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FORESTRY PLANNING & DEVELOPMENT PROJECT
Government of Pakistan-USAID

END OF TOUR REPORT

PROJECT NUMBER 391-0481-C-00-5021-00

Prepared by
George M. Blake
Education/Training and Research Advisor
Tour Length - September 1989, August 1992

Islamabad
August 1992

 **Winrock International**

Technical Assistance Team

58, Margalla Road, F-7/2, Islamabad, Pakistan. Tel : 813262 -- 813272 Tlx : 54252 WIFPD PK Fax : 824519



FORESTRY PLANNING & DEVELOPMENT PROJECT

Government of Pakistan-USAID

August 27, 1992

Mh. Hameedullah
Project Officer, FPD Project
USAID/Pakistan

Subject: Dr. George Blake's End-of-Tour Report

Dear Hameedullah:

On Thursday of last week, Dr. George Blake orally presented his End-of-Tour report to you and selected individuals in USAID. As you are aware an End-of-Tour Report is a contractual requirement which, as implemented, allowed George to present his personal observations at the end of his assignment.

Most formal documents prepared by members of the Winrock Technical Assistance Team, with the exception of Trip Reports, are reviewed or shared with team members and on many occasions our colleagues in the GOP and USAID prior to their release. These documents represent a Technical Assistance Team position or view on a project activity. End-of-Tour reports do not; they solely represent the views of an individual.

In this regard, I believe it is important that recommendations presented in Dr. Blake's End-of-Tour Report not be acted upon until they are adequately and openly discussed by project staff who have a detailed knowledge of the issues associated with the recommendations. Justification for this statement follows.

Approximately 25% of Dr. Blake's time was allocated to his Terms of Reference research tasks. Thus, his in-depth and day to day involvement in the Project's research activities was limited. During the last six months of his assignment he conducted his first, and in most cases only, formal site visits of the Project's field studies. Of the 31 studies, he visited 24. In only two of the studies he evaluated did he recommend that they be terminated without further action.

As George states in his April 28, 1992 letter to the Executive Research Review Committee, "Let me encourage all of you to finish the job and begin the final process - the publication of your results." That philosophy and that charge are totally inconsistent with his conflicting recommendations that:

1. Funding should be stopped until an assessment of the entire research portion of the project is completed (Page 2).



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2. Withhold all funds for new projects until final reports and publication have been written but continue funding of ongoing projects (Page 17).

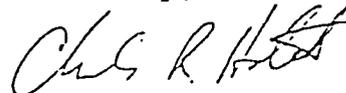
Preparing publications is a critical element of research and is a funded element in every research program with which I have been involved. Elimination of funding is not a carrot-stick management tool that can be effectively used to generate publications. If used, here as in North America, scientists will simply turn to an alternative source of funds to initiate their new projects.

Numerous references to unpacked scientific equipment (Pages 2, 5 and 13) appeared in the report. Those statements are not consistent with my observations. Certainly delays in both the preparation of facilities and the availability of staff have occurred which has resulted in less than full utilization of some equipment. In a limited number of cases, the transport and installation of field equipment has experienced lengthy delays due to civil disturbances in the Sindh. I believe our on-going evaluation of commodity purchases has and will continue to confirm that the scientific equipment is available for use.

Since 1989 Dr. Blake has been actively involved with the purchase of scientific equipment. In all cases the equipment was purchased in light of a specific research need that had previously been identified in an analysis of the Project's on-going and proposed research program. The purchase of equipment from "wish lists" (Page 18) has been requested, but the Monthly Project Review Committee has not supplied equipment on the basis of those requests. I believe Dr. Blake's recommendation is focused at the preparation of equipment requests and not the method of selection.

These observations serve to illustrate factors which need to be considered when reacting to these recommendations, and emphasis why, prior to action, each recommendation should be openly discussed by project staff who have a detailed knowledge of the issues.

Sincerely,



Charles R. Hatch
Chief of Party

cc: Abeedullah Jan, IGF
Dr. Siddiqui, DG PFI



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Appendix A - Terms of Reference

Appendix B - Summary of Overseas Training

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EXECUTIVE SUMMARY

The terms of reference (Appendix A) for the Education/ Training/ Research advisor stressed the importance of in-country training, along with less emphasis on education and research. My contract was for 2 years with the option to extend for a third year. My base of operation was Islamabad. I started in September 1989, and with the one year extension, I will complete my tour in August 1992.

All the "Terms of Reference" were addressed and progress was made in all points covered. Obviously, not all of the points received equal attention; consequently, accomplishment also varied proportionally to effort. The "Terms of Reference" placed emphasis on in-country workshops and we successfully completed workshops on:

1. Tree Planting on Saline, Sodic and Water Logged Soils
2. Interpersonal and Communications Skills
3. Tree Seed Technology
4. Land Use Planning
5. Harvest Scheduling
6. Research Management and Study Plan Preparation
7. Numerous Computer Workshops
8. Orientation for Long Term Overseas Candidates

Two additional workshops were presented on "The Care and Use of Tractors" and "Arborist and Urban Environmental Training". I was not involved in either of these programs. Additional workshops have been proposed as part of our annual work plans (which have been approved by USAID and GOP), which are pending and I doubt that they will be held this late in the program.

Overseas degree training has been a success even though we did not use all of the available training slots. Eleven students have completed their degree programs and are currently posted with their respective departments or PFI. These students were from the Phase one program. Phase II has 16 students in training or accepted for training. Two of these students are at the PhD level. The "Graduate Record Examination" (GRE), has been a real stumbling block because nominees are afraid to take the examination and because of the extremely long time it takes to receive the results. The last six nominees I placed had not taken the GRE because of end of project time constraints. We did not fill all of the degree training slots because of the slow process of nomination, nomination approval, low TOEFL scores and lack of GRE's. Personally I feel the GRE is a valid requirement and should not be dropped for degree training. In the future, whatever it may be, more emphasis should be placed on long term overseas degree training. Short term overseas training has had ample slots (20 to 40) approved in our annual training plan and approximately 60 nominees (Appendix B), have received training or are waiting for their programs to begin.

The GOP did not nominate enough people to fill all of the training slots of our last approved training plan. Short term overseas training should be de-emphasized unless more control is placed on candidate and course selection.

In-country degree training has been implemented through the use of scholarships for B.Sc and M.Sc students in Farm Forestry. This program was unique in that these students did not have sanctioned positions upon completing their degree work. However, two years after Passing Out, the first group of non sanctioned students were all employed by Forest departments, NGO's, Federal Government or continuing with their education. Also of significance is that this program has produced a number of women graduates.

One of the women graduates is currently a lecturer in Farm Forestry at PFI. With the project termination date in view, scholarships have been increased to the point overloading the educational facilities at PFI with the consequence of reducing the quality of education. Producing even more agro-foresters can only result in flooding the current employment market. Serious consideration should be given to reducing the number of scholarships for the 92-94 class or the quality of education at PFI will continue to deteriorate.

Research has not progressed and I feel that there is a need to reassess the entire research portion of the project. Funding should be stopped until such an assessment is completed. There has been no attempt to develop an effective peer review system. The IGF assigned me the task of evaluating all ongoing research projects and making recommendations. This is counter productive, but I have complied. For research to be successful an anonymous internal review system is absolutely essential. No research funds should be released until such a system is in place and functional.

Although considerable equipment purchases have been made, much of it is still in packing crates. An exception is the seed equipment that was purchased for PFI and other Provincial seed centers. PFI has established a functional seed cleaning and storage operation. Much of the equipment for the Provinces is still waiting to be moved to the research sub stations. However, Computers have been successfully utilized at PFI.

The farm forestry curriculum is in place and working. Six farm forestry courses have been added to the M.Sc curriculum; however, all of the courses are not being taught because of the lack of qualified instructors. To make room for the new farm forestry classes, basic courses had to be removed from the already overburdened curriculum.

In order to maintain a high quality educational facility, PFI should consider expanding to a three or a four year program. In addition forestry education could benefit from a closer link with the Agricultural University's teaching program. This would allow

a much larger pool of instructors with a broader range of expertise. In spite of PFI's resistance to change, I feel change is necessary.

Although the Forestry, Planning and Development Project has been extended to December 94, what will happen then is speculation. Farm forestry, I believe, has been institutionalized. However, to have the program grow will require the Provincial Forest Departments and the Federal Government to recognize and implement strong extension programs. Farmers will always plant trees, they have done so in the past and will do so in the future. The FP&D Project has shown that the process can be accelerated. However, as donor monies become more difficult to obtain the Forest Departments and PFI must take a more active leadership roll in all aspects of farm forestry.

INTRODUCTION

The Forestry Planning and Development Project was started in 1985. Phase I was completed in 1988-89. Phase II of the program was started in June of 1989. Winrock International has had the contract throughout the life of the Project. The Phase II Technical Assistant Team (TAT) is made up of five individuals, three are expatriates and two are Pakistanis.

The Expatriates positions are:

1. Chief of Party, with expertise in Policy
2. An Extension Specialist, with expertise in Farm Forestry Extension
3. An Education/Training/and Research Advisor, with experience in all areas of Training, Education, and Research

The two Pakistani are:

1. A Senior Forest Officer
2. A specialist in training and communications

The complete team was in place by January of 1990 and functioning. My position is that of the "Education/ Training/ and Research Advisor". I arrived in Pakistan in September of 1989 and will leave in August of 1992. My official station is Islamabad. This was a tenure of 3 years with the exception of leave time taken and 3 months of evacuation during the Gulf War.

The objectives of this report will be to discuss my experiences and observations and make constructive recommendations in order that future projects of a similar nature may benefit. The report will be organized into 5 categories: Introduction, Accomplishments, Disappointments & Obstacles, Recommendations and General Comments.

The progress and accomplishments made during my tenure have been based upon the efforts and ground work of the TAT Phase I. Start up time was minimized because of their contributions.

ACCOMPLISHMENTS

The "Terms of Reference" for the Education/ Training/ Research Advisor are in the Appendix A. In all cases the terms have been at least partially if not completely satisfied. However, accomplishments will be discussed in a general sense of the specifics of Research, Training and Education.

RESEARCH

Research aspects were a disappointment. There were approximately 31 studies underway in 1989 and today the number has not changed. The Inspector General of Forests (IGF) directed me to evaluate all ongoing studies and make recommendations, (Appendix C). My recommendations were to terminate 15 studies. A termination report is needed from each of the 15 studies as well as a publication which will be useful to the project. A one page progress report from the remaining 16 studies was requested for evaluation purposes. To date none of my recommendations have been implemented.

