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MISSION TO PAKISTAN AND AFGHANISTAN

PROJECT ASSISTANCE COMPLETION REPORT

Forestry Planning and Development
(391-0481)

Submitted by Agriculture and Rural Development Division
February 1995

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LIST OF ACRONYMS

ACE	Agricultural Commodities and Equipment
ADB	Asian Development Bank
AID	Agency for International Development
CCF	Chief Conservator of Forests
COP	Chief of Party
ECNEC	Executive Committee of the National Economic Council
FP&D	Forestry Planning and Development
FY	Financial Year
GOP	Government of Pakistan
IBRD	International Bank for Reconstruction & Development
IGF	Inspector General of Forests
NARC	National Agriculture Research Center
NGO	Non-Governmental Organization
NWFP	Northwest Frontier Province
PACD	Project Assistance Completion Date
PARC	Pakistan Agriculture Research Council
PFI	Pakistan Forest Institute
PFRI	Punjab Forest Research Institute
PIL	Project Implementation Letter
POL	Petrol, Oil and Lubrication
PP	Project Paper
PROAG	Project Agreement
PVO	Private Voluntary Organization
TAT	Technical Assistance Team
USAID	United States Agency for International Development
WB	World Bank
WFP	World Food Program
WID	Women In Development

PROJECT ASSISTANCE COMPLETION REPORT

FORESTRY PLANNING AND DEVELOPMENT PROJECT

February, 1995

I. BASIC PROJECT DATA

Project Title and No.	Forestry Planning and Development (FP&D) Project (391-0481)
Date of Authorization:	August 11, 1983
Date of Original Agreement:	August 28, 1983
Original PACD:	August 30, 1991
Revised PACD:	December 31, 1994
Amount Authorized:	$35,000,000
Amount Obligated:	$27,500,000
Amount Expended (as of 12/31/94):	$26,270,363
Implementing Agencies:	- Inspector General of Forests, Ministry of Food, Agriculture and Cooperatives, Islamabad - Provincial Forest Departments, Punjab, Sindh, NWFP and Balochistan - Pakistan Forest Institute, Peshawar - Punjab Forest Research Institute, Gatwala, Faisalabad - Forestry Schools, Punjab, NWFP, Sind and Azad Jammu Kashmir
Contractors:	Expat: Winrock International (formerly IAD) Local: - Techno Consult, Karachi - Pioneer Consultants, Lahore - Ahmadullah & Sons, Peshawar
Grantee:	Winrock International (for NGO activities)
USAID Project Officer:	Khawaja Hameedullah

II. PROJECT GOAL AND PURPOSE

A. Goal

The primary goal of the Forestry Planning and Development (FP&D) Project was to help Pakistan increase its energy supplies to achieve energy self-sufficiency. The secondary goal was to reverse the process of deforestation in Pakistan and to expand the extremely limited forest resource base.

B. Purpose

The primary purpose of the project was to strengthen the capacity of institutions at the federal, provincial, and local levels to design, implement, and evaluate policies and programs for increasing the production of fuel wood and timber in Pakistan. The secondary purpose of the project was to demonstrate the economic, technical, and social feasibility of producing tree crops on privately-owned farm and range lands.

III. BACKGROUND

During the discussions between the U.S. Government (USG) and the Government of Pakistan (GOP) in 1981, when a high level team headed by USAID Administrator visited Pakistan, an assistance package was agreed upon for the period 1982-1987. This aimed at a renewed and expanded USG-GOP relationship.

The economic package was aimed at helping Pakistan in meeting the basic human needs of the people and at accelerated progress and economic growth. The country lagged in agricultural productivity; it had low private sector confidence; and, the indigenous energy resource infrastructure was also low. Some improvements in agricultural production, industrial sector recovery and increased exports had become visible after 1977. However, it was noticed that Pakistan suffered from chronic balance of funds deficits.

