four areas.

Three major achievements in the education program were: one, the U.S. degree training of 32 Ph.D. and 33 M.S. staff who have returned to the classroom bringing current knowledge in their discipline and improved teaching methodology; two, curriculum revision and improvement in the examination system; and, three, an improvement in library holdings to provide better resources for both undergraduate and graduate instruction.

The research program was benefitted specifically by the 16 Ph.D. and 49 M.S. degrees holders who were trained in the U.S. under TIPAN and have returned to the research stations. Most of the campus based degree returnees are also contributing to the research effort. Short-term training in research was particularly beneficial in the sugarcane improvement program. In addition to degree training important achievements were the many in-service workshops and seminars, often led by expatriate consultants but increasingly in the later stages by NWFP-AU individuals many trained under TIPAN; the increased projectization of research, and the collaborative research initiated through TIPAN Special Project Grants; and, of course, the improved availability of computers, field and laboratory equipment.

Outreach was the really new concept of TIPAN. It required a measure of attitudinal change which forced individuals and the institution into a service mode greater than either teaching or research. The Outreach program struggled to gain consensus, cooperation, and the support of the bureaucracy. There were many moments when outreach truly worked; even at the end of TIPAN, some six workshops have been held within the final month. Only one of these last workshops originated from the Technical Assistance Team;

the spirit of service is alive and well. It remains to be seen whether PC-1 positions will be fully supported by the Schedule of New Expenditures (SNEs) submitted by the NWFP-AU.

Significant achievements of the Outreach Program are the general acceptance of split-assignment as subject matter specialists which include an outreach function; the development of Continuing Education as an important and necessary role of the NWFP-AU system; the establishment of a functional though tremendously understaffed Communication Division; the demonstration that a Women's Outreach Program is a necessary and rewarding part of the Outreach Program; and the evolvement of the concept that working linkages such as with Agricultural Extension are not only important for training but also for technology transfer.

Changes in administrative structure and governance are usually essential if new concepts and programs are to be implemented. Although achievements in six areas are discussed in the main report only three will be mentioned in this summary. As institutions become larger and more complex, the following must occur: 1) decentralization of powers, both programatic and budgetary are a must; 2) planning, development and monitoring assume an increasing important role; and 3) participatory governance, at least within work units, becomes increasingly important. As discussed in the body of the report, some progress in these areas has occurred, particularly on campus, but there is far too much traditional management for the NWFP-AU system to fulfill its requirement and potential.

Challenges and constraints to TIPAN progress have been many and are enumerated in almost every report. However, three major constraints have impeded TIPAN achievements and sustainability: one, the failure of the Government of Pakistan (GOP) to honor its contractual PC-1 commitment for staffing; two, the delay in building construction; and three, the unwillingness of the Provincial Secretariat of Agriculture to accept the fully merged system.

There are several tactics of implementation and lessons learned from the decade long experience of TIPAN that, if their importance would have been realized at inception or midway in the project, might have improved the acceptance of the change ideas of TIPAN. Although several points are listed in the tactics and lessons learned section of this report, only four important ones are cited here. 1) There was to have been a Management Advisory Group consisting of the Vice Chancellor, Secretary of Agriculture, USAID Project Officer, and TIPAN Team Leader; this group functioned only during a part of the first two years of the project. 2) The monthly meetings of the Vice Chancellor and the Research Station Directors were not consistently held and the TIPAN Team Leader was only infrequently asked to attend. 3) The TIPAN Team Leader was to have been involved in an advisory capacity with the Skidmore, Owings, and Merrill (SOM) architectural firm; this seemingly unnecessary role, as perceived by many, may well have prevented some now recognized functional design flaws in the building construction. and 4) The importance of the communication of TIPAN goals and objectives and the implementation plan to the non-administrative staff (the real implementors) was not sufficient.

The assumption that a quarterly report for example, would be shared by Deans or Station Directors was not realized.

Sustainability is a useful "buzzword". Although definitions vary it essentially means doing what we're now doing (considered the minimum necessary) and providing for the growth required of increasing population, increasing environmental awareness, and the need of economic survival. Thus, sustainability is both a status quo and a growth term. In the context of TIPAN, NWFP, and Pakistan it means how do we use existing institutions to meet future needs? TIPAN was to be an initiative more than a project. I believe the NWFP-AU system realize that, but I'm not sure all the bureaucrats and politicians do. Pakistan is on the brink as are many other developing countries, of a food self-sufficiency crisis. Only innovative approaches like TIPAN can provide solutions. Old practices are not sufficient to meet future needs.

I have given some 24 recommendations for sustainability in the report but only six will be reemphasized here. The first is the formal and immediate establishment of a NWFP-AU Foundation. Few if any individuals or organizations will give funds that may not be utilized for the donor's purpose. The second is the establishment of a Graduate Studies Division which strengthens the M.S. and develops selected Ph.D. programs. It will be and should be an embarrassment if the NWFP B.S., M.S. and Ph.D is not recognized internationally a decade from now. The third is the establishment of a more scholarly atmosphere for the NWFP-AU system, that begins with the Library, extends to international research recognition, and, ultimately, whether NWFP-AU degrees are accepted by the regional and international community. The fourth is some sort of regular review process that honestly evaluates academic, research and outreach programs in relation to other in-country and external programs. It is important to feel satisfied with internal progress but it is essential to compare that progress with international standards. The fifth is the development of the planning component within the NWFP-AU system, both the campus and research station units. The demands of the system can no longer be met by ad-hoc, crisis-oriented planning. There needs to be responsible empowerment given to these units, utilizing the Sustainability Committee, to allow for independent strategic planning to meet the needs of the 21st century. The sixth and last critical recommendation is the importance of linkages to the NWFP-AU system. The MOUs between the technical assistance partners, UIUC and SIUC, and other line agencies is extremely important, but NWFP-AU must expand its position within the international community of scholarly and programatically oriented institutions to provide visibility, programatic support, and intellectual growth for the future.

II. PROJECT DESCRIPTION

A. Background

In April 1983, the Northwest Frontier Province Agricultural University (NWFP-AU) began a collaborative endeavor with the University of Illinois at Urbana-Champaign (UIUC), cooperating with Southern Illinois University at Carbondale (SIUC), to design and later implement a comprehensive institutional development project to integrate agricultural research in the Northwest Frontier Province (NWFP) with agricultural education at the university level. The design phase included the architectural and engineering firm of Skidmore, Owings & Merrill (SOM), the United States Agency for International Development (USAID), the Government of Pakistan (GOP), and the Government of the Northwest Frontier Province (GONWFP).

TIPAN was envisioned to be a multi-year project conducted in three phases which included a training and institutional administrative and attitudinal development phase, an institutional building development phase, and a concentrated integration and networking phase. For a number of reasons, among which are the delay and failure of field integration of the provincial agricultural research system with the university, the delay in building construction, the failure of the GOP to implement PC-1 requirements, and, ultimately the U.S. Government's Pressler amendment which prevented additional phases, the TIPAN Project is coming to a close having met many but not all of its goals and objectives.

The issue of sustainability, both programatic and financial, always a factor in institutional development, will now be tested with evaluation to be determined at various points in time throughout the next decade or longer.

B. Goals and Objectives

1. Goals

The primary goal of TIPAN is to increase NWFP'S agricultural production, farm income, rural development, and to improve family living standards in NWFP. The secondary goal is to create a dynamic outward-looking problem solving, farmer-oriented center of teaching, research and outreach which serves the NWFP and the region.

2. Objectives

The specific objectives are:

- (a) assist AU in a complete revision of its curriculum and teaching program;
- (b) assist the Government of NWFP-AU to develop a program-solving research program to be planned and implemented by the newly merged system;
- (c) assist AU in the development of an outreach program to link the University and its merged research capability with the NWFP's Agricultural Extension Service;
- (d) support the development and equipping of an outreach program division, the communication service division

and a continuing education/in-service training division;

- (e) assist in the development and implementation of an administrative structure to reflect a new role and orientation of AU;
- (f) strengthen the capacity of the merged AU system personnel by arranging for degree-training in the U.S.;
- (g) establish firm linkages between AU and international agricultural universities and international research centers.

