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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

CONSULTANT REPORT

HARRY D. WIRTH

OPERATIONS AND MAINTENANCE

MARCH 23 - APRIL 13, 1994

Submitted to the
Northwest Frontier Province
Agricultural University
Peshawar, 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 Agricultural Network (TIPAN) Project

by

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

Mr. Harry D. Wirth
Director of Plant & SErvice Operations
Southern Illinois University at Carbondale

ITINERARY:

23 March, 1994	Depart Carbondale
25 March, 1994	Arrive Peshawar
11 April, 1994	Peshawar to Islamabad
12 April, 1994	Islamabad to London
13 April, 1994	London to Carbondale

Persons Contacted: Attachment 1

Information Sources: Attachment 2

Itinerary DOW in SIUC: Attachment 3

Routine Work - Attachment 4 a-n

Tasks & Frequencies

Activities:

25 March, 1994	- Arrival in-country. Traveled with TIPAN project team member Dr. Farrel Olsen to Peshawar and was briefed on status of TIPAN Project.
26 March, 1994	- Meeting with TIPAN team members, Dr. Oval Myers, Jr., Dr. Farrel Olsen, Dr. Cordell Hatch, and TDY consultant Dr. Orville Bentley, to discuss status of project.
	- Meeting with Director of Works to outline visit and discuss scope of work.
27 March, 1994	- Meeting with Vice Chancellor Basit Ali Shah, Dr. Myers, and DOW. Discuss scope of work and VC's general concerns.
	- Meeting with SOM Project Leader Mohammad Salim.
	- Meeting with ENCORP leader Tom Philips and Ron Sangster.
	- Dinner with Vice Chancellor, TIPAN team, DOW, Registrar.
28 March, 1994	- Toured campus with DOW. Discussion - VC's concerns.
	- Toured new O/M building (under construction).
	- Meeting with DOW and prime contractor for O/M building.
29 March, 1994	- Meeting with ENCORP.
	- Meeting with DOW and Staff.
30 March, 1994	- Toured facilities to inspect drainage problems (a fairly good rain fell last p.m.).
	- Inspected general cleanliness.
	- Meeting with DOW.
31 March, 1994	- Meeting with DOW, S.O.M., and MARK (Pakistan) Inc. General pay and percentage/completion meeting.
	- Toured new facilities, sewage station, and pump house with TIPAN team leader Dr. Oval Myers, Jr.
1 April, 1994	- Free Day.
2 April, 1994	- Meeting with Dr. Myers. General Discussion.
	- Meeting with Dr. Myers and DOW.

3 April, 1994	-	Meetings with: Vice Chancellor, Dr. Myers, and DOW. One week review and update.
4 April, 1994	-	Meetings with: Dr. Myers, DOW, Provost Jehangir Khan Khalil.
5 April, 1994	-	Meetings with TIPAN TAT.
	-	Visit Agricultural Research Institute, Tarnab.
6 April, 1994	-	Meeting with Dr. Myers re Research Stations and budget.
	-	Begin draft of report.
7 April, 1994	-	Continue work on draft of report.
8 April, 1994	-	Free Day.
9 April, 1994	-	Meetings with: TIPAN staff. Debriefing comments DOW and S.O.M.
10 April, 1994	-	Meetings with: USAID, TIPAN, ENCORP, S.O.M., DOW.
11 April, 1994	-	Peshawar to Islamabad.
	-	Meeting with USAID in Islamabad.
12 April, 1994	-	Islamabad to London.
13 April, 1994	-	London to Carbondale via St. Louis.

SCOPE OF WORK:

1. Assist the Director of Works and his staff to implement an operations and maintenance plan which will include:

   - Implementation of a training plan for senior and junior staff.
   - Implementation of a schedule for housekeeping and general maintenance.
   - Preparation of a leaflet for operation and maintenance.
   - Development of a commodities (stores) procurement system.

2. Assist the Administrative Officer and his staff in planning grounds maintenance and building security.

3. Assist in the development of a space utilization plan to include the new and existing building.

GENERAL COMMENTS AND OBSERVATIONS:

Part of the training to be provided by the Technical Assistance Team (TAT) of TIPAN called for a return visit by the consultant for Operations and Maintenance. This report is provided as a result of that follow-up.

I first visited NWFP Agricultural University, Peshawar in April and May 1993, and at that time provided a list of recommendations that would improve the O/M capabilities.

The 1993 recommendations came as a result of careful observations concerning the project. The list and status of each is provided below:

- The ventilation system in the new Library, Plant Science Laboratory, and Communications and Computing Center should be reviewed and consideration should be given to modifying the windows to allow open ventilation when air conditioning is not available.

FANS STATUS: No action.

- The estimated staffing levels for the new facility provided by S.O.M. should be provided.

STATUS: Good Progress has been made on filling authorized positions within the Directorate of Works, and new positions have also been filled. The DOW has an acceptable complement of workers (with the exception of housekeeping staff) and has requested seven more positions (five at research stations). **Every effort must be made for funding those positions that are now being paid for by TIPAN and/or USAID.**

- Equipment and tools list should be filled and delivered as soon as possible.