Research equipment needs were reviewed with PFI, Punjab Forestry Research Institute (PFRI) and the research substations. Research and educational equipment was purchased within the limits of the project's budget constraints. Much of the equipment is still in boxes or locked up. The equipment for Miani is still at PFI waiting for transport. The atomic absorption unit has been installed at PFI, but is not operational; however, it should be ready to run in the very near future "Inshallah". The computers have been installed in a laboratory and are receiving considerable use by researchers, staff and students.

TRAINING

Training has been the most rewarding accomplishment of the program. We have met and exceeded most of our training goals both in long and short term as well as in-country and overseas training. A summary of overseas training achievements is in Appendix B.

IN-COUNTRY SHORT TERM TRAINING. The "Terms of Reference" emphasize in-country training. Much of my time was involved in these efforts. We again missed some opportunities because of lack of cooperation from the GOP. However we were able to present the following short term formal training programs:

1. Tree Planting on Saline, Sodic and Water Logged Soils
2. Interpersonal and Communications Skills
3. Tree Seed Technology
4. Land Use Planning
5. Harvest Scheduling
6. Research Management and Study Plan Preparation
7. Numerous Computer Workshops
8. Orientation for Long Term Overseas Candidates

Each of these workshops with the exception of # 8, has resulted in the preparation of at least one manual which can be used as a guide for the presentation of additional workshops and/or teaching guides for lecture materials at PFI or other training facilities. Other workshops have been planned and included in our Annual Work Plans. Although the Annual Work Plans have been approved, the workshops have not been presented because of resistance from the GOP. A summary of overseas training achievements is in Appendix B. In-country training summaries are available in the annual training reports.

IN-COUNTRY LONG TERM TRAINING. The project has provided a large number of scholarships both at the B.Sc and M.Sc level at (PFI). Of significance is the selection of women candidates, a first at PFI. These scholarships were given to students who were not selected by the Public Service Commission; consequently, they had no guarantee of employment upon Passing Out. Many of these USAID scholarship students have now found full time forestry employment including two women graduates, one of whom is teaching at PFI. The most recent group of scholarship students includes 14 women at the B.Sc and M.Sc level. USAID is considering offering another group of scholarships for the fall of 1992.

OVERSEAS SHORT TERM TRAINING. The number of people we trained exceeded the goals for the project. Even though we have exceeded our goals there have been a large number of training slots that were not filled. The process of nominating & processing candidates for overseas training is cumbersome to say the least and filled with bureaucratic bottlenecks, both with the GOP and USAID. With the project extension, the opportunity for more overseas short term training still exists.

OVERSEAS LONG TERM TRAINING. This was without question the best opportunity for improving the forestry department staff; however someone in Phase I had decided that there would be no PhD degree training. By the time Phase II started and a training plan written, with nomination requisitions etc, there was not enough time left in the project for the support of PhD students. We were able to upgrade 2 M.Sc student to PhD programs. Currently we have 13 students in graduate programs in the United States. The project extension has allowed us to attempt to place 3 more students that have passed TOEFL, but lack the GRE. Without the GRE, university placement can be difficult.

EDUCATION

Three long term M.Sc students have returned to Pakistan from the USA and resumed their teaching responsibilities at PFI. They are teaching classes in Agroforestry and other subject areas. Still PFI needs to upgrade overall course content. After identifying and

prioritizing critical courses we identified individuals who could teach these subjects. The experts were to teach a specific course and at the same time work with a counter part and prepare a series of lecture notes which reflected "state of the art" information. The lecture notes then become the focus for the counter part who will teach the course in the following years. We provided a list of consultants who could teach and upgrade the identified classes in the M.Sc curriculum. From the list of courses PFI requested we were able to get approval to bring in two specialists to teach specific courses in Research Methods, Plant Water Stress Relations and Ecology. The results of these consultancies will be the lecture outlines which will be used by future instructors. With the project extension there is an opportunity to bring in additional consultants to teach more of the critical courses in the M.Sc program.

Audio-visual and other equipment has been purchased and is in use. As text books are difficult to obtain a considerable amount of copying is done to provide the students with reading assignments. To assist in the massive copying required a copy machine was purchased for the Education Department. This copy machine has been taken over by the Research Division while the Education Division continues to make do with a very tired copy machine that breaks down frequently.

DISAPPOINTMENTS AND OBSTACLES

RESEARCH

RESEARCH MANAGEMENT. The need for research management was recognized early in the project and the document "A Comprehensive Plan for the Research Component of the Forestry Planning and Development Project" (available in project files) was written by the Phase I, TA Team. Implementation of the Plan was to begin immediately upon approval by the IGF. The plan was completed in April of 1988 and approved by the IGF, Abeerullah Jan, on the 29 May 1988. The plan is comprehensive & includes a section entitled "The Rules and Procedures for the Executive Research Review Committee (ERRC) of the Forestry Planning and Development Project". The ERRC is the research management group under the direction & responsibility of an Additional Director General (ADG) (Project Director) PFI (this position was never filled).

The plan was indeed comprehensive and listed specific guide lines, objectives, research personnel, job descriptions, responsibilities, buildings, scheduling of events, laboratories and equipment etc., etc. This plan was based on the original PC-1 and the original project paper. The new PC-1 which was signed in the spring of 1991 and the project paper still support the majority of the points which the Research Plan addresses.

The major obstacle that has limited research management has been the lack of follow through with the implementation of the "Research Plan". The DG, PFI has ignored the plan and has administered project research at his convenience. The plan calls for an Additional Director General at PFI with the responsibility of Administering both the research and education aspects of the project. This is a sanctioned position which has never been filled. This is one critical reason why research has not moved. To illustrate: ERRC meetings are to be held quarterly, in the second weeks of January, April, July and October. The ERRC is the research management, decision making body for the Project. The current ERRC meetings have been held at the discretion of the DG, PFI, regardless of the prompting and pushing of other members of ERRC. There was a period of over a year when the ERRC did not meet; consequently, absolutely nothing was accomplished. The positions of ADG and the two Directors described in the Research Plan are sanctioned positions. With the top three positions not filled, the work load falls on the DG.

The organizational structure in the Research Plan is cumbersome and without the Additional DG to run the Executive Research Review Committee or simply call meetings, things do not get done. If USAID and/or the GOP are serious about using the Research Plan then follow through is needed. Other alternatives of course would be to

drop research from the project, write a new Research Plan based on what has been learned or continue research in the haphazardly, unproductive manner currently being used.

The lack of a research file system has made it difficult to check the progress of a specific study. Each study should have a separate file that contains the original study plan, any changes or amendments, copies of the one page annual progress reports and a statement of the funds that have been expended. A file system like this would provide a paper trail that follows each study from beginning to end. USAID should have copies of these files so that the Project Officer (PO) can follow research progress.

Research Quality Control. The lack of a strong peer review system has been a major weakness and will continue to be a deterrent to quality research. The Research Plan addresses the problem of quality control with what is called "Democratic Peer Review". Although it is not specifically defined it is assumed that each member of the ERRC will somehow review and make judgement on research. In reality what it means is that the senior member present in the committee meeting will approve a specific study.

In PII 55, dated Dec., 1991, Item 2. Research Plans (study plans), page 5 states: "Prior to funding a research project the Research Project Plan must be approved in writing by the project Research Committee and authorized by the Director General of the PFI in writing. This plan must contain, as a minimum, a quarterly work plan showing scheduled activities by data throughout the life of the research, a schedule of progress reports, and a budget keyed to the work plan. The plan should be written to conform to editorial standards of papers for presentation to international professional journals. Progress reports of individual research projects funded through PII must be copied to USAID". Most international professional journals require at least 3 anonymous reviewer's comments before a paper is considered for publication. PII 55 indicates that USAID wants high standards of writing. Who is responsible to make the decision that international professional writing standards have been achieved? Who is to follow up?, I have not seen a single research plan that would fulfill this criterion.

The sense of professionalism and critical review should not be taken lightly. In Pakistan the review should be done anonymously to protect junior officers and scientists from the wrath of senior "colleagues". In the last 20 years there has been only one paper published from PFI in an International Professional Journal. The Pakistan Journal of Forestry does not qualify as a referred journal under international standards. Although the "Research Plan" recognizes the importance of review, the writers did not go far enough. Again with the lack of implementation of the Research Plan, even democratic peer review will not work.

A workable peer review system needs to be developed and implemented to improve the quality of research. If quality research is to be sustainable and/or institutionalized it has to be an anonymous self policing review system.

The IGF has directed that I review and make recommendations concerning the current funded research projects. The review and recommendations have been made; however, this is counter productive as it puts an outsider in a position of an evaluator and allows the Researchers to ignore their professional obligations of setting standards and enforcing them.

Another factor which contributes to the dearth of quality research is the lack of a merit system for the researchers. There are only limited rewards for good work. Promotions etc. are based on a seniority system, not competition; so promotion comes only when a colleague retires or dies. Where is the incentive to excel? A researcher should have ownership in the research work he performs. He should not be used to collect and analyze data that will be used by a senior officer who has, in some cases, never been to the field except for an occasional field trip.

In the study plans I have reviewed the research design is emphasized. In almost all cases standard agricultural research plot designs are used. On paper this looks good; however, in the field I have found some serious plot layout problems. I have found plots which were placed in the wrong direction on the slope of hills, treatments applied without randomization, and topographic differences ignored in the selection of blocks, replications and/or plots. In each of these cases the data from these studies indicated that there was more variation within block than between blocks which means that treatment effects can not be separated from environment effects regardless of the amount of replication.

How did this happen? There are a number of possibilities: the first is that the job of the study layout was assigned to a junior officer, who did not have the necessary training in experimental design and the researcher did not take the time to go to the field to make sure his study was properly installed. The second is that the researcher was not qualified to lay out field studies. Both of these possibilities indicate that more control is needed in the selection of researchers and their projects. This again is a haphazard approach to research and some where in the research process accountability is desperately needed.

The Research Plan calls for a research review every two years by a team composed of an expatriate, senior forest officer and other forest officer. To my knowledge no such review has been held during the life of the project.