C. Activities

The activities of the TIPAN project are in four major areas: 1) to improve the education program, 2) to improve the research program, 3) to develop the outreach program, and 4) to improve the administrative structure and governance system. Main areas of emphasis in each of the four sections are presented below:

1. Improve the education program.

The main activities for improvement of the educational program are:

- a) to provide M.S. and Ph.D. degree training in U.S. institutions for approximately 70 individuals from the teaching staff;
- b) to provide short-term (non-degree) training for approximately 35 NWFP-AU administrators and teaching staff who were not sent for degree training;

- c) to encourage the revision of the curriculum by providing textbooks, teaching aids and equipment, and in-service training;
- d) to encourage the implementation of a semester system with internal examinations;
- e) to encourage an improved student record system;
- f) to encourage practical problem-solving graduate thesis research;
- g) to encourage a student internship program;
- h) to strengthen the library holdings and distribution system.

2. Improve the research program.

The main activities for improvement of the research program are:

- a) to provide M.S. and Ph.D. degree training in U.S. institutions for approximately 70 individuals of the research station system and to strengthen the research capabilities of the approximately 70 teachers (on-campus faculty) receiving U.S. degree training;
- b) to provide short-term specialized training for approximately 30 individuals of the research station staff who were not sent for degree training;
- c) to encourage projectization of the research program;
- d) to encourage collaboration between the campus and research station researchers (personnel);
- e) to provide computers and computer training for

researchers of the NWFP-AU system;

- f) to provide equipment to support laboratory and field research;
- g) to develop a research plan for the province;
- h) to develop linkages between AU researchers and researchers and institutions within and external to Pakistan.

3. Develop the outreach program.

The main activities for development of the outreach program are:

- a) to develop an integrated system infrastructure (Outreach Directorate) for technology transfer which utilizes campus and research personnel in collaboration with extension and farmers;
- b) to develop a cadre of subject-matter specialists both on-and off-campus to backstop and train extension workers;
- c) to develop a Continuing Education Center which can provide in-service training and external training;
- d) to develop a Communications Services Division which can meet teaching, research, and outreach needs;
- e) to develop computer and equipment support and repair units;
- f) to provide technology transfer packages for farmers to be utilized by extension;
- g) to develop a Women's Program to provide for technology

transfer to rural women;

- h) to develop linkages with other governmental and non-governmental institutions for technology transfer and training.

4. Improve administrative structure and governance system.

The main activities for improving the administrative structure and governance system are:

- a) to encourage decentralization of decision making and financial accountability;
- b) to encourage a unified personnel code for the merged system;
- c) to develop a planning, development, and monitoring cell responsive to the needs of the NWFP-AU system;
- d) to strengthen the operations and maintenance units (Directorate of Works and Administrative Officer);
- e) to develop mission statements of the NWFP-AU and its sub-units which will provide for developing job descriptions and plans of work;
- f) to improve student services both academic and recreational;
- g) to implement a merit system which encourages and rewards productive individuals;
- h) to encourage the use of broad-based committees, including younger faculty, to advise on academic, research, outreach, and sustainability programs of

the NWFP-AU system.

D. Expected Outputs/Outcomes.

The expected outputs/outcomes reflect the activities designed to reach the broad objectives. As in the previous activities section these will be presented under the four major areas of 1) the education program, 2) the research program, 3) the outreach program, and 4) the administration and governance system.

1. Education Program.

The major outputs/outcomes of the education program are:

- a) a better trained and qualified faculty through U.S. based degree and short-term training;
- b) a better qualified student body both at entrance to the university and at graduation; these number of students will increase and include female students;
- c) an improved curriculum with courses which emphasize relevant and current agricultural knowledge;
- d) an improved practical training program for students to include laboratory and field experiences and an internship program;
- e) an improved educational delivery and evaluation

system which emphasizes regular scheduling of classes and internal examinations;

- f) an expanded library with a focused selection of textbooks, reference books, and journals to support both undergraduate and graduate education;
- g) an improved program of graduate education with thesis emphasis on practical research.

2. Research Program.

The major expected outputs/outcomes of the research program are:

- a) a better trained and qualified research staff through U.S. based degree and short-term training;
- b) an improved research agenda which focuses on priority needs of farmers and the agricultural community;
- c) a projectization of research which emphasizes peer review, detailed experimental plans and analysis, and timely reporting;
- d) an improved level of collaboration between campus and research station scientists to support commodity and broad-based research;
- e) an improved ability to accomplish laboratory and field research by utilization of appropriate equipment and computers;
- f) an improved linkage network between researchers and institutions both in Pakistan and internationally.

3. Outreach Program.

The major expected outputs/outcomes of the outreach program are:

- a) an established Outreach Directorate with regional representation to facilitate technology transfer;
- b) a cadre of campus and research station subject-matter specialists who will serve as liaisons between the AU system and extension for technology transfer and training;
- c) a Continuing Education Center which provides for in-service training and non-traditional student education in the form of workshops, seminars, and short courses;
- d) a Communications Services Division which can serve the technical needs of the education, research, and outreach programs;
- e) a Women's Outreach component which provides technology transfer and educational opportunities for rural women;
- f) a computer and scientific equipment support cell(s) which provide for routine maintenance and repair;
- g) the development of functional linkages with other governmental and non-governmental agencies which provide for technology transfer and training.

4. Administration and Governance System.

The major expected outputs/outcomes on the administration and governance system are:

- a) a decentralized administration, which shares programatic and financial accountability;
- b) a participatory system of governance which utilizes broad-based committees to recommend academic and personnel policy changes and initiatives;
- c) a planning, development, and monitoring cell which can respond to the changing needs of the AU system and advance institutional sustainability;
- d) a unified personnel code which allows for equitable treatment of campus and research station personnel;
- e) a merit system which recognizes and rewards productive individuals based on job descriptions;
- f) a Student Services Unit(s) which can respond to needs in the areas of advisement, placement, and recreation;
- g) an operations and maintenance system which can effectively deal with an increased physical facility;
- h) a financial management system which budgets, allocates, and monitors funds to units of the AU system.

III. Project Performance.

Although this is an individual report, since it is the report of the last Team Leader and Institutional Development Specialist, it will deal not only with the activities and achievements during his tenure but also will provide perspective on the project as a whole.

The Scope of Work of the Team Leader is presented below.

The Team Leader shall be the Contractor's Project Manager with authority to make day-to-day policy, programmatic, and administrative decisions on behalf of the Contractor. He shall also be an institutional development specialist with experience in strengthening agricultural universities and research and outreach programs in developing countries. In collaboration with the Vice Chancellor, senior administrative officers, faculty and research staff as appropriate, he shall:

- a) advance and implement institutional changes and organizational restructuring at AU and throughout the provincial agricultural system;
- b) prepare and submit for USAID approval an annual master work plan covering all elements of the implementation plan and the Contractor's involvement in the TIPAN Project. A revised and updated work plan will be prepared annually or quarterly, at Contractor option, for the remainder of Phase II;
- c) devise and/or update a monitoring and evaluation system to measure progress towards master work plan targets;
- d) supervise and facilitate the implementation of the Purpose Level Monitoring System;
- e) submit for USAID and AU approvals annual or quarterly work plans for long term specialists;
- f) submit for USAID and AU approval short term technical assistance projections, and prepare in consultation with concerned faculty/staff, scopes of work for each short term

- assignment prior to inviting individual specialists to AU:
- g) submit for USAID and AU approval participant training requirements and, for each candidate, prepare a Training Implementation Plan covering the proposed objective of study, potential area of thesis research, and proposed position for the returned participant;
 - h) serve as the Contractor's member of TIPAN Project Advisory meetings with USAID and the AU; and
 - i) submit such additional reports as may be required by other provisions of the contract.