STATUS: Some tools and equipment have been delivered and others are on order. **Every effort <u>should</u> be made to expedite the filling of these requests.**

- The Housekeeping function (sanitation) should be transferred from the Administration Officer to the Director of Works, and proper staffing levels should be maintained. A minimum of 30 individuals should be assigned to this function, including a Superintendent, Assistant Superintendent, four foremen and 24 workers.

STATUS: The Housekeeping function has been officially transferred to DOW along with 12 people. Vice Chancellor has authorized 6 additional staff. Consideration should be given to increase the number of staff to recommended levels.

- The budget proposed by DOW (approx. Rs.24 million) should be made available when the new facilities are open and occupied.

STATUS: Definite budget information was not available to the consultant. The budget figures that appear in "NWFP Agricultural University, Peshawar Financial Statements 1994-95", reflect increases for operation and maintenance of the new facilities. These "estimated" budget figures should be fully funded.

- Directorate of Works should be reorganized to provide for a more functional administrative structure.

STATUS: More positions within the Directorate have been filled, and, although a complete reorganization has not taken place, functional changes have been made. The DOW seems more willing to delegate certain responsibilities and appears to be well organized. As more work becomes necessary with the addition of new responsibilities and staff, serious consideration should be given to hiring a business manager to organize administrative, budget, and business activities.

- Construction of the Operations and Maintenance building that is scheduled to begin in June 1993 should be completed as rapidly as possible.

STATUS: Progress on the O/M facility is progressing in good order, and completion is scheduled for early summer 1994.

- The Training Program proposed by ENCORP, TIPAN TAT, and USAID should be carefully carried out.

STATUS: Training programs are progressing satisfactorily and are fully detailed in "Scope of Work (Specific)" section of this report.

- The Director of Works should review the procurement system and inventory control system and consider implementing the Two Bin System and eventually an automatic Inventory Control System.

STATUS: The implementation of a procurement system has been delayed, understandably, until the completion of the new operational and maintenance complex.

Good progress has been made during the past eleven months, and with continued training and support the operations and maintenance function of the Directorate of Work, NWFP Agricultural University, Peshawar will be capable of carrying out the complex tasks associated with a comprehensive university. The DOW and his staff are eager to learn and implement new and more complex maintenance procedures. These individuals are sincere in their work ethics and have dedication to their responsibilities. In addition, I have been impressed with Vice Chancellor Basit Ali Shah's understanding of maintenance and building service (housekeeping) needs of the university.

The VC has shown good vision and a sincere interest in the O/M aspects of the university. He has been very attentive and willing to listen and discuss recommendations. This type of support will pay great dividends in the long run for the NWFP-AU.

There continue to be design flaws that will cause long-term problems if they are not addressed in the closing phases of this project. They include:

- **Drainage** - The roofs have been designed with gutters, only drainage slips that route the water down the sides of the building. This leaves stains on the buildings and forces the water tumbling to the ground - not into any type of drainage system. Water collects in no pattern leaving large pools at various (and many) locations throughout the campus. In addition, there appears to be no grade for draining this pooled water. The DOW has designed a drainage system for the three common grass areas within the new complex, and this should be funded (estimate Rs. 165,000). However, further drainage patterns and a gutter system should be considered for all new buildings. Moreover, on the second floor on each facility "holes" have been placed at intervals close to the edge -these holes allow water, dust, dirt, etc, to fall in no pattern to the first floor. This problem should also be addressed as soon as possible. An estimate for these projects has been prepared and indicates approximately Rs. 700,000 will be needed to complete the work.

- **Security** - In order to limit access to the facilities, six gates should be constructed at strategic locations. (Locations have been determined by consultation with Vice Chancellor and his staff and can be provided by DOW). Estimate Rs. 151,400 - This will allow the campus to have limited access while at the same time employing fewer guards and will in the long run be a very cost effective project.

- **Signage** - There is a distinct lack of signage for the complex. At a minimum, signage for the Entrance, Ladies Restrooms, and Laboratories should be provided. Estimate Rs. 62,300.

- **Ventilation** - The ventilation system in the air conditioned areas continues to be a concern. However, this problem was mentioned in last year's report, and no action was taken.

- Consideration should also be given to: a) changing the entrance to the language lab, and utilizing the area as a conference room as well as a lab, b) carpeting the aisle areas in the auditorium, and c) working with the other governmental agencies in the area to determine the best method to protect exposed wooden surfaces in the new buildings.

There seems to be ongoing concern as to whether or not the Research Stations should be part of the Agricultural University structure. During this trip I visited the largest of the research stations, Tarnab, and met with the Dr. Saifullah Khattak, and toured this facility with a member of his staff and TIPAN team leader, Dr. Myers. There are serious maintenance concerns throughout the facility that, apparently because of lack of funding, are not being addressed. Attention should be focused on this problem which apparently is prevalent throughout the research system.

No matter how bad the maintenance problems at the stations are, there seems to be a consensus that the situation is better now that the Ag. University and the DOW are responsible for the maintenance. The Director at Tarnab clearly indicated that the DOW and his staff were doing a better job that the previous system and that the work was generally completed much quicker and at a less expensive cost.