Quality researchers produce quality results. There may be exceptions, but this generally holds true. The best minds should be screened out and directed into research career lines. Just

because an individual has a M.Sc. from PFI does not make him a researcher. Quality research is the result of sharp minds that have been challenged at all stages of the research process, the formulation of the research idea, the research planning, the implementation of the actual study, the collection of the research data, the analysis of the data and finally the interpretation and application of what the data means. It requires hard work, critical thinking, the ability to accept criticism, imagination, leadership and extensive training.

CLIENT ORIENTED RESEARCH. Research has to have a user (client)! This point, the identification of a client-user, is not addressed in the Research Plan. The Research Plan presents a list of research topics, but does not specify who wants to know or who needs the knowledge produced. This laissez faire approach to research has resulted in the "re-inventing the wheel" syndrome. "Studies" are repeated time and time again with predictable results. Justification for studies are "this was done in Africa, Nepal etc.," when the justification should identify the client/user that needs these data.

The concept of an extension out-reach program to find out what research is needed is foreign but so is the concept of using an extension program to "sell" results. The knowledge of what the client needs is essential to the researcher in designing his study. This knowledge helps him define the scope of the study. It provides the researcher with the kinds of data that are to be collected and helps him present the results so the client can understand what has been produced.

There has been a limited effort to find out what the Provincial Forest Departments (clients!) research needs are. The current process is a one day meeting that has resulted in a show and tell program by the PFI and PFRI scientists at the annual research meeting that is held concurrently with Passing Out at PFI. At these meetings there is very little time allotted for problem presentation and discussion. The proposed new research is "presented" for approval to the CCF's present; however, the list of new research is circulated at the end of the meeting with little time left to read or discuss what has been presented. The meeting is a social gathering & a rubber stamp for PFI's research program.

Close contact between researchers and their clients is essential to develop research programs that are acceptable and meaningful. Researchers must have "grass roots" contacts in order to maintain their perspective. The researcher that talks only to other researchers will have a very narrow view of what "real world problems" are, and need attention.

RESEARCH FACILITIES. A major component of the project was to improve research facilities at PFI and PFRI and build facilities in the Punjab (Kharian), Balochistan (Dera Murad Jamali), and in the Sindh (Miani). These stations were to be equipped and manned with junior grade researchers under the control of the DG, PFI.

PAKISTAN FOREST INSTITUTE: PFI, located at Peshawar, is the center of Forestry Education and Research in Pakistan. Building space for research is not a limiting factor. They also have a research garden and nursery area. There are serious problems at PFI resulting from the lack of qualified and motivated researchers and the ages of the faculty and staff. In the biological sciences PFI needs new faculty in both teaching and research. In all areas of plant sciences, botany, ecology, plant physiology and plant anatomy the staff needs to be strengthened. The same is true of Physical sciences especially soils. In the social sciences, strength is needed in the management sciences, political sciences, sociology, anthropology etc.. When considering the broad aspects of agro-forestry research and teaching and comparing these needs with the faculty of PFI the weak areas become obvious. The average age of the faculty and staff is well into the forties. Retirements are already hurting PFI and unless an active recruitment of qualified people is initiated there will be difficulties in the years ahead.

Research equipment including computers has been supplied to PFI by various donor agencies including major contributions by USAID. There is not a single University in the USA that would not be envious of recent equipment purchases by USAID. The "Research Plan" has a plant, soil tissue analysis laboratory described that was to be staffed by a trained laboratory technician. The technician was to be responsible for all aspects of the laboratory's function and the maintenance of all equipment. The equipment has been purchased, but there is no laboratory or technician to maintain it and much of the equipment is locked up or put into different laboratories where it sits waiting to be used. USAID has purchased equipment for a seed laboratory which has been installed and is utilized. The computer laboratory has also been a successful operation at PFI. The computer laboratory is both a research and a training tool.

Yet another weakness in the PFI's research program is the lack of understanding of the roll of the extension position. This position is the critical link between the researcher and the client/user. In the future with less donor money on the horizon, the extension position will also have the responsibility of illustrating the importance of PFI to secure funding from governmental sources.

PUNJAB FORESTRY RESEARCH INSTITUTE: PFRI, located at Gatwala, near Faisalabad, has almost brand new facilities, & additional facilities are under construction. This research station has a lot of potential because of its location and its apparent support of the Punjab government.

Staffing is a serious problem because of the lack of dynamic leadership. Forest officers posted at Gatwala do not want to stay; consequently, they either get their posting canceled or, request different posting shortly after arriving. PFRI has received much of the same equipment as PFI and much of this equipment is still in the shipping crates. Of the computers supplied to PFRI one is in the Director's office and one was taken to Lahore. In both cases the computer is used as an excuse to have air conditioners installed. Neither the Director PFRI nor the Forest Department Officer in Lahore know how to use a computer.

PFRI also has an extension position, but again as at PFI the job has not been defined to utilize the opportunity to make contact with research client/users.

KHARIAN RESEARCH STATION: The Kharian Research Station is under the direction of the Director, PFRI. However there is considerable cooperation between PFI and PFRI. The facilities USAID provided at Kharian are limited to some buildings which include limited laboratory space and vehicles. The value of Kharian is as a field site. The station is located on the Grand Trunk road and should be expanded to a visitor center to exploit extension opportunities with the public and local farmers. Some of the better demonstrations of water harvesting techniques can be seen there.

DERA MURAD JAMLI: The DMJ station is under the direction of PD, Balochistan. Because of its location and difficulties in traveling to and from the area it is the last station to be built, equipped and staffed. To date there has been no active research at this station.

MAINI: The Miani station is under the direction of the Sindh Forest Department. PFI has established some studies on the station that are under the control of the local research officer. Because of travel restrictions the Maini station is not easy to visit; however, there are some good studies that need attention. These studies need to be terminated and data prepared for publication. Much of laboratory equipment meant for Maini is still in packing cases at PFI.

TRAINING

Although progress was made with training it was not made without some obstacles. Whoever wrote the "Terms of Reference" was not aware of the nomination procedures used with the GOP and Forest Departments. There is little opportunity for the training advisor to identify people for training. Most of the training opportunities were used as perks and the best that could be done was to match the candidate's "Application For Training" with an existing course.

A critical problem was that I was not included in the official information loop. Even when I kept close tabs on what was happening at AED unofficially, official documents never made it to my desk in a timely fashion, if I saw them at all.

IN-COUNTRY SHORT TERM TRAINING: "The Terms of Reference" stressed in country short term training. We responded by including in our annual work plans training programs which were appropriate to the needs of the projects and Forest Department Personnel. Even though the work plans were approved by the GOP, getting a particular short term training program approved was another matter.

When and if a training program was approved the next problem was to try and have the appropriate people nominated to sit through the program. If a program was presented at a fancy Hotel senior officer nominated themselves even though the objectives of the course clearly stated that the course was directed at DFO's, etc. If the program was at PFI it was difficult to get enough high quality nominees. The bright spot was there were always one or two bright people in a program that made the efforts worthwhile. Some of the people nominated for these programs could barely speak English and others made it quite clear that they were there only for the DA.

In all cases manuals were prepared and given to the participants which should prove useful in the long run.

The future of Pakistan's tree planting programs will be dependant upon high quality seed and nursery stock. Although a program in Seed Technology was allowed, programs in Tree improvement and Nursery practices are still on the drawing board and may never materialize. The opportunity for Pakistan to take leadership in the areas of seed technology, tree improvement and nursery practices on the Sub-continent is slowly slipping by.

LONG TERM IN-COUNTRY TRAINING: USAID is continuing to offer scholarships at PFI. As the project approaches termination the number of scholarships has been increased to the point that quality education will be a thing of the past, at least until the number of students decreases.

I have strongly recommended against these large size classes because of a lack of facilities and resulting over burdening of teaching staff. The Director of Education has also voiced his opinion that the increase in class size is reducing the quality of education at PFI. Some restriction on class size must be made by USAID or the quality of education will continue to deteriorate. The large class size is being used as a lever for asking for more vehicles, facilities etc., and as an additional source of revenue. The quality of the product - future forest officers - apparently is not a consideration.

OVERSEAS SHORT TERM TRAINING: Short term training slots have been used as perks. The GOP nominate who they want without recognizing specific training needs. Nominations from the GOP have been sporadic and slow in coming creating a bottleneck that has limited course selection and placement. The fortunate thing is that training slots can be held over from one year to the next so late applicants can be placed the following training season. However, as the project approaches its termination date those people on hold may lose their opportunity to go to a training program in the United States. Under the present system of candidate selection the value of this kind of training must be questioned.

OVERSEAS LONG TERM TRAINING: USAID/HRD require both a TOEFL and a GRE score before a candidate can be placed in a long term training program. I agree with these requirements; however, this does create difficulties which limit qualified candidates for overseas long term training. Forest officers who do the nominating seem to feel that if you have a degree from PFI you are automatically qualified for a graduate program in the United States. Obviously this is not true, at least to anyone familiar with the US university systems. Many of the individuals nominated under this program could not pass TOEFL let alone the GRE simply because they lack English language skills. In cases where the individuals had good TOEFL and GRE scores, University placement was rapid and simple.

In the majority of cases some remedial work is/was needed. The Academy for Educational Development (AED), had a successful program (CIELS), which prepared candidates to take the TOEFL examination. In some cases Senior Forest Officers would not allow the people they nominated to attend the CIELS program with the expected result, the candidates did not pass TOEFL.

I was able to place a number of candidates who had satisfactory TOEFL scores but because of the project termination did not have time to register and take the GRE. Of all the training opportunities I feel that graduate work at a U.S. university will give the greatest long term payoff. We could have placed more students if the students selected for training had been selected on the basis of their abilities rather than seniority.

The project extension has allowed an additional opportunity to place more candidates in graduate programs. Three candidates that had completed TOEFL were identified and placement is currently being sought. As these candidates do not have GRE scores and because USAID was slow in approving these nominations there may not be enough time remaining in the project to locate a University that will accept them.

EDUCATION

PFI has evolved from the British educational system as developed in India. Much of the donor money PFI has received has emphasized a more western style of education. The two systems are very different and in many ways in direct conflict. The present system however is still more of the British system with a small amount of western influence. In Phase one, PFI was reviewed by an American team headed by Dr. J. Bethel. The Team developed an agroforestry curriculum which amounted to the addition of 6 classes. Outlines for these six classes were given in Dr. Bethel's final report. At least some of the courses have been taught since the report was written.