For the most part the areas listed as b) through i) are important but time consuming relatively routine administrative functions of the Team Leader; however a) is the institutional development role which seeks to promote and advance changes within the system which will be sustainable after project completion. Thus, in the following sections, I will refer primarily to achievements and shortfalls, and challenges and constraints to institutional development with particular emphasis on the 33 months of my tenure but also taking advantage of my position as the final Team Leader.

As in the listing of project activities and expected outcomes, this report will focus on major areas as perceived by the author recognizing that others might include or exclude other areas.

A. Achievements and Shortfalls.

The TIPAN Project sought to improve through transformation

and integration four major areas of the provincial agricultural network, specifically the university education system, the research system, the technology transfer system, and the administration and governance system. Institutional development projects generally require changes over time but frequently have goals and objectives that are difficult to measure within the time frame of the project. Thus, it is easy to find fault or failure even when good progress is being made. The TIPAN Project is no exception to the above statement.

To simplify the reporting process again the four systems of 1) education, 2) research, 3) outreach, and 4) administration and governance will be discussed separately. The many individual reports of long-term specialists and short-term consultants may be referred to for more specific details.

1. Education System.

For each area discussed an achievements paragraph will be followed by a shortfalls paragraph.

a) Advanced Degree Training.

The advanced degree training may well be the success story of TIPAN and is certainly the most easily documented. Of the 130 individuals who received advanced degrees, 65 were from the campus, 32 received Ph.D degrees and 33 received M.S. degrees from a total of 35 U.S. institutions. The diversity of training areas and institutions was planned to provide for disciplinary sustainability and professional

perspective to guide the NWFP-AU into the 21st century.

All but the final group of 12 participants had completed supplementary English Language training and departed for the U.S. prior to the authors arrival. Shortfalls of the degree training were the slower than anticipated ability of participants to obtain an acceptable TOEFL score and the need for participants to obtain a second M.S. degree before they could enter the Ph.D. program in most U.S. universities. Both factors reduced the number of Ph.D's received. Additionally, too few training slots were allocated for planning and development or financial management, areas which are critical for institutional sustainability.

b) Short-term Training.

Most of the short-term training specifically planned for education had been completed by the author's arrival. Only one individual was sent for training in teaching English as a Second Language in 1994.

I believe that considerable benefits to the educational program were achieved by sending short-term participants early in the TIPAN Project because it built a momentum for change while degree training got started. Although it was anticipated that returning advanced degree participants would reduce

or eliminate this training need, I now believe some additional training for individuals in key positions would have been beneficial during the later project years.

c) Curriculum Revision and Student Examinations.

Considerable progress in curriculum revision and in the conduct of student examinations were made during the first 2/3 of the project. The partitioning of the undergraduate degree program into a general studies component followed by a specialized component has broadened the student's academic background and, thereby, their after-degree employment options. The utilization of the semester system with more frequent internal examinations has resulted in a more continuous learning atmosphere free of cheating rather than an annual cramming for examinations. The impact of newer textbooks, more up-to-date course content, and the need to more clearly differentiate graduate level courses have been positive factors in the curriculum.

Shortfalls in this area have been few student evaluations of courses and instructors which could be used for feedback in course improvement. A tendency for grade inflation has been observed but is being addressed by a revised grading scale. In retrospect, the absence of a long-term specialist or not providing

more TDY consultants in education during the last two and one-half years of TIPAN was probably a mistake since suggested changes in curriculum and evaluation were not sufficiently reinforced.

d. Practical Training.

Curriculum revisions did emphasize more practical training either in the laboratory or the field. The laboratory training was aided by equipment provided by TIPAN and field practicals were improved by development of Malakandhar Farm. Graduate training was improved by stressing practical thesis research often with a portion of the research conducted at research stations or in farmer's fields.

The major shortfall was the failure of the student internship to become institutionalized. This was due to a number of reasons: the inability or unwillingness of the federal government to provide financial support, the lack of hostels to be provided by the provincial government at the research stations, and by over ambitious internship expectations of students and faculty. With the exception of a few Departments who have assisted individual students in finding internships, the internship program has not functioned during the last three years of the project.

e. Library Holdings and Utilization.

The Library has changed over the course of the project

to a more dynamic part of the institution. Increased text and reference books, and modest journal holdings have led to greater student and faculty usage. It is anticipated that the move of the Library into its new facilities will be a positive factor. The computerization of library holdings and the ability to conduct comprehensive literature searches with CD-ROM databases has considerably strengthened graduate thesis research literature reviews.

The most obvious shortfall to library utilization has been its short hours of operation. With only a few exceptions early in the project the library is open only during normal working hours and, thus, is not available for scholarly use by students or faculty except for the few hours they are free of class or research responsibilities. The reason given is lack of funds for hiring library staff, which may be partially true but sends the message to students and faculty alike that after working hours scholarship is not encouraged.

f. Graduate Education.

The M.S. degree program has been strengthened during the TIPAN Project in a number of ways: 1) the M.S. (Honors) has become a two year program with increased coursework and a thesis research requirement; 2) the library holdings have improved the background

literature review; 3) a seminar presentation is a regular part of the program; and 4) the advisory committee normally includes faculty with the research experiences of external or international degrees. A Thesis Manual has been prepared which serves to standardize thesis requirements and format.

A Ph.D. committee has formulated general rules and standards for the Ph.D. degree and a short-term consultant has provided guidance for developing the graduate program.

A possible shortfall of the development of the graduate program is that a separate Graduate School (Division) has not as yet been formed. The initiation of the Ph.D. program in selected areas is slightly behind schedule but this may not be a shortfall since it has allowed more returned participants, who hold advanced degrees, to begin research programs.

g. Undergraduate Recruitment.

The undergraduate student body has essentially doubled in size during the period of the TIPAN Project. This increase in numbers has not come at the expense of quality since the recruitment now comes from the pool of FSC students from both Engineering and Medicine. There has been a steady increase in women students who now make up about 10% of the student population. A partially self-financial enrollment of students has

occurred during the last two years due to pressures of the UGC for greater self-support by universities. To date this self-financial scheme has not diluted admission standards. There are a few international students in attendance and this number is expected to increase as the NWFP-AU moves into its expanded facilities and assumes a greater regional role in university education.

There really are no shortfalls in this area as student numbers are close to those projected for this point in time.

h. Textbook Preparation.

An ambitious plan to produce several textbooks which reflected Pakistani conditions and which would be written by Pakistani authors from the three major agricultural universities or other agricultural institutions was developed for the second phase of the TIPAN Project. By the end of the project five texts will have been published with two others requiring only final editing and formatting. Two others are substantially written and partially edited. This was a major undertaking and achievement not only in producing relevant textbooks but also in bringing together professionals from throughout Pakistan in a common scholarly cause.

As indicated above, not all the textbooks will be

published by the end of TIPAN. It is hoped that other donors or the National Book Foundation will be able to complete the remaining textbooks and capitalize on the considerable investment already made.

i. Student Services.

The importance of student services increases with the size and diversity of the student body. Several support units are in place and providing good services. The Provost deals with the student services relating to hostels, student activities, and discipline. There is an Associate Women's program section. An Office of Placement and Human Resource Development became operational about three years ago and has steadily worked to develop placement opportunities, to maintain information on students and employers, and to provide career counseling services. The individual(s) heading that office have developed an entrepreneurship course which introduces its students to self-employment opportunities. There is a Sports Director and a foreign student advisor but neither program is well developed yet. Shortfalls in the areas of student services are primarily ones of degree rather than absence. The new facilities will encourage development of these areas, particularly in recreation.

2. Research System.

For each area discussed one or more achievement paragraph(s) will be followed by a shortfalls paragraph.

a. Degree Training.