Scope of Work (Specific):

1. **Assist the Director of Works and his staff to implement Operations and Maintenance Plan to include:**

A. Implementation of training plan for senior and junior staff.

This scope of work was clearly defined in the report submitted in May 1993. At that time I indicated that development of a comprehensive training program for the Directorate of Works was one of the most important responsibilities of my assignment.

The report clearly defined the responsibilities of ENCORP, TIPAN Technical Assistance Team, and USAID. It was suggested that after all segments of training are completed that the DOW establish on-the-job (OTJ) training programs and provide operating manuals for the workers to review. The implementation of this program is of paramount importance in order to establish an effective maintenance program.

The suggested program (1993) and present status is detailed below:

<u>1.ENCORP</u>

In meeting the terms of their contract, ENCORP will provide for the following:

a) Basic Electrical Requirements - an engineer for 5 eight-hour days.

b) Internal Electrical Systems - an engineer for 5 eight-hour days.

c) Basic Mechanical Requirements - an engineer for 5 eight-hour days.

d) Roof Mounted Air Condition Units - an engineer for 2 eight-hour days (one year service provided).

e) Chemical Treatment System - registered chemical engineer required to instruct DOW personnel (one year service provided).

f) Heat Generation - factory trained technician required to instruct personnel (one year service provided).

g) Power Generation (Generators) - factory trained technician required for start-up and instruction.

h) General - in addition ENCORP will provide a representative to instruct DOW personnel on fire alarm systems, potable water systems, drainage and vent systems, plumbing fixtures, and heating and piping accessories.

In addition ENCORP agreed to provide general operation and maintenance instructions as well as all necessary operations manuals.

STATUS: The Director of Works has indicated that ENCORP has provided necessary training to this point in the project. ENCORP has signed certificates of completion for all major training components with the exception of Roof Mounted Air Condition Units - this training cannot be completed until the Sui gas is installed. The primary training has been provided by ENCORP personnel, MRC (Pakistan), and the Cummings Agent in Pakistan.

In order to insure the best possible service to these systems after the warranty period has expired, consideration should be given to purchasing maintenance contracts for the most complex pieces of equipment.

2.TIPAN Technical Assistance Team

a) TAT has provided a short-term (one month) consultant to advise the Director of Works (DOW) on organization, training, budget, and procurement system necessary to provide proper operation and maintenance for the new campus.

b) Three NWFP Agricultural University personnel (the DOW and 2 members of his staff) will travel to the campus of Southern Illinois University at Carbondale (SIUC) to be trained in proper O/M procedures by highly trained electrical (2) and mechanical (1) engineers, as well as senior crafts foremen (electricians, refrigeration mechanics, plumbers, etc.). Additional training will also be provided by Superintendent of Building Services on custodial functions.

c) TIPAN TAT will provide follow-up in-country consulting from SIUC in early 1994. In addition, the contract allows for NWFP-AU to send an additional person to the U.S. for training in grounds management and motor pool operation.

STATUS:

a) A TIPAN consultant completed the training required in April and May 1993.

b) In February 1994, the DOW, Major (Retd) Sardar Alam and one of his staff, Sajid Ali, traveled to Southern Illinois University at Carbondale and received extensive training in proper O/M procedures. (See Attachment 3). This training was provided by highly trained, mechanical, electrical, refrigeration and plumbing personnel. In addition, training was provided on site during actual cleaning shifts. Specific training was given for floors, windows, and rest rooms.

c) A TIPAN consultant arrived in-country March 25, 1994, and is scheduled to provide training and consulting services through April 12, 1994. In addition it is recommended that at least one (possibly two) DOW personnel and the Administrative Officer be sent to the U.S. (SIUC) for follow-up training. The A.O. should receive training in grounds managements, motor pool, and building security. Moreover consideration should be given to scheduling a short-term consultant from SIUC to provide training on computerized inventory systems, scheduling, and communications.

3.USAID

After reviewing the training programs proposed by ENCORP and TAT, USAID has agreed to work with the DOW to train a number of personnel in-country on maintenance procedures being employed in Pakistan. DOW will work with USAID in determining the exact number of people to be trained, types of training required, and suggested sources of training.

STATUS: Apparently the Director of Works has discussed this phase of training with USAID personnel and feels confident that once all other training is complete that the in-country portion will begin. I would suggest that tentative arrangements for this training begin at the earliest possible time to ensure completion before the end of the project.

B. Implementation of a schedule for housekeeping and general maintenance.

One of the primary recommendations of my report in 1993 was to transfer the custodial (housekeeping) function from the Administrative Officer to the DOW. The guiding principal behind this recommendation was that the person responsible for maintenance must also be responsible for cleanliness since the two depend on each other. I was most pleased to learn during my visit with the Vice Chancellor on 3/27/94, that this transferral was completed. Now that the transfer is official, it is important that the personnel understand that their new supervisor may require different work habits and procedures. New supervisors should eventually be hired and the full complement of workers recommended in 1993 (thirty) should eventually be employed. The department should consist of a Superintendent, Assistant Superintendent, four foremen, and 24 workers.