The reason for not teaching all of the classes is simple, PFI does not have instructors qualified to teach all of the new courses. To make room in the already overloaded curriculum other important courses had to be dropped from the agroforestry curriculum. If a student wants to major in agroforestry his basic forestry education is short changed. Traditionally the B.Sc and M.Sc are two year programs. If the curriculum of the B.Sc and M.Sc are compared it is clear that the M.Sc is just "more of the same" although theoretically more work is required of the M.Sc student.

Hopefully someone will realize that the education PFI is trying to instill in the students can not be accomplished in a two year program even if classes are held year round. Tradition is hard to change, but change is indeed needed.

The lack of qualified teachers is going to be a continuing problem as less donor money comes into the Institute. The practice of using M.Sc graduates as teachers is not a solution to the problem. Bring in experts (Dr. Zuuring and Dr. Behan) to teach specific classes and prepare lecture notes is working, but this too is a short term solution. There are exceptional people in the various forest departments that have extraordinary training who would be willing to teach at PFI, but "the system won't allow it".

If education is important then change is needed. Teaching exchanges with the agriculture university would be another solution as well as a mutual benefit. But there is so much paranoia that if PFI does cooperates with a agriculture university, PFI will lose their identity and power; consequently, any suggestions of cooperation is met with many superfluous arguments such as: "our students will be contaminated and will lose the discipline we have given them", "our students will become political and go on strike", " the university schedule does not match ours", etc. The result - status quo!

RECOMMENDATIONS

The project is scheduled to terminate December 1994. Although the time remaining is short, my recommendations will address what needs to be done regardless of the funding or funding source. It is critical and I believe appropriate, for the Forest Departments of Pakistan to recognize that donor monies may be difficult to obtain in the future and they should develop their programs within the budget constraints given them by the provincial and federal governments.

Forestry professionals of Pakistan must take the responsibility of funding and solving their own problems with the available resources without waiting for donor monies.

If this program is extended (long term), or a new program begun with a new TA Team; I strongly recommend that research and training be split between at least two individuals.

RESEARCH

1. Withhold all funds for new projects at PFI until final reports and publications have been written as recommended in the report to the ERRC on April 23, 1992 (Appendix C). Funds should be continued for those ongoing projects as recommended at the ERRC meeting of April 23.
2. Decentralize funding of research from PFI to the CCF's of each province. This action would require a much closer liaison between the researcher and his client/user. This decentralization should improve the research management and direct research into areas of practical needs.
3. Develop an anonymous review system for approval of proposed research and research publications. This could be done through a professional organization which needs to be developed immediately. The organization should not be under the control of the DG, PFI. There are a number of highly qualified scientists in the various forest departments that would like to become more involved in some aspects of research who would welcome this opportunity.
Funding of research should be on a competitive basis that would include both PARC and local agri-cultural universities. Scientists from the agricultural communities should also be involved in the review process. Such a system would go a long way to improve the quality of agroforestry research in Pakistan. In any case, all research funding of new projects should be suspended until an anonymous review system is in place and functional.

4. Equipment purchased must be associated with a specific project and a well written plan of work. The "wish list" approach to supplying equipment is a waste. Equipment purchased based on an accepted study plan has a better chance of being utilized, not left in the packing crate or locked up in a closet.
5. Research ownership must be recognized at all research stations including PFI. The practice of assigning research projects to junior men to do all of the work including experimental design has to stop. One scientist should have the obligation of planning, implementing the plan, collecting the data, analyzing the data and writing the final report and publication. The practice of senior officers taking credit for work they had little or nothing to do with must cease. The principal investigator (as listed in the study plan) should be the scientist who is doing the work. He is closest to the research and is best suited to analyze what has happened. The principal investigator of record should be the scientist who is accountable for the research project.
6. Each researcher should be given the fiscal responsibility for his own research project. This will avoid having to wait for funds from PFI. This will have the added advantage of making each research scientist keep better records on the cost of doing research.
7. An audit should be made (end of program) of all monies spent on research. The audit should be on a study by study basis to determine how much money was spent for the useful research results produced.
8. Research and extension go hand in hand. The extension position at both PFI and PFRI should be strengthened. The extension program must aggressively stress the importance of outreach as a point of contact with the research client/user.
9. Reevaluate the "Research Plan". It is not working and should be re-written. The plan must be written by a team of Pakistanis and not by an expatriate. Pakistanis are the ones that have to work with the plan so they must feel ownership.
10. Update the research filing system. A computer system backed up by individual study files would allow better research management.
11. Research administration must be separate from the administration of PFI and PFRI. Individuals that are administrating research funds should NOT be in the decision making process of approving their own research projects either directly or indirectly.
12. All research institutes and stations should hold field days for other scientists (including PARC, Agricultural Universities etc.), Forest Officers and Farmers.

TRAINING

IN-COUNTRY SHORT TERM TRAINING.

1. In country short term training, at least on paper, looks like the most efficient way of training. However, unless more control is available for participant selection not much will be gained.
2. Although PFI has good training facilities, for some reason or reasons, there is resistance to holding training sessions there. Unless there is a specific need that is unique to PFI, such as computers etc., I recommend holding training sessions at more convenient locations. Using different locations for training sites may help in more appropriate nominee selections.
3. Within the constraints listed in points 1 & 2, I strongly recommend continuing in country training using appropriate expatriate instructors. Specific areas that need to be covered before the end of the project are:
 1. Seed Production and Tree Improvement
 2. Nursery Practices
 3. Research Management and Planning
 4. Personnel Management
 5. Modeling & Modern Methods of Multivariate Analysis

I am sure there are other workshops that would be useful, but these are ones that I feel should get priority.

IN-COUNTRY LONG TERM TRAINING.

1. The number of in-country scholarships for B.Sc and M.Sc degrees must be reduced in order to enhance quality of instruction at PFI. Forcing large numbers of students through the program at PFI is simply downgrading the value of a degree from PFI. Quality is the main concern and overloading the system will not produce quality graduates.
2. The B.Sc and M.Sc degrees are not up to international professional standards. The programs at PFI could be improved by first recognizing that with the amount of materials and knowledge needed to manage the forest environment, more than a two year program is needed. Expanding the program however should be a slow but timely process. 1) Evaluate the current B.Sc program and realistically identify the knowledge areas that need to be strengthened and expanded. 2) Develop a priority list and start by expanding the curriculum to a three year

program. 3) Continue the process of evaluation and after a number of years in the three-year curriculum increase the program to four years.

Many of the classes needed could and should be taken from the other schools or universities in Peshawar University. The M.Sc program must BE something more than a repeat of the B.Sc curriculum. If remedial work is needed by a student then his program should take more than 2 years.

OVERSEAS SHORT TERM TRAINING.

1. All short term overseas training should be reduced to a minimum. If a subject area can be identified then a workshop can be presented in-country at a greatly reduced cost for a larger number of people.
2. Reduce the time required from the time the training plan is prepared to the time the nominee is finally prepared to go overseas. If USAID is going to continue in Pakistan then an analysis of the steps in the entire nomination process need to be evaluated and a more efficient procedure developed.
3. If the GOP wants to send individuals for more than one year, a training plan should be prepared that reflects some continuity in training objectives. This long term training plan should be evaluated on an individual basis, approved by the GOP and USAID before the training is approved. Sending trainees to the United States more than one time can be very useful if training objectives have been developed and the courses selected meet those objectives.
4. Sending trainees to the United States for multiple years has limited the number of trainees that can experience training opportunities in the U.S. and should be, except in special cases where a long term training plan has been developed, limited.

OVERSEAS LONG TERM TRAINING:

1. The requirement of both TOEFL and the GRE should be continued.
2. The GOP must nominate only those individuals that have the ability to be competitive in a graduate program in the United States. Individuals without the necessary qualifications have been nominated and have wasted a considerable amount of time because they can not pass TOEFL or the GRE.

3. In any kind of future farm forestry program, advance degree training should be a priority. Training should be at both the PhD and M.Sc level. Identifying the most promising candidates should begin as soon as possible regardless of program ending dates. Every effort should be made to have the identified candidates prepare for and take TOEFL and the GRE so that if donor monies become available there will be a pool of candidates who will be ready for immediate entry into an advanced degree program.
4. Individuals returning from advance degree training should spend at least two years at PFI in the Education Department before returning to their original post. A practice like this would help keep teaching at the "state of the art" level, plus allow a constant exchange between permanent staff and field staff. This would take advantage of the returning individual's new scientific/professional knowledge.
5. Top student performers at PFI should be recognized as the first candidates for advance degree training when and if funds again become available.

EDUCATION

1. PFI needs a thorough self evaluation of its roles and functions. PFI as a unit needs to develop a statement of their goals and objectives. They must objectively list their strengths and weaknesses. This needs to be done for PFI and for its departments. Once the evaluation has been completed a "long term plan" can be prepared. This has to be developed by the staff and faculty of PFI if it is to be meaningful. The "Plan" must identify priorities and most critical, develop an action time line - deadlines to achieve specific goals and objectives.
This is a critical period for PFI because of the age structure of its staff coupled with the current retirements and retirements that will be occurring in the near future. The DG, PFI has an opportunity to bring PFI to a leadership position not only for Pakistan, but for Asia as a whole. The importance of natural resources and environmental management should be the major emphasis that guides PFI into the future. The opportunity is there; hopefully, it will be recognized and aggressive action taken.
2. PFI has not taken advantage of the educational opportunities provided by its neighboring educational institutions. Courses available from other units of Peshawar University should not be repeated at PFI. PFI should modernize their curriculum so their students could benefit from what is available in the university community. For example, take advantage of the

soils program at the Agriculture University. PFI's soils program is weak, to say the least. PFI could cooperate with the Agriculture University and jointly teach courses in agroforestry. The opportunities are endless.

3. With the concurrence of Director Ashfaq and Director General Siddiqui, continue to bring in experts to teach and prepare lecture notes for specific classes in the M.Sc program at PFI. This has been successful and provides a short term solution to the problem of the lack of qualified instructors.
4. All PFI study facilities used by students should remain open and available for use after 2:30 pm and on weekends; this includes both the library and the computer room. An education is more than going to lectures and memorizing facts to be repeated for a test.