By the end of TIPAN some 130 individuals (both campus and research based) will have received U.S. graduate degrees which have a thesis research or dissertation component. Of these degree recipients, 65 are from the research stations, and include 16 Ph.D. degrees and 49 M.S. degrees. One-half of the total 130 advanced degrees were received by individuals from the research stations whose primary responsibility is research. A training plan developed early in the project ensured that critical disciplines would be staffed by well-trained individuals for future sustainability.

The principal shortfall in this area is the fewer than expected Ph.D's from the research station system. This was due to several reasons which include the delayed merging of the research stations with the NWFP-AU, a longer time to reach TOEFL standards required for admission than expected, and an age restriction which excluded anyone over 35 (many intermediate or senior level scientists) from pursuing the Ph.D. degree under the TIPAN Project. Those in the 36 to 42 age bracket were sent for M.S. only. Another group (the final 12) could be sent for M.S. only

because we were nearing the phase II PACD of July 31, 1994. This shortfall would not have occurred if TIPAN had been extended to its anticipated third phase since many who had to return with M.S. degrees due to the completion of TIPAN would have continued for the Ph.D.

b. Short-term Training.

International short-term training for research staff focused both on discipline-specific training and on research administration and was designed to supplement degree training.

Considerable in-service training occurred as part of the TIPAN program of short-term consultants in such areas as technical writing and research station management. During the last three years of the project the Continuing Education program conducted several computer classes for researchers both on-campus and at research stations. Although several short-term training slots (10 per year) were planned for phase II, these were reduced in the PC-1 and in contract funding. This was unfortunate in that several individuals in key disciplines could have been trained in modern research methodology.

c. Projectization.

As an attempt to improve the relevancy of research activities on the research stations and to stimulate

research on-campus, a projectization plan was developed during the middle years of the TIPAN Project. Individual researchers and those working as a team were asked to develop project proposals which were peer-reviewed and those accepted given separate funding from that provided by the research stations or university. This program was funded by a Project Implementation Letter (PIL) from USAID. The intent of the program was to lead to projectization of all research with the expectation that experiments would be more relevant, better designed, and have a practical technology transfer thrust. It is evident from recent station reports that many, if not most, experiments are now prepared in a project format with prior planning to allow for data analysis and interpretation for technology transfer.

The expected ear marking of funds for each project and their expenditures by the principal investigator is still less than desirable and remains a shortfall of the process.

d. Participant Re-Entry and Collaboration Research.

Shortly after the return of the first TIPAN participants, it was observed by NWFP-AU and USAID that reintegration into the productive mainstream was slow. To address this issue a Re-Entry Workshop was developed by the author for the summer workshops held

at SIUC in 1990. Also, to obtain first hand information concerning the problem, the author served as a TDY consultant in November-December, 1990. From this consultancy three major activities emerged: first the continuation of a Re-Entry Workshop during the 1991 and subsequent summer workshops held at SIUC; second the formation of a Re-Entry Committee at the NWFP-AU during early 1992; and third the development of a Special Project Grants program by the Re-Entry Committee for recent returned participants to include not only returnees from TIPAN but from other sponsors. The 62 Special Project Grants have been very successful in stimulating research activity and, since collaboration between a campus and a research station scientist is required, has provided for unprecedented collegial interaction. Some of the best of these projects and collaboration have led to external paper presentations and new proposals receiving external funding.

The shortfall in this returnee collaboration research program is that it is coming to an end without the last 20-30 participants having a chance to take advantage of this stimulus to their re-entry. It would be a good investment of federal or provincial funds to continue support of this program (NWFP-AU provided Rs.5,000 and TIPAN Rs. 20,000 for each project).

e. Equipment and Computer Support.

The TIPAN Project in conjunction with Agricultural Commodity and Equipment (ACE) program will have provided nearly \$5.2 million in support of education and research for the NWFP-AU system. Both laboratory and field equipment have been supplied to facilitate and allow more definitive research.

Included in this equipment are 280 computers which allowed more complete data analysis, better report writing, better proposal presentation, and improved financial management. Computers have indirectly improved research accountability in that administrators and agencies providing support now expect more timely reporting and presentations.

The shortfalls in this area are the real or cultural difficulties which are present in sharing equipment and the failure of the NWFP-AU system to allocate people and funds for maintenance and repair. The Planning Commission Proforma-1 (PC-1) provided for staff for repair units but permission for hiring was never given. The author believes that some funds, particularly in the research station budget, can be made available if there is an administrative will to allocate and provide access to these funds.

f. Research Plan and Technical Working Groups.

The research programs of the NWFP-AU system have

limited resources and, thus, must work on a priority basis to obtain maximum benefits. This has been partly recognized by the formation of commodity or discipline based units: the Cereal Crops Research Institute (CCRI) at Pirsabak and the Sugar Crops Research Institute (SCRI) at Marden; the Potato Research Station at Abbottabad; and the Sheep Research Farm at Jabba. Other research institutes and stations have broader mandates that cut across commodity and discipline lines, and the campus Malakandhar Farm serves primarily for graduate research.

To assist in prioritizing research, outreach, and educational needs of the province, 16 Technical Working Groups (TWGs) were formed in 1992. With a broad-based membership of campus, research station, and other individuals outside the NWFP-AU representing these areas, the TWGs were utilized to prepare reports which identified current status and made prioritized recommendations. A Provincial Research Master Plan was prepared in 1993 by a committee named by the Director of Research with assistance of the TIPAN Technical Assistance Team (TAT). This committee relied heavily on reports of the TWGs which collectively include over 200 individuals. This plan, which builds on the research plan that went through 1993, attempts to look forward to the next 20 years,

but with the expectation that every five years the plan should be subject to revision. This plan should be supplemented and enhanced by the agro-ecological zone and specific discipline project plans under the Agricultural Research Project-II (ARP-II).

Although no real shortfalls have occurred, the initiatives and resources provided by TIPAN and needed for regular meetings of the TWGs and for periodic revision of the research plan should be programmed and budgeted for by the NWFP-AU system.

g. Research Linkages.

Linkages between NWFP-AU researchers and other researchers and institutions, both within and external to Pakistan, are important to conducting relevant research and maintaining avenues of germplasm exchange. It is the author's observation from some 30 years of research experience, that personal contacts and attendance and presentations at professional society meetings stimulate both the quality and quantity of research. Linkages between individuals and institutions may be informal, but where possible should be formalized at the institutional level to provide for easier access to collaborative research and travel funding support.

There are individual and non-formal institutional relationships with several international centers, such

as the International Center for Maize and Wheat Improvement (CIMMYT), the International Institute of Tropical Agriculture (IITA), the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), the International Center for Agricultural Research in Dry Areas (ICARDA), and the International Center for Potato (CIP).

Individual linkages through participant training have been and will continue to be very important. Germplasm obtained through these personal linkages have recently resulted in the release of new sugarcane and new sunflower varieties.

A formal Memorandum of Understanding (MOU) between NWFP-AU, UIUC, and SIUC was signed in June 1994 and will provide an avenue for research and educational linkages after TIPAN.

Assistance in promoting the personal/professional linkages of NWFP-AU researchers through attendance at national and international meetings has been provided through TIPAN for several individuals.

Eligibility for this assistance required presentation of a paper and TIPAN support was for travel and registration only. Individuals or the NWFP-AU system were responsible for housing and per diem expenses. Some of these interactions have already led to collaborative research and funding from outside

sources.

A shortfall of the professional meeting linkage opportunity mentioned above is that only a few research station personnel qualified for meeting attendance. My observation is that as of this date, few of the research station personnel conduct research which is complete enough for presentation and publication in an international venue. Hopefully, the new TIPAN and other degree returnees will increase this number.

3. Outreach System.

The outreach system and what its implementation requires and the benefits it provides, has been a difficult concept for the 'TAT' to market. Of all the attitudinal changes suggested under TIPAN, outreach has been the most misunderstood. And yet due to intensive efforts during the last two years, I believe the outreach concept may be the best understood since the beginning of TIPAN by those who are responsible for its implementation within the NWFP-AU system. Unfortunately that same understanding is not shared by the federal or provincial government who must provide the financial support.