It is important to set standards for the new buildings quickly, and those same standards should apply to the present facilities as well. The DOW was introduced to proper cleaning methods during his visit to SIUC, and must be given the authority and equipment to implement new procedures. **In addition ten trash collection facilities and an incinerator should be constructed.**

Employees, present and new, should be trained in the use of cleaning products and equipment. In addition, the introduction of standard procedures is necessary. These procedures as well as routine work, tasks and frequencies for the main areas are detailed in attachment 4 a-n.

C. Preparation of a Budget for Operation and Maintenance.

During my 1993 visit, an extensive effort was made to develop a comprehensive budget for Operation and Maintenance. The results of this effort were detailed in the final report, a condensed version of which is provided below:

The development of a comprehensive operating budget is one of the most important aspects of good management. To preserve the physical facilities and to provide the best environment, the administrators and managers must ensure that an adequate amount of the university's limited operating budget is spent on operation and maintenance of the utilities.

There are three basic methods used to establish operating budgets: (1)Incremental budgeting, (2) Zero-based budgeting, and (3) Formula budgeting. Of the three basic budget methods the formula-based method was chosen. The incremental method was not chosen since it dictates that budgets will increase (or decrease) by a certain percent. Normally the percentage is passed along equally to each department. This method encourages the same mis-allocation of funds year after year. Moreover, the zero-based method although probably the most accurate is highly sophisticated and time consuming and therefore was not practical in the limited amount of time available for this report. The formula based budget therefore seemed the most reasonable method of determining which (if any) of the previously estimated budgets was most accurate.

One formula (KRAFT Method) is as follows:

Maintenance budget = Maintenance cost (factor x current replacement cost)

The maintenance cost factor takes into account the type of construction and HVAC (heating, ventilation, air conditioning) facilities.

Utilities are not considered in the formula but must be established independently based on historical data and anticipated increases due to inflation, world markets, and added facilities. The maintenance cost factor, based on type of construction, for the new facilities is .016. Therefore using the

construction cost of approximately Rs. 400,000,000 and projected utilities cost of Rs. 13,500,000* and present budget of Rs. 7,400,000 , the new budget should be Rs. 27,300,000.

* Projections WAPDA Bills	Rs.	12,000,000
Sui Gas	Rs.	720,000
Telephone	Rs.	780,000
	Rs.	13,500,000

The following are previously projected budgets. (All as Rs. annually, exclude salaries, and accept that the present budget figures of Rs. 7,400,000 are accurate).

Chemonics Report	Rs. 24,300,000
Director of Works	Rs. 23,736,000
Asianics Report	Rs. 13,236,000
This Report	Rs. 27,300,000

After careful review of all the reports and comprehensive discussions with highly placed representatives of ENCORP, S.O.M., TIPAN (TAT), and NWFP-AU, it is clear that a budget between Rs. 23,000,000 and Rs. 28,000,000 is not only reasonable but may in fact be conservative. **There has been no information brought to my attention during this visit that would change my previous recommendations.**

D. Development of a Stores Procurement System.

During my 1993 visit I recommended that at the minimum, a two-bin inventory system be implemented. At that time I pointed out that the installation of an automated system (detailed in 1993 report) similar to the one in use at SIUC would be desirable. As the completion of new O/M facility nears, the inventory and stores system development becomes more important. It would appear that since the DOW's staff has been participating in the computerization of the Agricultural University that the installation of the automated system is now practical. In order to accomplish this, I recommend that a trained technician from my staff at SIUC be sent to Peshawar for a short-term (2-3 weeks) period. This consultant could also work with the DOW and his staff to develop and implement a comprehensive scheduling procedure and could review and make recommendation concerning necessary communications (radio, electronic mail, etc.) systems.

2. Assist the Administrative Officer and his staff in planning for grounds maintenance and building security.

Grounds Maintanance

It has been my general observation in 1993 and 1994 that the grounds are well cared for. The flower beds always seem well designed and attractive, and the grass generally is well kept. However, it should be noted that a considerable increase in space that comes with the new buildings will result in much more work for the grounds crew. **The size of the crew should be evaluated and the type of equipment needed for the new tasks should be reviewed with the thought of modernization.** Mowers, tillers, self-propelled equipment, and riding mowers should be evaluated. New thought should also be given to the type organizations required - there are generally two types of organizations a) specialized crews and b) zoning, each has advantages/disadvantages detailed below.

	SPECIALIZED CREW	ZONING
Advantages	° Builds team spirit ° More flexibility ° Little duplication of equipment ° Ease of scheduling	° Motivation - This is my area ° Responsibility ° Easy evaluation
Disadvantages	° Reduced accountability ° Difficult to manage	° Employees must recognize work ° Competition can be negative ° Duplication of equipment

Zoning allows each person to have a specific area which is theirs to maintain, and they perform various tasks to keep the grounds at the desired level. Specialist crews do specific tasks, i.e., maintain flower beds, trim, mow, collect litter, etc.

Building Security
Building security with the addition of the new facilities will become much more complex. However, in order to minimize the concern, it is evident that a series of new gates should be constructed within the new facilities in order to minimize and restrict access to certain areas.