GENERAL COMMENTS

The project is scheduled to end in December 1994. Whether the project has reached the point of being institutionalized and sustainable is still a question in my mind. A lot of trees have been planted and a keen interest in agroforestry has been generated in Forest officers, farmers, industrialists, and politicians. Recognition of the program by the public has also been achieved. The big question has to be what happens when the money stops? It is my opinion that farmers will continue to plant trees and practice agroforestry. Under the present program trees have been given free (limited numbers) to farmers that want to plant them. Agroforestry has been practiced in Pakistan and other parts of the world long before the start of this project. What we have accomplished is to speed up the interest in planting as well as help industry recognize the potential wood resource that can be tapped. The key is as farmers find that trees are a cash crop they will be more than willing to pay for seedlings. Agroforestry will continue to grow in direct proportion to the developing markets.

If additional funds become available I feel that they can be best spent in NGO activities directed at marketing and assistance to farmers (as technical advice). Farmers know how to grow plants and with the technical assistance that has been supplied by the Forest Departments they have and are growing trees. Emphasis also needs to be placed on extension. Extension appears to be a problem both in agriculture and in forestry and I am not sure what the answer should be. Extension must be the center that brings the farmers together as a forum for exchanging ideas and dissemination of knowledge in a form that the farmer can understand.

As for training I feel that funds should be concentrated at the farmer level. Field days and field trips for farmers are worth every cent invested. This also requires the logistical skill generally found in good extension. The farm forestry curriculum at PFI has been institutionalized and it will continue to train forest officers.

Research needs to be continued but quality needs to be improved before additional funds are committed. Too much money was allocated for the project initially with the result that is jammed the system. Before investing additional funds, research capabilities must be improved.

TERMS OF REFERENCE

Education/Training/Research Advisor

Primary responsibilities include but are not limited to the following:

* The project will emphasize in-country training for improving the ability of the forest department to institutionalize farm forestry and outreach activities. Consequently, a majority of this person's time will be concentrated in developing a program of in-country training. In addition, the individual should be able to assist the GOP with developing policy and a plan for research in Pakistan.

Specific Tasks

- * Supports training programs and helps lay plans to ensure that GOP staff effectively apply overseas training to education and research upon their return;
- * Supports GOP, AIGF, provincial project directors and DG/PFI in design of a comprehensive overseas and in-country training program;
- * Assists in developing criteria for selection of candidates for overseas training to prepare staff at PFI for farm and energy forestry research and education activities;
- * Assists GOP foresters and continuing consultants in support and design and delivery of selected courses at the PFI and in the provinces;
- * Assists in identifying short-term consultants for short-course training;
- * Participate in training activities as required;
- * Reviews and evaluates annual training activities and writes a report for the GOP and AID;
- * Works with the DG/PFI and faculty of PFI, and directors of provincial forestry research stations which are to be strengthened at Gatwala in Punjab and Miani in Sindh and at stations which are to be established in Balochistan and in the barani area of NWFP to assist in designing a comprehensive program of farm and energy forestry research;
- * Assists in insuring that the research program is coordinated during both planning and implementation with PFI, PARC, and other appropriate research institutions;

- * Assists GOP foresters in identifying short-term consultants to design a program of irrigated farm forestry research in Punjab and Sindh;
- * Assists GOP in identifying short-term consultants who will help design individual research projects;
- * Recommends means to achieve practical integration of research with field operations; and,
- * Supports coordination of forestry research program development and implementation with other Pakistani energy and rural development organizations and with the Pakistan Agricultural Research Council (PARC).

FORESTRY PLANNING & DEVELOPMENT PROJECT
PROJECT NO. 391-0481

OVERSEAS DEGREE & NON-DEGREE TRAINING

Monthly Status Reports Through June 1992
and Project Sponsored Travel

LONG-TERM TRAINING

Completed

M.Sc. Degree

ANSARI, M. Alam	SP	Mgmt & Planning	21	08/27/86	05/22/88
RAFIQ, Mohammad	NP	Mgmt & Planning	22	08/25/86	06/30/88
KHAN, Safdar Ali	FP	Forestry Outreach	28	01/19/87	04/30/89
KHAN, Mohammad	FP	Silviculture	24	08/26/87	08/31/89
KHAN, Malik M.	PP	Mgmt & Planning	24	01/13/88	01/12/90
SUBHAN, Fazali	FP	Mgmt & Planning	28	01/13/88	05/31/90
JAMIL, Abdul	NP	Budget/Res Mgmt	24	01/11/89	01/31/91
ALI, Shaukat	NP	Forestry Outreach	27	01/02/89	03/31/91
KEERIO, Ghulam R.	SP	Forest Mgmt	24	08/27/89	08/26/91
LEKHRAJ, Kella	SP	Forestry Outreach	24	09/18/89	09/30/91
VIRK, Amjad T.	BP	Wildlife	27	09/20/89	12/19/91

In-Training

Ph.D Degree

VIRK, Amjad T.	BP	Wildlife	39	09/20/89	12/19/92
EJAZ, Babar	PP	Mgmt & Planning	42	01/23/90	07/22/93

M.Sc. Degree

IQBAL, Mohammad	FN	Silviculture	24	09/01/98	02/22/93
FAROOQ, Muhammad	PP	Social Forestry	24	01/07/91	01/06/93
MOHAMMAD, Taj	BP	Economics	24	05/28/91	05/27/93
AHMAD, Manzoor	BP	Forest Mgmt	24	08/22/91	08/21/93
LAEEQ, Mohammad Tahir	FP	Silviculture	24	08/28/91	08/27/93
KHAN, Mohammad S.	NP	Research	24	09/22/91	08/31/92
CHIMA, Amjad Mahmood	PP	Forestry Extn	24	09/09/91	09/30/93
SULEMAN, Kanwar M.	FP	Pulp & Paper	20	01/10/92	08/31/93
VISTRO, Najmuddin	SP	Econ Farm For	20	01/14/92	08/31/93
MAHMOOD, Tariq	PP	Forest Econ	20	01/14/92	08/31/93
AWAN, Shahid R.	PP	Forestry Extn	20	01/21/92	08/31/93

Admitted

MOHAMMAD, Syed Ghulam	BP	Silviculture			
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LONG-TERM TRAINING

Pending

KHAN, Gul Mohammad	NP
MALIK, Ilahi Bahsh	FP

SHORT-TERM TRAINING - SPECIAL OVERSEAS COURSES

Completed

BHATTI, Sanullah	PP	Proj Eval-UC	3.0	09/24/86	12/09/86
KHARAL, A.R.	SP	Proj Eval-UC	3.0	09/24/86	12/09/86
KUNAIN, S. Muhammad	NP	Proj Eval-UC	3.0	09/24/86	12/09/86
REHMAN, Shah	BP	Proj Eval-UC	3.0	09/24/86	12/09/86
SHAMIM, Mian M.	PP	Proj Eval-UC	3.0	09/24/86	12/09/86
SURAHIO, Ibrahim	SP	Proj Eval-UC	3.0	09/24/86	12/09/86
ABRO, Ali Asghar	SP	Proj Eval-UI	1.5	05/22/89	06/30/89
AHMAD, Mian Mahmood	PP	Proj Eval-UI	1.5	05/22/89	06/30/89
AHSAN, Javed A.	PP	Proj Eval-UI	1.5	05/22/89	06/30/89
ARSHAD, Abdul Rashid	NP	Proj Eval-UI	1.5	05/22/89	06/30/89
ASHFAQUE, Raja M.	FP	Proj Eval-UI	1.5	05/22/89	06/30/89
HAYAT, Mohammad	NP	Proj Eval-UI	1.5	05/22/89	06/30/89
INSHA ULLAH, Mohammad	PP	Proj Eval-UI	1.5	05/22/89	06/30/89
KAZI, Ashfaq	SP	Proj Eval-UI	1.5	05/22/89	06/30/89
KHALIQ, Ch. Abdul	FP	Proj Eval-UI	1.5	05/22/89	06/30/89
KHAN, Mohammad Ikram	NP	Proj Eval-UI	1.5	05/22/89	06/30/89
KHAN, Mumtaz	NP	Proj Eval-UI	1.5	05/22/89	06/30/89
KHARAL, A.R.	SP	Proj Eval-UI	1.5	05/22/89	06/30/89
MEMON, M. Yousaf	SP	Proj Eval-UI	1.5	05/22/89	06/30/89
MEMON, Shamsul Haq	SP	Proj Eval-UI	1.5	05/22/89	06/30/89
QAYUM, Abdul	NP	Proj Eval-UI	1.5	05/22/89	06/30/89
RAFIQ, Muhammad	BP	Proj Eval-UI	1.5	05/22/89	06/30/89
SHAH, Bashir Hussain	FP	Proj Eval-UI	1.5	05/22/89	06/30/89
SHAH, Mubarik Hussain	NP	Proj Eval-UI	1.5	05/22/89	06/30/89