While the GOP intensified efforts to correct the situation in general, one of the measures taken was the utilization of Pakistan's indigenous energy resources. In this context, it was felt that Forestry sector could play a substantial role in the country's economic development through increase in the sustainable tree crop resource development. In fact the improved and expanded management could enhance Pakistan's energy, agricultural and industrial development and also improve the quality of life of the rural and urban poor.

Pakistan has low forest resource. Around 4.3 million hectares or roughly 5% of the country's total area is forest land, most of which is poorly stocked. The price of fuelwood and timber is on a rise and it is becoming difficult for people to meet their energy needs at a reasonable price

level. The rising price, the increase in population and the low forest area in public sector desired formulation of a strategy appropriate to the needs. The energy crisis of seventies and early eighties also contributed to the formulation of the energy-oriented project in Forestry sector.

The FP&D Project was initially authorized for an eight-year period with $25 million funding on August 11, 1983. Project implementation started two years late due to a delay in completion of formalities within the GOP, i.e., the formal approval of the GOP's Executive Committee of the National Economic Council (ECNEC) was not granted until September 1985. However, during this period USAID remained active in recruiting the Technical Assistance Team (TAT) and in the procurement of certain essential commodities. This helped in saving considerable time and effort, that in any case had to be used even after formal approval from the GOP. While initially the project purpose was to develop wood energy resources, particularly in the private sector, experiences gained and lessons learned in the field of natural resources in Pakistan and elsewhere prompted mid-course corrections. One of the changes was that of project focus, from that of producing wood for energy to providing wood for higher value industrial uses. Activities such as developing national forest policies, development of linkages between wood-based industries and private tree farmers, and greater involvement of non-government organizations (NGOs), were incorporated in an amendment to the Project Paper (PP) on June 26, 1989. Simultaneously, the Life-of-Project (LOP) authorized funding was enhanced by $10 million, bringing total authorized amount to $35 million, and the project extended by two years for total life of ten years. As implementation progressed, and as recommended in the mid-term evaluation in 1991, it became evident that the project needed a way to protect USAID's investment by offering reasonable prospects for sustainability. With the result, on Mission's request, the project was extended by Washington for another sixteen months, from August 30, 1993 to December 31, 1994.

The prevailing attitudes of farmers as well as foresters needed a change. Though this took time, the ice was broken and the farmers and foresters working as extension agents managed to move forward in implementing the project activities. The initial four years' experiences and the lessons learned helped in understanding the weak niches in the implementing process. In this context, attention towards tree crop farming in irrigated areas, provision of additional infrastructure for training and research, training of staff at the Provincial and Federal levels, involvement of women and their training, attention towards environment and conservation and the effectiveness of technical assistance was considered imperative for success and, thus, given due attention in implementation process. Inducting NGO activity within the framework was an additional activity that, though started late, delivered good results.

Farmer-forester interaction had to be on a different footing in successful implementation of a program on farmers' land. To encourage this, the curriculum at the forestry school/university level had to be revised to fit in with the requirements. Forestry staff, not aware of extension type of activities, needed special training. Thus, the project staff moved forward carefully and gradually developing confidence between the two sides, training the farmers in nursery

techniques and then encouraging tree raising activity. Simultaneously, training required at existing institutions as well as strengthening research was also initiated.

IV. PROJECT COMPONENTS

A. Institutional and Manpower Development

This component aimed at strengthening the capability of the Forestry Departments at both the federal and provincial levels for developing sound afforestation and fuelwood policies, integrated development of farm and energy forestry, monitoring and evaluating programs effectively, designing efficient programs to encourage farmers to adopt afforestation practices, and broadening research capability in the natural and social science aspects of farm and energy forestry systems. This component intended to strengthen the offices of the Inspector General of Forests, Provincial offices of Chief Conservators of Forests and the Pakistan Forest Institute at Peshawar. To achieve these objectives, technical assistance, training and commodities were provided to all of the institutions.