In addition, it is strongly recommended that the Administrative Officer visit Southern Illinois University at Carbondale to interact with those persons responsible for building security on that campus. During this visit the A/O can also work with the Superintendent of Grounds at SIUC in order to develop a comprehensive plan for grounds maintenance. While in Southern Illinois an effort will be made to coordinate the visit with John A. Logan College, a smaller institution with similar space and problems as NWFP-AU.

3. Assist in the development of a space utilization plan to include the new and existing buildings.

This portion of the assignment was discussed with the team leader. General recommendations and guidelines were reviewed, and it was the consensus that specifics would best be decided with the cooperation of TIPAN TAT and NWFP-AU.

Recommendations:

- Now that the Housekeeping function has been transferred to the Director of Works, consideration should be given to increasing the total staff to thirty (30) persons - a Superintendent, Assistant Superintendent, four (4) foremen, and 24 (twenty-four) workers.

- The Director of Works should hire a business manager to organize and manage the administrative budget and business activities.

- Immediate attention should be given to solving serious drainage problems throughout the campus.

- Six gates should be installed at strategic points throughout the new facilities to limit access to the campus. This will allow the NWFP-AU to employ fewer guards and therefore in the long run save a substantial amount of resources.

- Funds should be made available to provide adequate signage.

- The maintenance at the research stations should continue to be the responsibility of the Director of Works. A more effective method to obtain funds for preventative and on-going maintenance must be developed.

- All phases of the proposed training program must be completed in order that an effective operational and maintenance program can be sustained. In addition, a short-term consultant from SIUC should be scheduled as soon as possible to provide training on computerized inventory and stores system, scheduling, and communications.

- The Directorate of Works must be given the necessary funds Rs. 23m - 28m to operate and maintain the Agricultural University. In addition, positions now funded by USAID and TIPAN must be fully funded by the NWFP-AU when TIPAN ends.

Conclusions:

A great deal of progress has been made in improving the operation and maintenance capability of NWFP University. The Vice Chancellor has been cooperative and the Director of Works and his staff have been eager to learn. In the concluding months of this program, it is essential that USAID work with all necessary parties to correct design and construction errors in order that the facilities turned over to NWFP Agricultural University be functional and fully operational.

ACKNOWLEDGEMENTS

Without the cooperation of TIPAN (TAT), NWFP Agricultural University, Peshawar, ENCORP, and Skidmore, Owings and Merrill (S.O.M.) , this report would not have been possible. The efforts of team leader, Dr. Oval Myers, Jr., and the cooperation of Vice Chancellor Syed Basit Ali Shah were instrumental in the development of this document. The complete cooperation of Major (Retd.) Sardar Alam, Director of Works, both in the United States and Pakistan was most gratifying.

The secretarial and administrative skills and cooperation from the TIPAN support staff made my stay uncomplicated.

Again this year I would like to thank Dr. James Tweedy, Vice President, SIUC and the Administration of Southern Illinois University for giving me time away from my duties in Carbondale. Special thanks to my wife Sue Wirth for again accepting my absence from home in order that I could participate in this project.

The people of Pakistan have been courteous and hospitable during my two visits, and the experience will never be forgotten.

ATTACHMENT 1

PERSONS CONTACTED AND/OR INTERVIEWED

NWFP-AU	
Vice Chancellor	Syed Basit Ali Shah
Registrar	Arshad Salim Malik
Provost	Jehangir Khan Khalil
Chairman Water Management	Mohammad Tariq
D.G. Agricultural Research Institute, Tarnab	Saifullah Khattak
Director of Works	Sardar Alam
SDO Works	Nadeem A. Khattak
Sub-Engineer (Civil)	Ramzan Ali Kokab
Water and Power Development Authority (WAPDA)	
Superintendent Engineer, Peshawar	Akbar Zaman Babar
TIPAN	
Team Leader	Oval Myers, Jr.
Crop Science Specialist	Farrel Olsen
Communications Specialist	Cordell hatch
Administrative Assistant	Fayyaz Ahmad
Skidmore, Owings & Merrill (SOM)	
Senior Field Engineer	Mohammad Salim
ENCORP	
Construction Manager	Tom Philips
Engineer	Ron Sangster
General Superintendent	Lynn McFadden
USAID	Abdul Qayyum Khan

ATTACHMENT 2

INFORMATION SOURCES REVIEWED ; SELECTED BIBLIOGRAPHY

* Mid-Term Evaluation of the TIPAN Project: Chemonics Report

* Brief Presentation to Secretary of Agriculture in Mid-Term Evaluation of TIPAN: Asianics Report

* AID Evaluation Summaries: Implementation of the TIPAN Project Evaluation

* USAID/Pakistan Contract 391-0488-C-00-5001-00 with University of Illinois for Technical Assistance, November 1984 (with Amendments)

* NWFP Agricultural University, Peshawar Financial Estimates 1992-93, 1993-94, 1994-95

* Various TIPAN Project Consultants' Reports

* Facilities Management: A Manual for Plant Administrators - APPA - Association of Higher Education Facilities Officers