In-Training

Admitted

SHORT-TERM TRAINING - OVERSEAS WORKSHOPS/SHORT COURSES

Completed

CHAUDHRY, Safdar Ali	PP	OICD-Res Mgmt	1.5	07/28/86	09/05/86
KHAN, Mirza Hakim	FP	OICD-Res Mgmt	1.5	07/28/86	09/05/86
REHMAN, Shams-ur	FP	NCSU-Forestry	0.5	10/12/86	10/22/86
CHEEMA, M. Afzal	FP	OICD-LU Plan	1.5	06/15/87	07/24/87
BALOCH, M. Anwar	SP	OICD-Wtr Mgmt	2.0	06/15/87	08/07/87
SHAH, Ehtesham H.	SP	OICD-Wtr Mgmt	2.0	06/15/87	08/07/87
RANDHAWA, Rashid M.	PP	OICD-Arid For	1.0	07/20/87	08/14/87
REHMAN, Shams-ur	FP	OICD-Arid For	1.0	07/20/87	08/14/87
SALEEM, Mohammad	PP	OICD-Arid For	1.0	07/20/87	08/14/87
KHAN, Akhlaq Ahmed	PP	OICD-Proj Mgmt	1.5	09/21/87	10/30/87
SHEIKH, Ghulam Mustafa	SP	UW-Forestry	1.0	02/29/88	03/30/88
AHMED, Rana Rafiq	F	OICD-Gen Mgmt	1.5	05/30/88	07/01/88
AZIZ, Nasrullah Khan	F	OICD-Agric Dev	1.5	06/06/88	07/15/88
CHIMA, Amjad Mahmood	FP	OICD-Agri Res	1.75	05/30/88	07/15/88
SHAH, Qasim Ali	FP	OICD-Micro Comp	1.5	06/27/88	08/05/88
ZAFARULLAH, Muhammad	FP	OICD-Res Mgmt	2.5	06/06/88	08/12/88
BANGASH, Amanullah	NP	OICD-Proj Mgmt	1.5	07/18/88	08/26/88
MEMON, Abdul Aziz	SP	OICD-Proj Mgmt	1.5	07/18/88	08/26/88
SIDDIQUI, Khalid M.	FP	OICD-Proj Mgmt	1.5	07/18/88	08/26/88
AHMED, Tanver	FP	OICD-Mgmt/Plan	1.5	07/18/88	08/26/88
RANA, M. Ataullah	PP	OICD-Proj Mgmt	1.5	08/08/88	09/16/88
WANI, Bashir Ahmed	F	OICD-LU Plan	1.5	06/12/89	07/21/89
AHMAD, Manzoor	BP	OICD-Ran Mgmt	2.25	06/05/89	08/04/89
ALAM, Mian Maqsood	PP	OICD-Ran Mgmt	2.25	06/05/89	08/04/89
BAZAI, Akhtar Mohammad	BP	OICD-Ran Mgmt	2.25	06/05/89	08/04/89
ABDUL, Ali	BP	OICD-Arid For	1.75	07/17/89	08/11/89
AHMAD, Rana Rafiq	F	OICD-Arid For	1.75	07/17/89	08/11/89
AZIZ, Nasrullah Khan	F	OICD-Arid For	1.75	07/17/89	08/11/89

SHORT-TERM TRAINING - OVERSEAS WORKSHOPS/SHORT COURSES

Completed - (Cont.)

AMIN, Mohammad	PP	OICD-Trn Trn	1.25	08/07/89	09/15/89
BHATTI, Abdul Haque	SP	OICD-Trn Trn	1.25	08/07/89	09/15/89
SULEHRIA, M. Saleem	PP	OICD-Trn Trn	1.25	08/07/89	09/15/89
REHMAN, Wali-Ur	FP	Pest Control	1.00	06/19/90	07/13/90
AHMAD, Ghiasuddin	BP	OICD-Proj Impl	1.25	07/16/90	08/24/90
RANDHAWA, Rashid M.	PP	OICD-Proj Impl	1.25	07/16/90	08/24/90
MALIK, Nazir Ahmad	PP	OICD-Trn Trn	1.25	08/06/90	09/14/90
MUHAMMAD, Ali	PP	OICD-Agro Ext	1.25	08/13/90	09/15/90
RAZA, Ali	F	OICD-Agro Ext	1.25	08/13/90	09/15/90
WANI, Bashir Ahmed	F	OICD-Agro Ext	1.25	08/13/90	09/15/90
AHMED, Imtiaz	F	OICD-Agr Stat	1.50	09/10/90	10/19/90
CHEEMA, M. Afzal	FP	OICD-Agr Stat	1.50	09/10/90	10/19/90
BHUTTO, M. Ramzan	SP	OICD-Ag Extn	2.00	08/27/90	10/26/90
RAJPAR, Anwar Ali	SP	OICD-Ag Extn	2.00	08/27/90	10/26/90
SOOMRO, Abdul Malik	SP	OICD-Ag Extn	2.00	08/27/90	10/26/90
AHMAD, Rana Rafiq	F	OICD-Intg Dev	1.50	09/17/90	10/26/90
CHAUDHRY, M. Afzal	PP	OICD-Intg Dev	1.50	09/17/90	10/26/90
KHAN, Shah Wazir	NP	OICD-Intg Dev	1.50	09/17/90	10/26/90
REHMAN, Shams-ur	FP	OICD-Intg Dev	1.50	09/17/90	10/26/90
ASHRAFF, Qazi M.	NP	OICD-Agro Ext	1.00	05/13/91	06/14/91
HAQ, Noor ul	NP	OICD-Agro Ext	1.00	05/13/91	06/14/91
KHAN, Hafeezullah	PP	OICD-Agro Ext	1.00	05/13/91	06/14/91
MALIK, Mohammad Nazir	PP	OICD-Agro Ext	1.00	05/13/91	06/14/91
KUNAIN, S. Muhammad	NP	OICD-Mgmt Skill	1.00	05/27/91	06/28/91
RANA, Mohammad Masud	NP	OICD-Mgmt Skill	1.00	05/27/91	06/28/91
AYAZ, Mohammad	FP	OICD-LU Plan	1.50	06/24/91	08/02/91
MUHAMMAD, Mamoona W.	WI	OICD-LU Plan	1.50	06/24/91	08/02/91
HABIBULLAH	BP	OICD-Arid For	1.00	07/15/91	08/09/91
KHAN, Akhtar Saeed	PP	OICD-Agro Ext	1.00	05/11/92	06/12/92

SHORT-TERM TRAINING - OVERSEAS WORKSHOPS/SHORT COURSES

In-Training

KHAN, Fazal Ur Rehman	NP	OICD-LU Plan	1.50	06/08/92	07/17/92
MARJAN, Ghazi	NP	OICD-LU Plan	1.50	06/08/92	07/17/92
AHMED, Aftab	PP	OICD-LU Plan	1.50	06/08/92	07/17/92
KHAN, Raja Attaullah	PP	MSU-Seed Tech	3.00	06/17/92	08/31/92
KHAN, Mohammad	FP	MSU-Seed Tech	3.00	06/17/92	08/31/92
WANI, Bashir Ahmed	F	OICD-Ag Extn	2.00	06/22/92	08/14/92

Admitted

ALI, Qazi Abdul	BP	OICD-FSRE	1.00	07/06/92	08/07/92
KHAN, Anwar Ahmed	FP	OICD-FSRE	1.00	07/06/92	08/07/92
AHMED, Imtiaz	F	OICD-Micro Comp	1.50	07/06/92	08/14/92
AZIZ, Nasrullah Khan	F	OICD-Intg Dev	1.50	09/14/92	10/23/92
SULEHRIA, M. Saleem	PP	OICD-Adv Trn Trn	1.00	09/21/92	10/16/92

Pending

SWATI, Mohammad Iqbal	NP
JAH, Asif	FP
SHAH, Mansoor Hussain	BP

SHORT-TERM TRAINING - OVERSEAS STUDY TOURS

Completed

ASHRAF, Ch. Mohammad	PP	US Forestry	1.0	06/15/86	07/02/86
JAN, Abeerullah	NP	US Forestry	1.0	06/15/86	07/02/86
QAZI, I.A.	F	US Forestry	1.0	06/15/86	07/02/86
RAFIQ, Mohammad	BP	US Forestry	1.0	06/15/86	07/02/86
KHAN, A.R.	NP	UM-For Mgmt	0.87	09/30/86	10/24/86
ABBAS, Sardar Ghulam	PP	Thai, Phil, Nep	0.75	06/28/87	07/19/87
AHMED, Lal Fazal *	SP	Thai, Phil, Nep	0.75	06/28/87	07/19/87
AHSANULLAH	NP	Thai, Phil, Nep	0.75	06/28/87	07/19/87
HUSSAIN, Ajmal *	PP	Thai, Phil, Nep	0.75	06/28/87	07/19/87
JAMALI, Ali Hassan *	BP	Thai, Phil, Nep	0.75	06/28/87	07/19/87
KHEL, Sanauallah Mian *	NP	Thai, Phil, Nep	0.75	06/28/87	07/19/87
LALEKA, M. Allam Ali *	PP	Thai, Phil, Nep	0.75	06/28/87	07/19/87
ASHRAF, Qazi M.	NP	Thai, Phil, Nep	0.75	06/28/87	07/19/87
HABIBULLAH	BP	Thai, Phil, Nep	0.75	06/28/87	07/19/87
MASRUR, Anwar	PP	Thai, Phil, Nep	0.75	06/28/87	07/19/87
SHAH, Abdul S. Hussain	F	Thai, Phil, Nep	0.75	06/28/87	07/19/87
NOTE: * - Farmers					
KHAN, Ghani-ur-Rehman	NP	UM-For Mgmt	1.0	10/02/87	10/28/87
KHANZADA, S.K.	PP	UM-For Mgmt	1.0	10/02/87	10/28/87
RAFIQ, Mohammad	BP	UM-For Mgmt	1.0	10/02/87	10/28/87
AHMAD, Ashiq	FP	Thai/Malay/Ken	1.0	10/08/88	11/04/88
CHAUDHRY, M. Afzal	PP	Thai/Malay/Ken	1.0	10/08/88	11/04/88
HAQ, Afzal	SP	Thai/Malay/Ken	1.0	10/08/88	11/04/88
HUSSAIN, Raja Walayat	FP	Thai/Malay/Ken	1.0	10/08/88	11/04/88
KHAN, Saliheen	FP	Thai/Malay/Ken	1.0	10/08/88	11/04/88
REHMAN, Maqbool-ur	NP	Thai/Malay/Ken	1.0	10/08/88	11/04/88
REHMAN, Shams-ur	FP	Thai/Malay/Ken	1.0	10/08/88	11/04/88
SHAH, Abdus Sattar H.	F	Thai/Malay/Ken	1.0	10/08/88	11/04/88
HUSSAIN, Raja Walayat	FP	UM-For Mgmt	0.87	09/17/89	10/11/89
NAEEM, Taj M.	BP	UM-For Mgmt	0.87	09/17/89	10/11/89
AHMAD, Farid Uddin	PP	Miss St For Tour	0.25	09/25/90	10/02/90

In-Training

Admitted

QAZI, I.A.	PP	UM-For Mgmt	0.87	09/13/92	10/06/92
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SHORT-TERM TRAINING - SPECIAL OVERSEAS MEETINGS

Completed

RAZA UL HAQ, Haji	FP	World For Congr	0.50	09/07/86	09/21/86
JAN, Abeerullah	F	IUFRO Congr	0.50	08/04/90	08/17/90
KHAN, Yar Muhammad	NP	World For Congr	0.50	09/15/91	10/03/91
MASRUR, Anwar	PP	World For Congr	0.50	09/15/91	10/03/91
SIDDIQUI, Khalid M.	FP	World For Congr	0.50	09/15/91	10/03/91

In-Training

Admitted

NOTES

BP - Balochistan Province
NP - NWFP Province
PP - Punjab Province
SP - Sindh Province

F - Federal
FN - Federal, Northern Areas
FP - Federal, PFI

WI - Winrock International



FORESTRY PLANNING & DEVELOPMENT PROJECT

Government of Pakistan-USAID

Date: April 28, 1992

Memo To: Executive Research Review Committee, FP&DP

From: George M. Blake *George M. Blake*
Research Advisor, TAT

Attached is a list of projects currently funded and proposed projects which are requesting funding under the FP&DP. I have made recommendations on each project based on a field review (Trip Report attached), the minutes of the last ERRC meeting and discussions with other scientists.