There have been many achievements by outreach and selected examples will be presented (for details see the Kuhlman end-of-tour report). In contrast to the previous sections shortfalls will be discussed separately from

achievement.

a) Outreach Infrastructure

Although the Outreach Directorate has been understaffed since its inception in 1987, for most of 1992 and the first few months of 1993 it was fully staffed albeit with only a part-time Womens Program Leader. I list this as an achievement because one Regional Program Leader and the Womens Program Leader appointments were made only after repeated recommendations of the TAP. Full staffing together with good leadership made the period from January, 1992 through June, 1993 quite productive in demonstrating what outreach could and should do, and who should do it.

b) Subject Matter Specialists.

Subject Matter Specialists are the core of an outreach program, which is to develop and convey technology to the farming community via agricultural extension. Under the TIPAN concept subject matter specialists accept this role as part of a split-assignment which involves teaching and/or research responsibilities. The concept has been nurtured throughout TIPAN by the long and short-term consultants and has finally been accepted by a reasonable number of staff both on and off-campus representing key disciplines. This acceptance has been stimulated by 28 Special

Outreach Project Grants to develop technology transfer packages.

c) Technology Transfer.

Technology transfer material, primarily in the form of pamphlets, has been produced during the last four years of TIPAN and continues into the last months. Other viable forms of technology transfer have been farmer research station field days and field days held on farmers fields where adaptive research was being conducted. These field days were always held in cooperation with agricultural extension and over the course of the TIPAN Project the attendance has been in the thousands. Workshops and seminars were held often in conjunction with TDYs but also independently for extension workers and farmers. In almost all instances, campus, research station staff and extension staff were participants. Again participation over the course of TIPAN would be in the thousands and in many cases these were the first opportunities for particular researchers and extension staff to interact.

d) Women's Program.

This program got a late start with the appointment of a Women's Program Leader on a part-time basis in 1993. Considering her part-time assignment and the minimal support received this program has done well conducting

some 6-8 programs for rural women or women extension advisors. The women belonging to the Institute of Development Studies (IDS) as well as the College of Home Economics have supported the program.

e) Continuing Education.

The Directorate of Continuing Education was formalized in January, 1992 with the appointment of Dr. Mohammad Asrar as Director on additional assignment. Since that time Continuing Education has flourished and demonstrated its role as a viable and visible function of NWFP-AU. Some 40 workshops have been held both for in-service and for external groups including Afghan agriculturalists. With the impetus from a successful current program it is hoped that the new building facilities will result in increased emphasis on Continuing Education programs which can add visibility and sustainability to the NWFP-AU.

f) Communication Services Division.

The Communication Services Division got a late start and only really began to function as a unit with the appointment of Mr. Mohammad Ayaz as Director in mid-1992. Although very understaffed, the unit has served well and demonstrated its usefulness in preparing pamphlets, flyers, brochures, slides, and videos for the NWFP-AU system. With the assistance of consultant Dr. Cordell Hatch, a well equipped communications

facility in the new building will be available to provide communication services. The modest success of this unit is a positive factor in a proposed reorganization to include the Department of Communications and Agricultural Extension to allow for improved teaching as well as services.

g) Inter-Agency Linkages.

For outreach to be successful it must interact cooperatively with other agencies both governmental and non-governmental. To facilitate this interaction, MOUs were signed at the inception of Outreach with Agricultural Extension and the Livestock and Dairy Development Department (LDDD). Within the past year, six additional MOUs have been signed to promote cooperative activities. The most productive of these has been with the Gadoon-Amazai Project which has led to several campus and research station staff performing viable roles as subject matter specialists. The shortfalls in Outreach programming were related to the slow acceptance of the split-assignment concept. Many if not most staff (teachers or researchers) were content to let the few outreach staff plan and do outreach but only cooperated when asked. Although the split-assignment was mandated and gradually accepted during the last two years of the project, it has not reached the stage where many individuals were

actually planning and producing technology packages for transfer to the farming community through agricultural extension.

The training of trainers approach to providing short in-service training programs to agricultural extension workers was occasionally practiced but was never developed to the extent envisioned. Part of this problem was the inability of agricultural extension and NWFP-AU outreach to come together and plan for training. Thus, much of the training which took place was driven by outreach or a few individual researchers who felt they had important technology to transfer. Perhaps the greatest shortfall has been the inability to leave a well-trained cadre of support professionals in the Communication Division and in Continuing Education. This shortfall traces directly to the unwillingness of the GOP to honor their PC-1 staffing commitments and to ultimately transfer fiscal responsibility to the GONWFP. The failure to complete the new buildings which provided ample and even showcase facilities for Outreach, Continuing Education, and Communications in a timely manner allowed some justification in delaying the filling of PC-1 posts. The delay in initiating the Women's Program must also be considered a shortfall. After an early attempt to fill the Women's Program Leader

position was aborted, it was over two years before a part-time leader was named. Considering the positive effect even a part-time program has had, it deserved earlier emphasis. Until the last two and one-half years of the project when a Director of Continuing Education was named, all or most of the in-service or external training programs were organized and facilitated by the few Outreach Program Leaders. Although they did a good job, this took away from their primary role as liaisons between NWFP-AU researchers, agricultural extension, and the farmers. This liaison role was and is vitally important to the Outreach function of the NWFP-AU which is "serving agriculture-serving people".

4. Administrative Structure and Governance System.

Institutional change is the most difficult and time-consuming task in development. Many of the TIPAN concepts required some level of institutional change for full or partial benefits to be realized. I will emphasize achievements in six areas: a) decentralization; b) merger of campus and research station system; c) planning and development; d) operations and maintenance; e) financial management; and f) participatory governance. As with Outreach I will address shortfalls in a separate section.

a) Decentralization.

The distribution of powers, both programatic and budgetary, was critical for the TIPAN concept to work. There simply was too much for a central administrator, the Vice Chancellor, to oversee. The major decentralization was to name the three Directors of Teaching, Research, and Outreach. A major secondary decentralization was to name a Pro-Vice Chancellor. The three Directorates survive at the end of the project. The Pro-Vice Chancellor, although functional for awhile has not become institutionalized and was not included in the modest number of positions approved in the final PC-1.

Other aspects of decentralization have occurred, i.e., an enhanced responsibility of the Deans and to a lesser extent of the Chairman. This responsibility has been increased at the programatic level but still lags at the financial (or budgetary) level.

b) Merger.

One of the important changes of TIPAN was to bring the research station system together with the educational system, in effect to bring about merger of the two systems. This has worked effectively in a functional way in that there is a commonality of purpose in serving the agricultural community and a feeling of outreach responsibility. The desired interchange of personnel between systems has not occurred although

considerable interaction has taken place. There was a developing feeling of oneness in purpose and identity which is undergoing stress as TIPAN comes to a close.

c) Planning and Development.

The importance of planning and development has been generally recognized on campus and recently recognized within the research station system. The research system is benefitting from the Agricultural Research Project-II which mandates a Planning, Monitoring, and Development Cell. The campus system has a functional unit which is headed by a competent Junior grade (Mr. Liagat Ali) individual with supplementary input from several campus constituencies. Planning has received a reasonable amount of TIPAN support through training of individuals and the formation of a Syndicate-authorized Sustainability Committee which has functioned for approximately four years.

d) Operations and Maintenance.

The Directorate of Works is headed by a very competent individual, Major (Rtd) Sardar Alam. Through his training from TIPAN and his own initiative he has developed a creditable service and operations unit to deal with not only previous existing facilities but also the new buildings provided by TIPAN. This unit depends upon the decentralization of functions to sub-

Engineers.

The Administrative Officer, Mr. Sherin Khan, has also coped well with the increased landscaping maintenance and the increased security needs. TIPAN has provided each of these important units with equipment which will make their role easier.

e) Financial Management.