* Custodial Staffing Guidelines for Educational Facilities - APPA - Association of Higher Education Facilities Officers

* NWFP-AU, Peshawar Construction of Staff Housing Women's Hostel and related infrastructure: Project Brief Skidmore, Owings and Merrill, Ahed Associates, April 1993

* NWFP-AU, Peshawar Construction of Academic Buildings and Related Infrastructure: Project Brief S.O.M., Ahed Associates April 1993

* Critical Issues in Facilities Management/Operations and Maintenance - APPA Association of Higher Education Facilities Officer

ATTACHMENT 3

DIRECTOR OF WORKS TRAINING AT SIUC

Saturday February 12:
Major (Retd) Sardar Alam (DOW) and Sajid Ali arrived in Carbondale.*

Sunday February 13:
The DOW was given an automobile tour of Carbondale and the university by Gil Kroening & Harry Wirth.

Monday February 14:
Morning & Afternoon - The DOW toured the Physical Plant building and was introduced to Plant and Service Operation (PSO) and Physical Plant personnel. A major electrical feeder in Housing malfunctioned and the Major observed as the Physical Plant's electricians isolated the problem and began repairs.

Tuesday February 15:
Morning - The DOW was assigned to Jack Herring, Academic Plumbing Foreman to tour the University's plumbing and water distribution network. Jack also demonstrated the use of the "Sewer Jet" machine to clean out clogged sewer lines and he gave them a tour of the city of Carbondale's new water treatment plant southwest of Carbondale.

Afternoon - The DOW took a tour of Southern Illinois and Western Kentucky.

Wednesday February 16:
Morning - The DOW was assigned to Scott Hagler, Electrical Crew #1 Foreman. Scott's crew is responsible for the maintenance of all high voltage electrical equipment. Scott showed the DOW the University's electrical distribution network and how the Physical Plant isolates and repairs problems as they occur.

Afternoon - The DOW toured the General Stores office with Richard Parrish, Manager of General Stores.

Thursday February 17:
Morning - The DOW was assigned to Vic Lovel, Refrigeration Crew #3 Foreman. Vic's crew is responsible for most of the small refrigeration and window air conditioning units on campus. Vic demonstrated how the Physical Plant installs and maintains the units and in which types of buildings they are typically used.

Afternoon - Cultural exchange tour of Jackson County area.

Friday February 18:
Morning & Afternoon - The DOW toured Illinois and Wisconsin 2/18 - 2/20 - 1994.

Monday February 21:
Morning - DOW was assigned to Vic Lovel. Vic showed the Major the cooling towers of several large refrigeration units on campus and explained how the Physical Plant operated and maintained them.

Afternoon - Scott Hagler showed the Major the different types of high voltage fuses the Physical Plant uses. The Major spent the rest of the afternoon on a cultural exchange tour of Carbondale.

Tuesday February 22:
Morning - DOW toured the City of Carbondale's sewage treatment plant northwest of the city. The major was given a tour of the Physical Plant's sheet metal shop, and he was shown how to make some components using equipment in the shop.

Afternoon - Gil Kroening, International Agriculture, took the DOW on a tour of the University Farms areas.

Evening - Mr. & Mrs. Wirth hosted DOW and members of the Physical Plant, Plant Service Operations, and Vice President Administration (and wives) from 7-9p.m. Dr. & Mrs. Kroening also attended.

Wednesday February 23:
Morning - The DOW toured the Student Center building and its associated mechanical and electrical equipment with Ken Jaros, the Student Center's maintenance supervisor.

Afternoon - The DOW was taken on a cultural exchange trip to Zeigler, Illinois.

Thursday February 24:
Morning - The DOW toured the Travel Service, Campus Mail Service, and Printing & Duplicating departments of PSO.

Afternoon - The DOW was assigned to Ray Phoenix, Superintendent of Building Services. Ray explained how the Building Services department was organized and operated, and showed the Major the different types of cleaning supplies and equipment they use.

Friday February 25:
Morning & Afternoon - The DOW toured parts of Southeast United States. 2/25 - 2/27 - 1994.

Monday February 28:
Morning - The DOW was given a window washing demonstration by Building Services.

Late Afternoon & Evening - The DOW was assigned to Jay Brooks, Assistant Superintendent of Building Services. The DOW observed Building Service personnel performing their normal cleaning tasks, and he was given several special demonstrations. The special demonstrations included how to strip and wax floors, how to shampoo carpets with a carpet shampooing machine, and how to properly wet mop a floor.

Tuesday March 1:
Morning - The DOW was interviewed by Nancy Hartman, Plant and Service Operation's newsletter coordinator, for an article she is going to write about the Major's visit in an upcoming issue of PSO's newsletter.

Afternoon - International Agriculture sponsored a luncheon for the DOW in the Saline room at the Student Center.

Evening - Gil Kroening, International Agriculture, hosted a going away party for the DOW.

Wednesday March 2:
Morning - The DOW said good-bye to all the people he had met during his stay at SIUC.

Evening - The DOW left for his flight home.

* DOW and Sajid Ali were together on all training sessions.