A research project is not completed until the knowledge the research has generated has been made available to the people that need that knowledge. There are a considerable number of projects that, for all practical purposes, are complete except for the final writing stage. It is critical that these projects be analyzed and written for review by the scientific community. However, the final goal should be to release the knowledge to the client - the forest officer, the farmer etc.

LET ME ENCOURAGE ALL OF YOU TO FINISH THE JOB AND BEGIN THE FINAL PROCESS - THE PUBLICATION OF YOUR RESULTS. Without some form of publication your research is wasted and benefits no one.

c.c Charles R. Hatch
COP, TAT



Winrock International

Technical Assistance Team

58, Margalla Road, F-7/2, Islamabad, Pakistan. Tel: 813262 -- 813272 Tlx: 59252 WIFPD PK Fax: 824519



FORESTRY PLANNING & DEVELOPMENT PROJECT

Government of Pakistan-USAID

TRIP REPORT

Contract No. 391-0481-00-C-5021-00

1. Prepared by: George M. Blake *George M. Blake*
2. Place Visited: Miani, Sialkot, Kharian, and D.I.Khan
3. Date of Trip: February 10, (Miani), March 1 to 6 (Sialkot, Kharian and D.I.Khan), March 10 (Faisalabad).
4. Description of Trip Activities:

a. Purpose of Trip: To visit and review the Forestry Planning and Development Project's field research plots and make recommendations.

b. Individuals Contacted:

Miani: Mehboob Ali Bhatti, DFO, Kella Lekhraj, DFO
Sialkot, Kharain, D.I. Khan: Dr. Shams-ur-Rehman, PFI, Dr. Bashir Shah, PFI, Mr. Zafar Islam, PFRI
Faisalabad: Mr. M. Hafeez, Dir PFRI, Dr. Zafar Iqbal

c. Purposed Achieved: Yes

d. Observations:

Miani: Four studies were reviewed. Comments and recommendations are as follows:

1. "Optimum water requirement and frequency interval for raising Acacia nilotica plantation". This study was established in 1988 and is ready to be terminated. Grass has invaded most of the plantation consequently the taking of additional data would not be worth while.

Recommendation: Study should be terminated and results written-up for publication.

Responsibility: Principal Investigator, M. Bhatti

2. "Effects of watering levels on the growth of tubed nursery plants and its effect on out-planting success" This study was established in 1988 and to date no significant differences have been observed. There is no need to carry this study further



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Recommendation: Study should be terminated and results written-up for publication.

Responsibility: Principal Investigator, M. Bhatti

3. "Spacing cum irrigation trails of fodder and fuel producing namely Acacia nilotica, Leucaena leucocephala and Sesbania in Sindh" The study was established in March of 1988. There is no longer any usefulness in maintaining this study. The study should be terminated and written up.

Responsibility: Principal Investigator, M. Bhatti

4. "Study of genetic variation in Acacia nilotica with special reference to var. cupressiformis". There are striking differences between provenances. Seed should be collected from the best performing geographic origins. These origins can become a germ plasm source for the establishment of a seed orchard.

Responsibility: Dr. K. M. Siddiqui and M. Bhatti

Sialkot: "Barani species trials (On farm trials)" This study was established in 1986. It is a small block plantation. There is no further usefulness in continuing this study. The study should be terminated and written up for publication.

Responsibility: Dr. K. M. Siddiqui

Kharian: Ten studies were reviewed. In general Kharian is a excellent field station that clearly demonstrates what agroforestry can be done under barani conditions. Both PFI and PFRI should have a series of field days for the Forestry Department project staff and farmers. Local farmers have already requested and received assistance in establishing agroforestry practices. A brochure in the form of a map is needed showing the location of each study and listing important research findings that have direct and immediate application.

1. "Study of genetical variation in Acacia nilotica with special reference to var. cupressiformis". This study has been repeated at Miani and D.I.Khan. When the plantation was installed at Kharian no attempt to "block out" site variation was made; consequently, seed lot performance has been confounded. Only the microsites that acted as a water catchment basin have trees

remaining. The size of the remaining trees is proportional to the amount of moisture available on a specific microsite. Wet sites have larger trees while dry sites will have no trees or trees with stunted growth. This however is a good demonstration of the importance of planting on favorable microsites. The study was started in 1986.

Responsibility: Dr. K.M. Siddiqui

2. "Effects of watering frequencies on the performance of species under rainfed conditions" This project was started in 1989. To date no differences have been observed between species. The study should be terminated and a publication prepared.

Responsibility: M. Hafeez

3. "Management trials of Multipurpose tree species" The study was established in 1989 at Kharian and at D.I.Khan. The plots have been installed side by side without thought to site variation and/or competition (both light and shade). In addition and far more serious, is the selection of species, at present E. camaldulensis is outgrowing all species and shading out the species in the adjoining plots. The study has been confounded and should be terminated.

Responsibility: Raja Walayat Hussain

4. "Effects of grazing and tree planting on the forage production and soil erosion in a silvopastoral system". The study was established in 1990. This is a long term study and the forage plants are now becoming established. The study should be continued.

Responsibility: Dr. Rafiq

5. "Evaluation of alley cropping system for sustained agro-productivity and erosion control". The study was established in 1990. This is a long term study and time is needed for crops to be established before results are useful.

Responsibility: Dr. Bashir and Dr. Rafiq

6. "Intercropping success of different forages with trees in barani conditions". This study was established in 1990 also at D.I.Khan and Dagar Kotli. Three different forage species are currently in the process of being established. This is a long term project and will have demonstrational value in the future.

7. "Efficacy of water spreading system for the establishment of energy plantations". This is a new study, established in 1991. The value of the study is to illustrate how to take advantage of water spreading knowledge that is being successfully used in many parts of the world today.

Responsibility: Dr. Bashir

8. "Efficacy of rain water harvesting system for the development of agroforestry system in arid zones" The study was started in 1988 and has well developed vegetational responses. The objectives of the study have clearly been obtained. However this study has a high degree of demonstration value and should be maintained. The study has been repeated at D.I.Khan.

Responsibility: Dr. Bashir

9. "Evaluation of water conservation techniques for the establishment of forest trees in the scrub zone" The study was established in 1988. This study again demonstrates what can be done on harsh sites and provides an excellent field demonstration plot.

Responsibility: Dr. Bashir

10. "Effect of soil conservation techniques on the agriculture crop production in scrub zone of Pakistan." The study was established in 1988 and clearly illustrates the importance of well planned experiments which can serve as demonstrations. These plots should be maintained as a demonstration.

Responsibility: Dr. Bashir

D.I.Khan: Nine studies were reviewed. This site is very harsh and should be utilized for field demonstrations and training. Field days for forest department project staff and farmers must be emphasized. The successful establishment of vegetation here should be used to encourage farmers and forest department personnel to attempt more harsh site planting.

1. "Water requirements and season of planting experiment" Study was established in 1986. Study is completed and should be written up for publication.

Responsibility: Dr. K.M. Siddiqui

2. "Spacing trial of Acacia nilotica" The study was established in 1986. Terminate and prepare final publication.

Responsibility: Dr. K.M. Siddiqui

3. "Study of genetical variation in Acacia nilotica with special reference to var. cupressiformis" The study was established in 1987 and is repeated at Miani and Kharian. The study should be written up and the better seed sources preserved as a seed production area. Selection within groups is also possible for continued improvement.

Responsibility: Dr. K.M. Siddiqui

4. "Spacing cum irrigation trial of Ipil Ipil (Leucaena leucocephala)" Study was established in 1987; however the power company has placed a power line through the plots and destroyed the usefulness of the study. Terminate!!

Responsibility: Dr. K. M. Siddiqui

5. "Management trials of multipurpose tree species" The study was established in 1989 at Kharian and D.I. Khan. The problems observed at Kharian are also present at D.I. Khan. The plots are too close together; consequently the larger species are shading out the smaller species. Any data produced from this study will have limited usefulness and I strongly recommend that the study be discontinued both at D.I. Khan and Kharian.

Responsibility: Raja Malayat Hussain

6. "Intercropping success of different forage with trees in barani conditions". The study was established in 1990. This is a repeat of a study already established at Kharian. There have been problems with the establishment of the forage crops; however the forage crops appear to have been established and useful data should be forthcoming. This study has also been established at Dagar Kotli.

Responsibility: Dr. Bashir/Dr. Rafiq

7. "Efficacy of rain water harvesting system for the development of agroforestry systems in arid zone"

8. "Evaluation of water conservation techniques for the establishment of forest tree species in scrub zone"

9. "Effect of soil conservation techniques on agriculture crop production in scrub zone of Pakistan". The three studies above were established in 1968. These studies clearly illustrate the need for water harvesting techniques in areas like D.I.Khan and Kharian. These studies are an ideal demonstration model for farmer field days and should be used as such as soon as possible. These studies should be maintained as demonstration areas.

Responsibility: Dr. Bashir

General Comments:

Both Kharian and D.I.Khan have the potential of becoming excellent research and field demonstration sites. Kharian is on the GT Road and is an excellent site for a visitor information center. This could be used to focus the public on what can be done with simple practices on harsh karani sites. In addition it would be good public relations for PFI, PFRI and the social forestry programs in Pakistan.

Dr. Bashir has already prepared a brochure illustrating the practical application of some of his studies. More of these kinds of brochures need to be prepared by the other researchers. In addition the forestry department project staff should encourage the operational testing of the concepts that have been demonstrated. Dr. Bashir has already started some of this testing, but his efforts need to be supported and expanded.