Financial management is a difficult task, particularly when the funds from government are received late or are less than budgeted. While TIPAN could not effect change on the receipt side, it could and has effected change on the accounting side. The NWFP-AU campus Directorate of Finance has essentially become computerized in its (various) functions through the efforts of a short-term consultant and a sub-contract with KPMG (Peat Marwick).

Attempts to similarly computerize the research systems are continuing but with much less success.

f) Participatory Governance.

Participatory governance implies input from the faculties and research station personnel into programmatic and budgetary planning. This process has slowly developed on campus through greater reliance on statutory committees and on ad-hoc committees. The younger faculty have been given roles in ad-hoc committees like the Re-Entry Committee and have also

become more influential in Departmental Committees. There is some assignment of participant returnees to sub-leadership roles in the research system. However, there is considerable variance between research stations.

The current Vice Chancellor, Prof. S. Basit Ali Shah, has encouraged the team approach to decision making. This bodes well for a system which needs to maintain and expand its role in higher education in Pakistan.

B. Challenges and Constraints.

The challenges, stated in basic terms, were to motivate individuals and units to perform near their capacity in (carry out) their teaching, research, and outreach functions. Basically these challenges were to adopt an improved professional attitude with a concept of service and to develop a more outward expanded view of responsibility from within the NWFP-AU system. The mechanism used to motivate individuals and units were degree and short-term training, in-service training in the form of workshops and seminars, and by personal example.

A major constraint was the size of the campus and research system relative to the human resources of the TIPAN TAT.

A major challenge was to convince governing and funding authorities that the TIPAN concept was an appropriate model for the NWFP and Pakistan in general. To

support that challenge many and various programatic activities were planned and executed. Attitudinal change must occur at two levels, the implementing and the empowering level. Considerable success (as documented previously) occurred at the implementing level. Less success occurred at the empowering level for a variety of reasons: lack of access, lack of interest, and lack of resources being the principal reasons.

Three major constraints impeded the success of the TIPAN concept: first was the failure of the GOP to honor its agreement signed with USAID for additional staffing; second was the delay in building completion which kept the visible benefits of the TIPAN training and activities from becoming apparent. (Indirectly or directly this also affected PC-1 staffing by allowing both the NWFP and the GOP to delay staffing); third was the unwillingness of the provincial Secretariat of Agriculture to accept the fully merged system.

The many reports of TIPAN (Quarterly, End-of-Tour, TDY, and Evaluation) identify both the many challenges and constraints. I feel confident that the TIPAN TAT and the NWFP-AU addressed the majority of the challenges but was often frustrated by the constraints.

This challenges and constraints section is not long. After all there can be little gained from "beating a dead horse".

IV. Learning from the Experience.

"If we do not learn from history we are doomed to repeat it" is a paraphrased familiar saying. I would extend the above saying for development activities to include "if it's not working as planned, why not change the plan". To some extent the TIPAN initiative was a mixture of the two sayings, one paraphrased, one personal in origin.

Most observations and evaluations of the TIPAN design plan are positive although the plan may have been overly optimistic. The achievements while substantial are less than the expected output. From both the donor and the recipient side we should ask why; not to find fault particularly, but to avoid similar frustrated expectations in the future.

At this point I would like to go on record as saying TIPAN was a qualified success. My remarks from here on are meant for improved understanding, lessons learned, and suggestions for sustainability.

Tactics (What could have been done differently).

The list of items in this section could be overly minute, thus I am listing only a few major tactics.

- * The original implementation plan called for a Management Advisory Group (MAG) consisting of the Vice Chancellor, Secretary of Agriculture, TIPAN Team Leader and USAID Project Officer. This unit functioned only briefly during the period of the first Team Leader. It should have been maintained and met at least on a quarterly basis and chaired

by either the Vice Chancellor or USAID Project Officer.

- * A quarterly meeting of senior executive officers of the TIPAN system (Vice Chancellor, Directors of Teaching, Research, and Outreach, and TIPAN Team Leader) should have been held and chaired by the Vice Chancellor or TIPAN Team Leader.
- * The monthly or quarterly meetings of the Vice Chancellor and Research Station Directors should have been retained, with the TIPAN Team Leader included at least, Ex Officio, with the Vice Chancellor to call the meeting.
- * The TIPAN TAT should have assumed a greater responsibility to visit and work with the Research Stations Directors and their staff. In retrospect, one TAT member sharing time with the campus and research station system was not enough.
- * The TIPAN Team Leader should have remained in an advisory capacity to the Skidmore, Owings, and Merrill (SOM) architectural and engineering firm (this was part of the first Team Leaders Scope of Work). This may have prevented some of the design problems now faced by the AU as it occupies the new buildings.
- * More emphasis (particularly early emphasis) should have been placed on developing the planning, monitoring, and financial management capacity of the NWFP-AU system. This includes the collective campus and research station system. Although a Sustainability Committee has been made a part of the Syndicate Committees, overall planning capacity remains weak

generally due to an unwillingness to give junior administrators freedom to do independent planning. Thus, planning is mostly in response to a crisis rather than futuristic planning.

- * More emphasis should have been placed on communications within the system. Many staff were simply poorly informed about TIPAN, what was in it for them and what it demanded of them. Since there were some 500+ professionals in the system, the cost of fully communicating would have been high but would probably have been beneficial to project success.

Lessons Learned

It is always easier to look backward at events and determine or suggest what, when, and where certain decisions had a positive or negative impact on the present. Academicians call this study history, most of us call this reflection, experience..

Since this is an individual report of a complex project involving many individuals, the lessons learned may be different than those of others. It is the role of a synthesizer, a historian, to blend the various lessons learned into a summary statement which may benefit future planners and implementors of institutional development.

These enumerated lessons learned are almost certainly not unique and certainly are not exhaustive. They are, however, lessons which might improve future returns on projects which are intended to bring about institutional change.

1. Communications and Concensus. There is a great need

for improved communications and concensus if complex changes are to be achieved. This is particularly important and more difficult and quite costly as the number of individuals involved increase. In the TIPAN project, some 500+ professional officers, approximately 40 administrators and perhaps 20 government, donor, or other officials needed to know more about TIPAN, its goals and objectives, its progress, and its stumbling blocks in order to maximize its chances for success. Who should receive quarterly reports, consultant reports, project reviews, etc.? How much should be invested in "routine" communication in order to better improve concensus? How much should be invested in internal in-service training to meet technical, management, and philosophical objectives? TIPAN invested a lot in these areas but probably no more than 30% of what in retrospect suggests would have been beneficial. I believe 10-15% of a of a project's budget should be spent on various forms of communications not only to enhance project success but also to demonstrate what is needed for sustainability.

2. Empowerment. In any organization, the individual who brings about change must be empowered by providing funds for activities (with accountability), by providing freedom of expression (including dissent), and by some reward system (however modest). TIPAN as a project provided some of this empowerment by Collaborative and Special Projects Grants, Outreach Grants, ad-hoc committees, and some

expenses for professional advancement, workshops, seminars, and international meeting participation. Some individuals, through independent grants and participation in other donor projects, appear able to sustain this empowerment. The historical top-down conservative Pakistani management style has found empowerment of junior staff more difficult to accept. It is hard for an external advisory group to demonstrate empowerment within the local system although it can be effected under project control. I believe if a reasonable amount of empowerment funds could have been distributed to individual departments and research stations with adequate monitoring greater progress might have been made in this area.

3. Visibility. If change is the objective, then it should be made visible through various media. TIPAN was less visible than it might have been, this was touched on briefly in 1. above but deserves elaboration. Although one (organization or individual) feels awkward about premature announcement of achievements, it is a common practice by industry and researchers who desire continued support. In TIPAN's case it would have been warranted because successful activities were continually being conducted. It is acknowledged that some press and radio coverage of activities were made. However, TIPAN never became a well understood and recognized acronym. I believe that more emphasis should be put into marketing a project early in its development, especially when

institutional change is a major goal.