ATTACHMENT 4 a

ROUTINE WORK - TASKS & FREQUENCIES

AREA TYPES : OFFICES

Daily:

- Collect and remove litter from furniture, fixtures, and building surfaces.
- Empty and spot clean trash and ash receptacles.
- Replace obviously soiled or torn trash receptacle liners.
- Dust furniture, fixtures, and building surfaces.
- Spot clean furniture, fixtures, walls, partitions, doors, etc.
- Sweep or dust mop non-carpeted floors.
- Spot mop non-carpeted floors.
- Vacuum traffic patterns and obviously soiled carpet.
- Remove carpet stains.
- Rearrange furniture as required.

Weekly:

- Dust or vacuum air vents.
- Damp mop non-carpeted floors.
- Spray buff resilient tile floors.
- Completely vacuum carpeted floors.

ROUTINE WORK - TASKS & FREQUENCIES

AREA TYPES : CLASSROOMS

Daily:

- o Collect and remove litter from furniture, fixtures, and building surfaces.
- o Empty and spot clean trash and ash receptacles.
- o Replace obviously soiled or torn trash receptacle liners.
- o Spot clean furniture, fixtures, walls, partitions, doors, etc.
- o Sweep or dust mop non-carpeted floors.
- o Spot mop non-carpeted floors.
- o Vacuum traffic patterns and obviously soiled carpet.
- o Remove carpet stains.
- o Rearrange furniture as required.
- o Clean chalk boards.
- o Clean/exchange chalkboard erasers.
- o Empty pencil sharpeners.

Every Other Day:

- o Damp mop non-carpeted floors.

Weekly:

- o Dust or vacuum air vents.
- o Spray buff resilient tile floors.
- o Completely vacuum carpeted floors.
- o Dust furniture, fixtures, and building surfaces.

ROUTINE WORK - TASKS & FREQUENCIES

AREA TYPES : LABORATORIES

Daily:

- o Collect and remove litter from furniture, fixtures, and building surfaces.
- o Empty and spot clean trash and ash receptacles.
- o Replace obviously soiled or torn trash receptacle liners.
- o Dust building surfaces.
- o Spot clean building surfaces.
- o Sweep or dust mop non-carpeted floors.
- o Spot mop non-carpeted floors.
- o Clean sinks if empty.

Weekly:

- o Dust or vacuum air vents.
- o Damp mop non-carpeted floors.
- o Spray buff resilient tile floors.

ROUTINE WORK - TASKS & FREQUENCIES

AREA TYPES : LIBRARY

Daily:

- o Collect and remove litter from furniture, fixtures, and building surfaces.
- o Empty and spot clean trash and ash receptacles.
- o Replace obviously soiled or torn trash receptacle liners.
- o Dust furniture, fixtures, and building surfaces.
- o Spot clean furniture, fixtures, walls, partitions, doors, etc.
- o Sweep or dust mop non-carpeted floors.
- o Spot mop non-carpeted floors.
- o Vacuum traffic patterns and obviously soiled carpet.
- o Remove carpet stains.
- o Rearrange furniture as required.

Every Other Day:

- o Damp mop non-carpeted floors.

Weekly:

- o Dust or vacuum air vents.
- o Completely vacuum carpeted floors.
- o Spray buff resilient tile floors.

ROUTINE WORK - TASKS & FREQUENCIES

AREA TYPES : AUDITORIUM

Daily:

- Collect and remove litter from furniture, fixtures, and building surfaces.
- Empty and spot clean trash and ash receptacles.
- Replace obviously soiled or torn trash receptacle liners.
- Spot clean furniture, fixtures, walls, partitions, doors, etc.
- Sweep or dust mop non-carpeted floors.
- Spot mop non-carpeted floors.
- Vacuum traffic patterns and obviously soiled carpet.
- Remove carpet stains.

Weekly:

- Completely vacuum carpeted floors.
- Spray buff resilient tile floors.
- Damp mop non-carpeted floors.
- Dust furniture, fixtures, and building surfaces.

ROUTINE WORK - TASKS & FREQUENCIES

AREA TYPES : COMPUTER ROOM

Daily:

- Collect and remove litter from furniture, fixtures, and building surfaces.
- Empty and spot clean trash and ash receptacles.
- Replace obviously soiled or torn trash receptacle liners.
- Dust furniture, fixtures, and building surfaces.
- Spot clean furniture, fixtures, walls, partitions, doors, etc.
- Sweep or dust mop non-carpeted floors.
- Spot mop non-carpeted floors.
- Completely vacuum carpeted floors.
- Remove carpet stains.

Weekly:

- Completely vacuum carpeted floors.
- Dust vertical building and furniture surfaces.
- Dust or vacuum air vents.

Every Two Weeks:

- Spray buff floor.

ROUTINE WORK - TASKS & FREQUENCIES

AREA TYPES : CONFERENCE ROOM

Daily:

- Collect and remove litter from furniture, fixtures, and building surfaces.
- Empty and spot clean trash and ash receptacles.
- Dust furniture, fixtures, and building surfaces.
- Spot clean furniture, fixtures, walls, partitions, doors, etc.
- Sweep or dust mop non-carpeted floors.
- Damp mop non-carpeted floors.
- Completely vacuum carpeted floors.
- Remove carpet stains.
- Rearrange furniture as required.
- Clean chalk boards.
- Clean/exchange chalkboard erasers.
- Damp wipe chalkboard trays.