B. Farm and Energy Forestry Research

This component assisted development of a long-range farm and energy forestry research program to provide improved understanding of the advantages and disadvantages of alternative approaches. This mainly relied on field experiments, supported by technical assistance and training, in collaboration with other associated agencies -- the major being the Pakistan Agricultural Research Council (PARC) and the National Agricultural Research Center (NARC). The main fields were economics, sociology and anthropology, farm forestry systems, species trials and seed, ecological and hydrological studies. Pakistan Forest Institute at Peshawar was the key forestry institution supplemented by activities conducted by the Provincial Forest Departments. In addition to training and technical assistance, commodities and operational support were provided to strengthen the research efforts.

C. Farm and Energy Field Operational Activity

This component provided training for design and operational activities to improve upon the farm and energy tree crop management. On the job training for farmers and foresters, implementation and evaluation of alternative methods, substitution of fuelwood for dung and fuelwood self-sufficiency were the objectives in the field operational activities. Three general areas were selected for operational activities. These included the barani (rainfed) areas of the Punjab and NWFP, the irrigated farmlands of Nasirabad, Balochistan, and the forest plantations in Sindh. These areas were selected for a variety of reasons including the relative scarcity of fuelwood, the demonstrated interest of the farmers and the Forest Departments in these areas, and the availability of land and water for tree crop management.

D. Women in Development (WID)

Bringing women into the implementation of the project and into the decision-making operations of the Forest Department was of high priority. The project planned to get women into the professional ranks of the Forest Service in positions such as extension/outreach specialists, research officers, and statistics officers. For this reason training of women at PFI was included in the project.

E. Marketing

Under the amended project, it was felt that potential markets and product mixes needed to be identified and sales prices estimated and confirmed with the help of several short-term and continuing consultancies for plantations which were matured enough for harvesting. In the Office of Inspector General of Forests, a computer information data base on forestry marketing was established. Private sector firms were encouraged to participate actively in these marketing activities and were assisted in developing products that use the raw material produced in the farm and energy plantations. The project provided technical assistance and commodities, including computer software and hardware.

F. NGOs/PVOs

This component provided funding, through a grants program, for both the development of indigenous NGO/PVO groups as well as for the operations of such groups in the fields of natural resource development, biodiversity and environment awareness. The project gave an Operational Program Grant (OPG) to a U.S. registered, experienced PVO to in turn manage and administer the development and funding of Pakistani NGO/PVO organizations through sub-grants and other such mechanisms.

V. INPUTS

The PF&D Project was authorized on August 11, 1983 involving planned obligations of $25.0 million in grant funds over a period of eight years. The project was amended on June 26, 1989, increasing the authorized obligation by $10.0 million, bringing total authorized amount to $35.0 million and life-of-project to ten years. However, owing to Pressler, the total obligation during the LOP was restricted to $27.5 million. The FP&D Project received heavy machinery such as dozers, tractors, dump trucks, a mobile maintenance truck and field implements worth $1.5 million from the Agricultural Commodities and Equipment (ACE) Program (391-0468). Host country contributions (actual) during the LOP amounted to approximately Rs. 81.3 million in cash and in-kind.

A summary of FP&D's expenditures over the LOP is set forth in the following table:

Project Line Item	Obligation (as of 12/31/94)	Expenditures (as of 12/31/94)
Technical Assistance	8,200,000	7,882,788
Training	2,860,000	2,503,468
Commodities	2,710,500	2,614,462
Other Costs	13,517,000	13,097,619
Evaluation	212,500	172,026
TOTAL:	27,500,000	26,270,363

Details of FP&D Project inputs by each line item are given below:

A. Technical Assistance

Technical Assistance was provided under a long-term USAID-direct contract with Winrock International in a phased program. In addition, short-term consultants were used for specific areas as and when required. The expatriate TA team advisors provided assistance in the following fields:

- Policy Planning & Management (Chief of Party)
- Extension
- Field Demonstration
- Research
- Training
- Anthropology

In addition to expatriate advisors, local specialist staff was also included in the TA team. Details pertaining to the TA team staff (expatriates and Pakistanis) are attached as Annex "A" and list of short-term consultants is provided in Annex "B". The NGO cell was created in 1991 when a grant was approved in favor of Winrock International, a registered PVO in Washington. Thus, Winrock managed both Forestry and NGO activities from 1991 onwards.