Distribution

Abeedullah Jan, IGF
Kh. Hameedullah, Project Officer
Dr. K. M. Siddiqui, DG PFI
DIGF Rafiq, Wani, Nasrullah
Mehboob Ali Bhatti, DFO Research, Hyderabad
Kella Lekhraj, DFO Afforestation, TM Khan
Dr. Shams-ur-Rehman, PFI
Dr. Bashir Shah, PFI
Mr. M. Hafeez, Dir PFRI
Mr. Zafar Islam, PFRI
Dr. Zafar Iqbal, PFRI
TAT

Approved Projects of
Forestry Planning & Development Project

A. RESEARCH PROJECTS

S No.	Title	PRINCIPAL INVESTIGATOR	LOCATION	DATE/ YEAR
1.	Barani species trials (On farm trial)	Dr.K.M.Siddiqui	Sialkot	Feb. 1986
	Action: Field work completed. Write final report and/or publication and terminate.			
2.	Water requirement and seasons of planting experiment.	Dr.K.M.Siddiqui	D.I.Khan	Jul. 1986
	Action: Field work completed. Write final report and/or publication and terminate.			
3.	Spacing trial of <u>Acacia nilotica</u> .	Dr.K.M.Siddiqui	D.I.Khan	Jul. 1986
	Action: Field work completed. Write final report and/or publication and terminate.			
4.	Study of genetical variation in <u>Acacia nilotica</u> with special reference to var. <u>cupressiformis</u> .	Dr.K.M.Siddiqui	Kharian D.I.Khan and Miani	Jul. 1986
	Action: <u>Kharian</u> : Drop from project. Too much mortality. <u>Miani and D.I. Khan</u> . The study is completed and needs to be written up. Selections should be made between and within geographical groups.			
5.	Spacing cum irrigation trial of Ipil Ipil (<u>Leucaena leucocephala</u>)	Dr.K.M.Siddiqui	D.I.Khan	Aug. 1987
	Action: Power company has cut a strip through the center of the plots; consequently, the study should be terminated.			
6.	Economics of fuelwood for individual farm families. (On-farm study)	Mr.Saliheen Khan	Khushab, Sialkot, Rawalpndi and Kohat	Jan. 1988
	Action: A one page written progress report is needed so that the study may be evaluated.			

4/2

7. Survey of the existing Agro-Forestry systems in Barani areas of the Punjab S.M.Hafeez Attock, Rawalpindi, Khushab, Sialkot Jan./Feb. 1988

Action: A one page written progress report is needed so that the study may be evaluated.

8. Species trials for the xeric, mesic and saline areas of the arid and semi-arid regions Dr.K.M.Siddiqui Nasirabad, Risalpur Feb. 1988

Action: maintain and continue study

9. Optimum water requirement and frequency interval of raising Acacia nilotica plantation M.A.Bhatti Miani, Mirpur Mathelo Mar. 1988

Action: Terminate and prepare publication

10. Effect of watering levels on the growth of tubed nursery plants and its effect on out-planting success M.A.Bhatti Miani Mar. 1988

Action: Terminate and prepare publication

11. Spacing cum irrigation trials of fodder and fuel producing species namely Acacia nilotica, Leucaena leucocephala, and Sesbania in Sindh M.A.Bhatti Miani Mar. 1988

Action: Terminate and prepare publication

12. Comparison of inter-cropping of five tree species under barani and irrigated conditions Dr.K.M.Siddiqui D.I.Khan Mar. 1988

Action: Study was re-established in 1990. Maintain and continue .

13. Survey of the exist- M.A.Bhatti 8 June/July
ing agro-forestry districts 1988
systems in the irri- of Sindh
gated areas of Sindh
- Action: A one page written progress report is needed so that the study may be evaluated.
14. Survey of Hurries in M.A.Bhatti Sindh June/July
Sindh province 1988
- Action: A one page written progress report is needed so that the study may be evaluated.
15. Opportunity cost of Mr.Saliheen FP&DP Dec. 1988
growing multipurpose Khan area
tree species on small
farmlands
(On-farm study)
- Action: A one page written progress report is needed so that the study may be evaluated.
16. Supply, demand and Raja Muhammad FP&DP Jan. 1989
marketing of fuel- Zarif area
wood area
(On-farm study)
- Action: A one page written progress report is needed so that the study may be evaluated.
17. Effect of watering S.M.Hafeez Kharian Apr. 1989
frequencies on the
performance of
species under
rainfed conditions
- Action: Terminate and prepare publication
18. Spacing trial of M.A.Bhatti Miani Mar. 1989
Azadirachta indica
- Action: Maintain and continue
19. To investigate causes Ch.M.Ismail, PFI; June 1989
of transplanted morta- Mr.Hanif Gul Peshawar
lity and work out
methods for their
control
- Action: Field study is completed, but publication is needed.

20. Management trials of Multipurpose tree species Raja Walayat Hussain Kharian, D.I.Khan June 1989

Action: Field layout is confounded, terminate.

21. Biomass production of forest tree species raised on private lands (On-farm study) Raja Walayat Hussain FP&DP area June 1988

Action: A one page written progress report is needed so that the study may be evaluated.

22. Effect of nursery shade on seedling quality Dr.S.Rehman PFI Completed

Action: Publication is needed.

23. Effect of watering levels on the growth of tube nursery plants of E. camaldulensis Dr.S.Rehman PFI Completed

Action: Publication is needed.

24. Effect of inoculation on the nursery development of 3 nitrogen fixing species Dr.S.Rehman/ Jehan Ara PFI Completed

Action: Publication is needed.

25. Determination of biomass of 54 species at nursery stage Dr.S.Rehman/ Jehan Ara PFI Completed

Action: Publication is needed.

26. Effect of grazing and tree planting on the forage production and soil erosion in Silvo-pastoral system Dr. Rafiq Kharian Oct. 1990

Action: Maintain and continue.

27. Evaluation of alley cropping system for sustained agri-productivity and erosion control Dr.Bashir/
Dr.Rafiq Kharian Oct. 1990

Action: Maintain and continue.

28. Intercropping success of different forages with trees under barani conditions Dr.Bashir/
Dr.Rafiq Kharian Oct. 1990

Action: Maintain and continue.

29. Establishment of shelterbelts/wind-breaks on farm lands Mr.Fazli Subhan Bhakkar, Oct. 1990
Mirpur
Khas

Action: A one page written progress report is needed so that the study may be evaluated.

30. Efficacy of water spreading system for energy plantations the establishment of Dr.Bashir Kharian Oct. 1991

Action: Maintain and continue.

31. The construction and testing of a solar kiln Mohammad Yasin PFI Dec. 1991

Action: Maintain and continue

I. DEMONSTRATION TRIALS

S No.	Title	PRINCIPAL INVESTIGATOR	LOCATION	DATE/ YEAR
1.	Establishment of an arboretum Action: Maintain	Dr. Shamsur Rehman	Ratta Kulachi (D.I. Khan)	Feb. 1988
2.	Efficacy of rain water harvesting system for the development of agro-forestry system in arid zone Action: Maintain	Dr. Bashir Hussain Shah	D.I. Khan	Mar. 1988
3.	Evaluation of water conservation techniques for the establishment of forest tree species in scrub zone Action: Maintain	Dr. Bashir Hussain Shah	Kharian Kohat	Mar. 1988
4.	Effect of soil conservation techniques on the agriculture crop production in scrub zone of Pakistan Action: Maintain	Dr. Bashir Hussain Shah	Kharian	Dec. 1988

II. PROPOSED RESEARCH PROJECTS (ALREADY CIRCULATED)

S No.	Title	PRINCIPAL INVESTIGATOR	LOCATION
1.	Introduction of bee-keeping	Ch.M.Ismail	PFI
	Action: Drop! The proposal is not research.		
2.	Effect of trees on seasonal crops	S.M.Hafeez	PFRI
3.	Effect of trees on the yield of crops and soil fertility	S.M.Hafeez	PFRI
4.	Studies on the effect of different spacings of Eucalyptus on the yield of different medicinal plants	S.M.Hafeez	PFRI
5.	Effect of leguminous and non-leguminous trees on Eucalyptus and soil fertility	S.M.Hafeez	PFRI
6.	Effect of various eucalyptus spacing on the yield of agriculture crops	S.M.Hafeez	PFRI
	Action: Recommended that studies 2, 3, 5, 6, 8 and 9 be combined into one study.		
7.	Effect of soil working on the survival and growth of conventional tree species in sub-mountainous areas	S.M.Hafeez	PFRI
	Action: Drop		
8.	Interaction of tree species (Single tree)	S.M.Hafeez	PFRI
9.	To study the effect of tree shade on the yield of wheat crop	S.M.Hafeez	PFRI

10. Effect of mulching on survival and growth of species S.M.Hafeez PFRI
Action: Drop
11. Economics of growing Falsa and Papaya with poplar and their effect on each other S.M.Hafeez PFRI
12. Study of the economics of raising oil crops in pure and in combination with poplar on Farmlands S.M.Hafeez PFRI
13. The study of economics of raising oil crops in pure and in combination with Eucalyptus crop on private lands S.M.Hafeez PFRI
Action: Revise and combine studies 11, 12 and 13.
14. Provenances trial of Azadirachta indica M.A.Bhatti Silv. Hyderabad
Action: Revise and re-submit.
15. Interaction of Acacia nilotica Kella Lekhraj and Sugar cane DFO, Tando Mohammad Khan
Action: Revise and re-submit

III. NEW STUDY PLANS (UN-CIRCULATED)

S No.	Title	PRINCIPAL INVESTIGATOR	LOCATION
1.	Biology and control of poplar caseworm	Ch.M.Ismail	PFI
2.	Influence of shelter-belts on farm productivity and Environment	Fazli Subhan	PFI
3.	<u>Acacia nilotica</u> replicated 45 - TCI study	Dr.Shamsur Rehman	PFI
4.	Marketing of Eucalyptus, Willows, Poplar and Shisham wood grown on farmlands	Dr.K.M.Siddiqui/ Saliheen Khan	PFI
5.	Effect of tree species with Agri. crops and its effect on crop yield and soil fertility	S.M.Hafeez	PFRI
6.	Interaction of poplar and sugar cane, an agro-forestry system	S.M.Hafeez	PFRI
7.	Effect of mulching on and growth of species	S.M.Hafeez	PFRI
8.	Interaction of tree species (<u>Eucalyptus camaldulensis</u>) with agricultural crops, its effect on crop yield and soil fertility.	S.M.Hafeez	PFRI