4. Planning. One of the obstacles to institutional change is the weakness in institutional planning. A colleague of mine, Dr. Farrel Olsen (TIPAN Crop Science Specialist) has a favorite expression "Plan your work and work your plan". This expression serves both individuals and institutions well. There was certainly a lot of sound planning that went into TIPAN and a lot of work that tried to implement the plan. However, in retrospect, TIPAN did not provide enough support either in training or in finances for institutional planning. Only in the last two years of the project was a separate planning and monitoring unit created for the research system and the campus still has only one junior level Deputy Director of Planning (the now unauthorized Pro-Vice Chancellor position could have assumed the role of senior planner). I believe that the capability of an institution for planning goes a long way in ensuring its sustainability both programatically and financially and that this should be included, even insisted upon in staffing and training.
5. Staffing. If change includes activities of units not presently within the existing system, then staffing of those units requires maximum effort. The planners of TIPAN and those who wrote the PC-1's for the project understood the need for new positions in areas not already existing within the system. Unfortunately this was not sufficiently

or convincingly articulated to the budget planners who chose to ignore the recommendations. My observation is that projects are treated basically as temporary inputs into the existing system and, thus, are not viewed as instruments of institutional change. How does one overcome this inertia for change? Since there is just as much inertia for retrenchment as for advancement, needed staffing to sustain institutional change positions should be incorporated into first phase developmental PC-1's and necessary provisions for their utilization provided early in the project (in this case temporary housing for Communications, Continuing Education and Repair Unit staff.

6. Relationships of Physical Change to Programatic Change.

Improvements in physical infrastructure are often prerequisites or at least supplemental requirements for programatic change. TIPAN was a project which tried to interface three types of changes, human development (training), programatic development (teaching, research, and outreach), and physical development (buildings and equipment). Maximization of these three developmental changes requires planned phasing. The TIPAN project had such a plan but delays in two major areas impacted the plan. The first delay was of about two years in merging the provincial research station system with the Agricultural University and weakening the extent of the merger. This not only delayed the training of research staff (with an impact

on programing) but also, and probably more importantly, delayed the start of physical improvements. The second delay was in initiation of building construction of almost two years (due to contract bidding problems) and an unforeseen interruption of six months due to evacuation during the Gulf War. These building construction delays severely impacted on human and programatic development by causing overcrowded conditions, an inability to utilize some equipment and develop programs, and an inability to benefit from technical assistance in utilizing new facilities. The original plans allowed for use of the physical improvements over the last four years of the project and the revised plans over the last two and one-half years of the project. It is regrettable that even at the close of the project no academic or programatic support building has ever been fully utilized. The effect of the delay in access to the buildings can probably not be measured but its impact on the sustainability of the TIPAN inputs and change concepts is certainly great in the areas of technical staffing and equipment utilization. I believe that the provision for phased construction and utilization should be incorporated into major building plans, or temporary buildings provided for the key technical support areas, in this case, communications services and computer and equipment repair.

Conclusions and Recommendations for Sustainability.

TIPAN had a grand design of transforming and integrating

agricultural education and research and interfacing with agriculture extension in the Northwest Frontier Province with the aim of improving the productivity and profitability of the agricultural sector. There has been general consensus on the goals and objectives of TIPAN but some dissent on the requirements for implementation.

There has been considerable progress during the decade of TIPAN. Some 130 M.S. or Ph.D. degrees from the U.S. have been awarded, some 73 people have received short-term U.S. training, approximately \$6 million U.S. dollars of field and laboratory equipment have been received, and some \$25 million of physical infrastructure is in place. Perhaps of more importance than the obvious accomplishments stated in the previous sentence, are the sometimes subtle but real changes in the NWFP-AU system. Changes like an improved curriculum, a better qualified student population, graduate research of an applied nature, collaborative research between campus and research station personnel, adaptive on-farm research, an improved understanding and acceptance of the need for technology transfer, and the development of a continuing education program. There is an enhanced commitment to the NWFP-AU motto of "Serving Agriculture - Serving People".

Transformation and integration are change and action words. Change is usually brought about by necessity; the necessity is not always perceived by all who are or must be involved in the change. Such change requires trust between the institutions and among the people involved. Understanding and trust remain key requirements

not only for the TIPAN initiative to succeed but also for the NWFP and, indeed, Pakistan to succeed in agricultural self-reliance.

Experience dictates that recommendations are often sound, but many are too costly either in financial or cultural terms to be adopted. Over the decade-long TIPAN project there have been numerous recommendations by the design team, consultants and review teams, enough to fill a small book. A reasonable number have been accepted and adopted as have been cited in the achievement sections of the many TIPAN reports, including this one. Now at this time, when the external financial and technical assistance of TIPAN comes to an end, what are the recommendations which may be made that, if followed, will help to sustain the NWFP-AU system which has evolved (changed) over the last decade to the position where it is within its own destiny to effect major changes in NWFP, national, and regional agriculture.

The few recommendations which follow, I am sure, have been offered before but perhaps, since these come at the end of the project when sustainability is a real rather than a discussion issue, they may be given serious consideration.

Teaching Program. The teaching program is at the heart of institutional sustainability since its product, the graduates, become the employees of the University, the research system, agricultural extension, and agribusiness. To improve and sustain quality education it is recommended that:

1. There continue to be short teacher training workshops held each year or semester with guest speakers from research,

agricultural extension, and agribusiness to provide insight of prospective student employers.

2. Each department have its academic program reviewed every three years with the review conducted by a three person team external to the department, with two members from other campus departments and one from the research stations (See also 2 under Research and Outreach Program). The first one-third of the departments should be reviewed during 1994-95.
3. A separate Graduate Studies Division be established that may have its own Director and its own academic council. The purpose of such a unit would be to clearly distinguish between undergraduate and graduate education and to implement the Ph.D. program in selected areas. The need for Ph.D. training must be partially met in-country since external training is more costly and unlikely to be available to the extent required by the Province.
4. The University should find ways to extend the working hours of the Library and selected laboratories or other units like the Computer Center so as to encourage a more scholarly atmosphere for students and faculty.
5. The academic departments should request and utilize research station staff to supplement their teaching program, particularly the graduate program. Such individuals may be named as Adjunct Lecturers or Professors.

Research Program. The research program is conducted both at the research stations and the campus departments. During TIPAN there has been increasing collaboration between station and campus researcher stimulated by Special Projects Grants of Rs. 25,000 per year. This collaboration needs to be continued. To improve and sustain quality research it is recommended that:

1. Special collaborative research projects between research and campus staff be continued with emphasis on development of younger researchers. It is recommended that 10-20 such projects be funded each year from the research budget. The projects should be competitively peer reviewed by the Technical Review Committee with funding to the Co-Principal Investigators. Projects would be monitored and an annual report submitted.
2. Each institute research station should have its research program reviewed every three years with the review conducted by a three person team external to the station with two members from other research stations and one from a campus department. (Campus departments would have their research program reviewed at the same time as their teaching program). The first one-third of the institutes/stations should be reviewed during 1994-95.
3. Empowerment, primarily budget spending authority, should be given to the Principal Investigator of approved projects. The untimely release of funds or failure to release funds by some administrators lowers morale and is

counterproductive to accomplishing needed research. Co-signatures for large amounts and regular monitoring should be sufficient control.

4. A computer and laboratory equipment repair cell should be immediately set up on campus and staffed with two to three competent people, with funding coming from both the research station and campus budgets. Based on TIPAN-assisted repair expenditures, the level of funding should be from Rs. 1-2 million per year. The TIPAN PC-1 contained staff for this function but they were never authorized. Even through some repair may still be needed from the local market or the NARC repair unit. Experience would suggest that without an in-house repair unit, the breakdown and malfunctioning of computers and laboratory equipment units will be a serious problem within a year. This problem will be more critical if the usual lack of sharing between departments, sections, and individuals continues to occur.
5. Transportation should be made more equitably available to researchers both on campus and at research stations. If a full motor pool is not culturally acceptable at least a mini-motor pool of 1-3 vehicles or an improved monitoring of use should occur.