B. Training

The project provided for training of forestry staff at various levels for the federal and provincial Forestry Departments. Also included for training were the staff members of the

training and research institutions. A few farmers were included in a group tour to SE Asia. Training was provided overseas as well as in-country.

1. Overseas Training

The overseas training included both long- and short-term study besides participation in workshops and the study tours. All the overseas training was administered through Academy for Educational Development (AED), a USAID-direct contract under Development Support Training Project (391-0474). The number of persons trained are as follows (details are provided in Annex C):

(a)	Long term:	
	- Ph. D.	3 (U.S.)
	- MSc.	26 (U.S.)
(b)	Short term:	104
(c)	Tours/Seminars:	32
(d)	Special conferences:	9

2. In-Country Training: (By Expatriates)

Arrangements were made to provide training to a larger number through use of expatriate advisors. Consequently, training to groups of foresters and farmers was a regular activity of the FP&D Project. Emphasis was on nursery practices, maintenance and crop management. Arrangements were also made for training groups of foresters in special/technical subjects. Expatriate short-term consultants were used for training. A total of 99.9 person months of training was provided, through expatriate specialists. Consultants prepared reports, a list of which is given at Annex D.

3. In-Country Professional Degree Courses

USAID supported the training of men and women for degree courses at the Pakistan Forest Institute (PFI), Peshawar. For the first time in the history of Forestry, women were admitted to forestry training, both for BSc. and MSc. courses. While they studied as coed trainees, it was interesting to note that women students, generally, performed better. To the surprise of every one, a woman bagged all five prizes meant for superior performance for five different events in the class of 1993, while the overall second place was also taken by a woman. USAID has hitherto helped 29 women to graduate from PFI, Peshawar.

4. Seminars

A number of seminars and workshops for foresters, farmers, wood industries and women in forestry were arranged. All of them were well attended and successfully concluded.

Foresters	Attendees
MSc.	67
BSc.	84
Other	979
Tours	214

Farmers	
Tree Planting	110,916
Nursery Technique	2,906
Land Development	605
Mgt/Mktg	1,909
Tours	1,138

C. Commodities

1. Computers

Computer training was imparted to various categories of support staff and foresters. A good computer lab was set up at PFI. Computers were provided not only to the PFI and Punjab Forest Research Institute (PFRI) but also to Provincial Forest Departments and the Federal Government (IGF office). Procurement of computers was done directly by USAID as well as TAT (Winrock). On the request of GOP-PFI, the Geographic Information System (GIS) equipment requirement has recently been met. Hopefully, PFI will be able to use it for development of forestry in future years.

2. Vehicles

In the initial stage of project implementation, vehicles were procured for use of the TAT staff and GOP and provincial forestry field staff connected with the project activities. It was then realized that the staff at lower level in particular had to cover distances for which mobility was a necessity. At that stage motorcycles of 100/150 cc were purchased for field extension staff. Total number of vehicles and motorcycles provided under the project are:

(a) Ist Consignment

Land Cruisers	11
Pickups	47

(b) 2nd Consignment

Pickups (Double Cabin)	15
Staff Car	1
Locally Purchased Suzuki Van	1
Motorcycles	82

3. Lab & Other Equipment

Scientific and lab equipment, besides the instruments for training purposes, were provided to PFI, PFRI and provinces for use in technician schools. This equipment helped the institutions considerably and resulted in improved performance. Modern seed equipment with four sets of basic field equipment for cleaning etc. at provincial centers were provided to PFI and are in operation. This helped in making viable seed available on regular basis for a longer period for provinces and other agencies. The seed equipment cost more than US $120,000. Training at the technician level institutions has taken strides since USAID support was provided. All the five schools in Pakistan have a higher standard of training with better training equipment, material and space. Curricula revision based on supply of reading material helped in better training.