Weekly:

- Dust or vacuum air vents.
- Spray buff resilient tile floors.
- Damp mop non-carpeted floors.
- Dust vertical building and furniture surfaces.

ROUTINE WORK - TASKS & FREQUENCIES

AREA TYPES : REST ROOM

Daily:

- Collect and remove litter from furniture, fixtures, and building surfaces.
- Empty and spot clean trash and ash receptacles.
- Replace obviously soiled or torn trash receptacle liners.
- Dust building surfaces.
- Spot clean building surfaces.
- Sweep or dust mop non-carpeted floors.
- Wet mop non-carpeted floors.
- Refill paper towel, toilet tissue, and hand soap dispensers.
- Clean and disinfect wash basins, toilets, urinals, and showers.

Weekly:

- Dust or vacuum air vents.
- Clean floor drains.

ROUTINE WORK - TASKS & FREQUENCIES

AREA TYPES : STAIRS

Daily:

- o Collect and remove litter from furniture, fixtures, and building surfaces.
- o Dust building surfaces.
- o Spot clean building surfaces.
- o Sweep or dust mop non-carpeted floors.
- o Damp mop non-carpeted floors.
- o Completely vacuum carpeted floors.
- o Remove carpet stains.
- o Damp wipe handrails.

Weekly:

- o Scrub risers.
- o Spray buff landings.

ROUTINE WORK - TASKS & FREQUENCIES

AREA TYPES : ENTRANCES

Daily:

- Collect and remove litter from furniture, fixtures, and building surfaces.
- Empty and spot clean trash and ash receptacles.
- Replace obviously soiled or torn trash receptacle liners.
- Dust building surfaces.
- Spot clean building surfaces.
- Sweep or dust mop non-carpeted floors.
- Damp mop non-carpeted floors.
- Completely vacuum carpeted floors.
- Remove carpet stains.
- Vacuum carpeted entrance mats.
- Clean entrance mats.

Weekly:

- Dust or vacuum air vents.
- Spray buff resilient tile floors.

ROUTINE WORK - TASKS & FREQUENCIES

AREA TYPES : CORRIDORS

Daily:

- o Collect and remove litter from furniture, fixtures, and building surfaces.
- o Empty and spot clean trash and ash receptacles.
- o Replace obviously soiled or torn trash receptacle liners.
- o Dust building surfaces.
- o Spot clean building surfaces.
- o Clean entrance mats.
- o Sweep or dust mop non-carpeted floors.
- o Damp mop non-carpeted floors (use auto scrubber where practical).
- o Completely vacuum carpeted floors.
- o Remove carpet stains.
- o Clean and disinfect drinking fountains.

Weekly:

- o Dust or vacuum air vents.
- o Spray buff resilient tile floors.
- o Dust vertical building and furniture surfaces.

ROUTINE WORK - TASKS & FREQUENCIES

AREA TYPES : LOBBY

Daily:

- Collect and remove litter from furniture, fixtures, and building surfaces.
- Empty and spot clean trash and ash receptacles.
- Replace obviously soiled or torn trash receptacle liners.
- Dust furniture, fixtures, and building surfaces.
- Spot clean furniture, fixtures, walls, partitions, doors, etc.
- Sweep or dust mop non-carpeted floors.
- Damp mop non-carpeted floors.
- Completely vacuum carpeted floors.
- Remove carpet stains.
- Rearrange furniture as required.
- Clean and disinfect drinking fountains.
- Clean entrance mats.

Weekly:

- Dust or vacuum air vents.
- Spray buff resilient tile floors.

ROUTINE WORK - TASKS & FREQUENCIES

AREA TYPES : KITCHEN

Daily:

- Collect and remove litter from furniture, fixtures, and building surfaces.
- Empty and spot clean trash and ash receptacles.
- Replace obviously soiled or torn trash receptacle liners.
- Dust building surfaces.
- Spot clean building surfaces.
- Sweep or dust mop non-carpeted floors.
- Wet mop non-carpeted floors.
- Refill paper towel, toilet tissue, and hand soap dispensers.
- Clean and disinfect drinking fountains.
- Clean sinks.

Weekly:

- Dust or vacuum air vents.
- Clean floor drains.
- Dust vertical building and furniture surfaces.

ROUTINE WORK - TASKS & FREQUENCIES

AREA TYPES : DINING ROOM

Daily:

- Collect and remove litter from furniture, fixtures, and building surfaces.
- Empty and spot clean trash and ash receptacles.
- Replace obviously soiled or torn trash receptacle liners.
- Dust furniture, fixtures, and building surfaces.
- Spot clean furniture, fixtures, walls, partitions, doors, etc.
- Sweep or dust mop non-carpeted floors.
- Damp mop non-carpeted floors.
- Completely vacuum carpeted floors.
- Remove carpet stains.

Twice Weekly:

- Spray buff resilient tile floors.

Weekly:

- Dust or vacuum HVAC vents.