Outreach Program. The Outreach program has been much maligned, misunderstood, and understaffed for the entire period of TIPAN. And yet, except for the training component, it may be a lasting legacy of the TIPAN initiative. Outreach signified change, both in

attitude and activity. Outreach meant looking beyond the classroom beyond the laboratory, beyond the field plot, beyond the status quo. Outreach included new units, Communication Services, Continuing Education, Information and Technology Transfer. For the sustainability of the Outreach program it is recommended that:

1. Minimal staffing should be provided, hopefully through the current or future SNE's or reassignment from the campus, the research stations, and, yes, agricultural extension, of a core of about 15-18 professionals who facilitate and enervate technology transfers to farmers, rural women, and the agricultural community.
2. Each department and Institute/station should be reviewed every three years in rotation for their contribution to the Outreach program. This review should be in conjunction with teaching and research reviews (see 2 in Teaching and Research program section).
3. Staffing needs of Outreach, which includes Continuing Education and Communication Services should be met. Every effort at all levels, the NWFP-AU, the Provincial Secretariat, and the Universtiy Grants Commission should be expended to obtain these positions. Split assignments may be used to help met these needs. There are few areas where so few can mobilize or influence so many, Outreach is one such area.
4. The concept of split-assignments should be fully institutionalized at the campus and research station level.

While it may not be necessary for every individual either due to talent or position to have a split-assignment, all units should have a teaching, research, and outreach (service) function and job descriptions should indicate this responsibility.

5. The programs of Continuing Education should be supported and the new building facilities utilized to demonstrate the outreach (service) commitment of the NWFP-AU system.

Administrative Structure and Governance. The greatest changes through TIPAN were required and expected in administrative structure and governance. Positive changes occurred as cited in this report and others but expectations were greater than reality. Nevertheless, the base has been set for future progress. Recommendations for administrative structure and governance are:

1. Regularly scheduled monthly meetings of the Vice-Chancellor and the Secretary of Agriculture should be held alternating between campus and Secretariat, or occasionally at a neutral site. The greatest obstacle to the merger concept is division of power. Reality indicates that both a measure of autonomy and bureaucratic influence are necessary. The best interests of NWFP agriculture will be achieved by a compromise position.
2. There should be assignment of more administrative functions to subordinates. Decentralization of day-to-day authority is necessary as institutions grow larger and more demands are placed upon them. Although my observations indicate

that most administrators fear the person next senior, the reality is that rarely is seniority not accepted. As understanding of needs and requirements of the system increases usually morale and performance also increase.

3. There should be a senior individual (Grade 20) assigned to the campus planning directorate. The current Deputy Director is over worked with important but routine activities and often is not perceived to adequately represent the NWFP-AU because of his junior grade.
4. The NWFP-AU Sustainability Committee should be directed to develop and present by January 1995 a five year strategic plan with a few action suggestions for each year of the plan. This group is already in place and functions on an irregular basis. With the end of the support of the TIPAN project the Sustainability Committee should assume an important planning role.
5. The NWFP-AU Foundation should be established immediately so that funds may be solicited from individual and organizational donors. Without the establishment of a Foundation there will be few who will donate money regardless of how important the cause which needs support.

Linkage Recommendations. The NWFP-AU system has become an active partner in the international community of institutions with the support of TIPAN and other projects. The challenge will be to remain in that position. It is recommended that:

1. The Linkage Memorandum of Understanding (MOU) with its

TIPAN partners, the University of Illinois at Urbana-Champaign and the Southern Illinois University at Carbondale should be vigorously supported and utilized to maintain and enhance its academic, research, and outreach programs.

2. The local in-country MOUs with some eight institutions or agencies should be vigorously pursued for the mutual benefit of the partners and the improvement of the agricultural community.
3. Linkages should be established with other institutions, particularly international research centers. Such linkages are usually initiated by individual researchers and then formalized by MOUs between the institutions.
4. Electronic communications, FAX and e-mail, should be considered an essential component of running the NWFP-AU system and funds be designated specially for this purpose. TIPAN has provided several computer units with both FAX and e-mail capability so operational cost should be minimal.

ACKNOWLEDGEMENTS

There are many individuals who have assisted me in my role as Team Leader and Institutional Development Specialist of the TIPAN Project. I will identify a few individuals and identify others only as a group, for to name all who have contributed would take several pages.

I want to sincerely acknowledge the support and collegial working relationship of Vice Chancellor Prof. S. Basit Ali Shah, former Vice Chancellor Abdur Rahman Khan, Project Officer Dr. Abdul Qayyum Khan, Campus Coordinators Mr. Thomas A. McCowen and Dr. Gilbert H. Kroening, and Training Coordinator Dr. John W. Santas.

The dedication and support of my fellow TAT members who worked with me in Peshawar on a long-term basis is warmly acknowledged: Dr. David Brown, Dr. Rodney Fink, Dr. J. Cordell Hatch, Dr. Carl Hausler, Dr. Donald E. Kuhlman, and Dr. Farrel J. Olsen.

I want to gratefully acknowledge the day-to-day dedication and support of the TIPAN field office staff who except for one departure and replacement worked with me to the end: Mr. Fayyaz Ahmad, Mrs. Gillian Biland, Mrs. Zahida Rehmat, Mrs. Bertie Naj, Mr. Hakim Farhat, Mr. Ikramullah, Mr. Mira Khan, Mr. Afzal Sher,

Mr. Raja, Mr. Jehangir, and Mr. Inayatullah.

The support of Mrs. Shereen Khan, Dr. Robyn Bantel, Dr. Elena Bashir, and Dr. G. M. Khattak for their work in the Intensive English Program or on the Textbook Project is gratefully acknowledged.

I want to thank the many members of the NWFP-AU system both on and off-campus from Directors, Deans, Chairmen, faculty, researchers, and to the support staff not only for helping me to implement the TIPAN Project but also for their warm and friendly personal support. These people are the real reason for whatever success TIPAN has achieved both in programs and attitudinal change.

The support and guidance of Mr. Dennis Weller, Mr. John Swanson, Mr. Arnold Radi, and Mr. Nazir Chaudhery of USAID is sincerely acknowledged. They and other unnamed individuals offered their help as needed throughout the project.

The Pakistan Working Group consisting of senior administrators from the UIUC and SIUC met several times each year to assist in the planning and backstopping needs of the project. Those not mentioned elsewhere in these acknowledgements are Dr. John J. Nicholaides III, Dr. Charles Klasek, Dr. James Tweedy, and Dr. William N. Thompson.

Home campus support individuals who provided important logistical support are Mrs. Claudia Roseberry, Ms. Phyllis Sandwell, Ms. Diana Glasgow, Ms. Dorothy Hines, and Ms. Shelly Reiten. The SIUC College of Agriculture and, especially, my Department of Plant and Soil Science colleagues are warmly

acknowledged for their support. Dr. Paul Gibson and Dr. Mike Schmidt receive my special thanks for carrying extra teaching and research duties during my absence.

There were many individuals within the Provincial agricultural system and the Planning units, and the Federal University Grants Commission, with whom I interacted less frequently but they always extended courtesy and help whenever possible. Specifically I want to acknowledge Secretary of Agriculture Mr. Ejaz Qureshi, Secretary of Planning Mr. Saleem Khan Jagra, and Mr. Saeedullah Shah of the University Grants Commission.

As indicated from the above paragraph many individuals have helped me during my tenure as TIPAN Team Leader, I can honestly say that I now have as large a number of collegial relationships in Pakistan as in the U.S.

Lastly but most importantly, I want to acknowledge and thank my wife Joyce, without whose support and love these 33 months in Pakistan would not have been possible. We also needed and received the support of our two sons, Gerald and Paul, and their families.