D. Other Costs

1. Buildings

Forestry Planning and Development Project provided office facilities in suitable areas for management staff. The initial design provided for 41 buildings of varied categories, while the revision added two hostels, one of them for women at the PFI, and residential facilities for trainees at three technician schools (Ghorgali, Abbotabad, Miani). These facilities have provided a good infrastructure for use in conducting training programs and in helping field staff.

2. Operational Expenses of Field Activities

In addition to construction activities, the Other Costs line item of the project was utilized to fund the operational expenses of the PFI and the provinces for field activities related to FP&D Project. Each year, after finalization of annual budget by O/IGF, USAID issued a Project Implementation Letter (PIL) to commit funds for field activities.

VI. PROJECT ACCOMPLISHMENTS

USAID-assisted FP&D Project, a unique and challenging one in the then prevailing environment of forestry, started in an atmosphere of doubt regarding its success. The past had seen forestry almost solely in the public sector. There was limited contact with and involvement of private sector, particularly the farmers. In fact the relationship between the farmer and the foresters was far from congenial. It was difficult for the farmer to reach a senior forestry official. In this background, the project started its implementation. Today the farmer-forester relationship is on a different footing. The concept of involvement of the private sector, particularly the farmer, in forestry in Pakistan came to be noticed through the FP&D Project activities, which later became known as "Social Forestry" activities. Today activity on the farms, whether it is row planting, block planting or agro-forestry, is reasonably understood, gainfully practiced and praised by the farmer. What the farmer still needs is communication of information from the government side on regular basis. The project targets with regard to farmer involvement in nursery operation, tree planting and management, training and construction were not only achieved but were well exceeded. This was due to enormous interest exhibited by the forestry staff. The training, overseas and in-country, was effective and useful and in general went well. Slow responses from the GOP sometimes caused delays in progress but effective handling and continued persuasion helped to avoid conflicts hampering the process in general. Over the period, considerable success was recorded. The project: (1) supported establishment of over 5,000 private farmer nurseries; (2) produced over 150 million seedlings from these nurseries; (3) trained over 20,000 farmers, forest officers and industrial wood users in nursery and plantation management and in marketing principles; (4) produced and used 100 multiple language technical training packages to help transfer technology to forestry extension workers and farmers; (5) conducted 50 studies on topics covering tree-crop interface, tree management and economic feasibility of tree farming; (6) provided grants to 71 NGOs involved in farm forestry and environmental aspects of natural resource use; (7) helped establish marketing channels for wood raw material to industries throughout Pakistan; (8) helped involve about 150,000 farmers as tree producers with about 130 million additional trees planted; and (9) helped afforestation on 5,000 acres in Sindh. Some details of project accomplishments are given below.

A. Policy Planning

The primary purpose of the project was to strengthen the capacity of federal and provincial government institutions to formulate, implement and evaluate policies and programs for increasing the production of fuel wood and timber in Pakistan. The project played an advisory role helping to foster policy planning. The O/IGF, with the assistance of TA team, was effective in formulating the National Conservation Strategy for Pakistan and the completion of a comprehensive Master Plan for the Forestry Sector and initiation of its implementation. To help the government further, a National Seminar on policy was arranged by the project to

provide full opportunity for participation of all interested sectors. The seminar, held in Karachi, where policy papers were presented, proved very beneficial for policy planners.

B. Adoption of Farm Forestry

During the LOP, over five thousand private nurseries were established. Over a period of time the tree nursery farmers have developed good nursery management skills, producing nursery stock even better than the forest departments. A large number are now so well trained that they could continue operating without further help by the foresters. Farmers have been planting trees on their farm and marginal land in various patterns, viz single trees scattered in the field, trees in a compact block, in conjunction with agricultural crops and as linear plantations single or multiple around field borders or along water courses. The latter two patterns were emphasized, as the country did not want to reduce its already meager cropping area. Also, it was considered necessary to enable the farmer to raise annual crops till he got some returns from a long-time farm crop like trees. In the initial stages of the project, due to barani (rain fed) condition prevailing the project area, "Eucalyptus camaldulensis" was the main species raised and planted by the farmers. But as the project expanded to irrigated areas, fast growing multi-purpose trees such as poplars and willows were also introduced. Realizing their demonstrated demand by the sporting goods industry and the ease with which their cuttings are grown, these species were readily picked up by the tree farmers and planted on a large scale. Establishment of a few clonal banks of well performing clones helped distribution of good quality stock.

Exceptionally heavy rains and unprecedented high temperatures brought misery and hardship to the people in general. The farming community, after losing successive agricultural crops due to crop disasters caused by these factors, started planting more and more trees as these withstand the vagaries of nature much better.

C. Pakistan Forest Institute (PFI)

At the outset of the project, forestry education in Pakistan covered only the technical subjects needed for on-the-ground management of the country's government forests. No training was available in many of the subjects that could contribute to systematic analysis for planning, management, and evaluation. Similarly, no training was available in subjects central to the design and management of farm and energy forestry projects.

With the auspices of FP&D project, equipment for research and training, training of the research personnel abroad and services of short-term consultants were provided to PFI. The curriculum for forestry courses was revised through a team of expatriate experienced teachers from the U.S. Social forestry courses were introduced in the curriculum, which was later approved by the University of Peshawar to which PFI is affiliated. These steps helped in bringing the forestry training in line with other countries and met the present day requirements of Pakistan forestry

sector. Special mention should be made about the computer lab at PFI which is state-of-the-art of technology. It is providing professionals the capability to begin using modern technology.

The start of the FP&D Project not only changed the acceptance process and training emphasis but other traditions as well. For instance, students at PFI previously were trained only for government work. Now they are being trained to work in the private sector as well. This shift in training emphasis disrupted a traditional working role for foresters in relation to farmers. Whereas in the past foresters controlled farmer access to the resources, they now have to help farmers manage their own resources. This also changed how the training for students was sponsored. The FP&D Project provided individuals with full scholarships to attend PFI. This allowed provincial forestry departments opportunities to avoid recruitment delays, save stipend costs and still select highly qualified individuals for government service. Most importantly it opened forestry training to women, which created major change.

D. Graduate Training

FP&D Project assisted in training a large number of graduate foresters who are now available for projects to be undertaken with implementation of the Master Plan. (The details of training are provided in Section V.B. as well as Annex C.) The paucity and non-availability of properly qualified foresters will not be felt any longer, as a pool of trained foresters now exists in Pakistan.

E. Training of Women

There was an increasing need for women professional foresters to serve as extension foresters and to participate in the design and planning of social forestry activities. In their absence it was extremely difficult for the Forest Departments to reach and strengthen activities focused on women groups. For this purpose, training for women was considered indispensable. The project also supported the training of women for degree level courses in forestry. Twenty-nine women have already graduated (BSc. MSc. levels) from PFI. While one of them is employed as a lecturer at the PFI, two have been employed by the NWFP Forestry Department and five are working with NGO groups. The women can now play a role in extension activities to boost forestry in rural areas. Two National Seminars on "Women in Forestry" were arranged by the project, second being in March 1994. The participation from different agencies provided a good opportunity for women to fully participate in the seminar proceedings, which was also attended by senior foresters from the country. The role women ought to play in forestry and environment improvement was discussed by the participants.

F. Seminars and Workshops for Farmers

1. Farmers

Other than corner meetings and contacts and farmer field days, a good number of workshops and seminars on regional and national level were arranged to provide opportunities for farmers to interact with each other and with the technical staff. This resulted in extra interest in the participants and farmers in general in learning about the advantages and the methodologies that could provide better economic returns.

A farmer convention on national level was arranged in August 1992. This was inaugurated by the then Prime Minister of Pakistan, Mr. Nawaz Sharif, and was attended by Ministers and other dignitaries including Ambassador Monjo of USA.

2. Producer-User Contacts

The project arranged for direct contacts between the producers and users (industry) to create an understanding for future contacts and better relations and to create an awareness on both sides of the possibility of a sustainable relationship. Group tours of industry representatives and farmers were arranged to visit each other, and workshops and seminars were arranged. These were successful and should go a long way in the development of a working relationship between the parties. However, continued effort and provision of guidance to farmers is needed by technical personnel, which hopefully would become a regular activity now on.

G. Research

A comprehensive long-range farm and energy forestry research program was developed to provide improved understanding of the advantages and disadvantages of alternative approaches to enhancing agricultural productivity through on-farm tree crop management. Research activities were supported by technical assistance and training and were coordinated with the operational activities to the maximum extent possible. The program included research on economics of various species, design and yield of farm forestry systems, species trials and seed supplies and ecological and hydrological studies in the project areas. About twenty-four studies in these subjects were taken up at PFI and at field stations throughout the country. The PFI has begun to undertake farmer and forest officer field days to transfer technologies to these groups. However, client research needs are yet to be effectively incorporated into the research planning process. Until this is achieved, significant change is not expected. It is time that all tree crop interface and other related research is written up in comprehensive non-technical language and findings passed to the end users, i.e., forest departments, tree farmers and industries.

H. Extension and Outreach

Before the project started, farmers were already planting trees to meet domestic needs. They had the basic skills to perform this task along with the ability to select and plant appropriate species. However, when the project initially offered eucalyptus seedlings, farmers did not know much about them and needed help. They had been previously planting kikar (Acacia nilotica which is known as babul in Sindh) shisham, and poplar, all of which have known qualities and sell readily in the open market.

The extension program had a slow start, but after developing a series of demonstration nurseries and plantations, it became very effective in getting farmers to plant trees. Forestry department officials selected farmers to sign contracts and accordingly instructed them on nursery establishment and management. Seedlings produced in these nurseries rivaled or exceeded similar production in departmental nurseries, both in quality and quantity. In addition, the extension program was also effective in teaching farmers to plant trees in the field, getting farmers to understand the importance of planting trees, proper spacing, etc. The program also helped in developing the relationship between the people who conduct research, extension forestry officials and the tree farmer.

I. Forest Plantations in Sindh

In Sindh, the project concentrated on establishing 5,400 acres of new irrigated plantations on Government-controlled forest land. The plantations were on the Penah and Hunderani Forests located near Daro, Thatta District. In addition to provision of training and technical assistance to the Sindh Forest Department, the project support included renovation/improvement of existing tree growth on 1818 acres. The purpose of this plantation was to produce fuel wood for the urban poor and the growing of mining props for the coal industry. Project funds were provided to undertake construction of water courses and structures. This activity employed between 200-300 people for site clearance and development.

J. Construction

A major constraint to project implementation was inadequate physical infrastructure for research and training. Provincial research facilities were inadequate for conducting the area-specific, problem-oriented research essential to generating and testing appropriate technology for integrating multi-purpose tree crops with farm crops. In addition, the lack of facilities for conducting training at federal and provincial levels constrained the achievement of the extensive training required for foresters and farmers. Therefore, a construction element was included in the project. The original project included construction of forty-nine buildings: a hostel for 24 men and hostel for 15 women at PFI, Peshawar; a conservator's office at Rawalpindi; seven divisional forest offices; 19 range offices; and 20 nursery huts. In addition, the Old Penah Minor in Sindh was upgraded and up to 5,000 acres of its command area were improved. Under

the project amendment, additional construction consisted of improved training facilities, research field stations, project offices in Sindh, and improvement of existing facilities to allow women to study at PFI. All the construction was carried out by Provincial Forest Departments, financed by FP&D Project under Fixed Amount Reimbursement (FAR) procedures. A detailed breakdown of construction by location, type, quantity and cost is provided in Annex E.

K. Non-Governmental Organizations (NGOs)

In spite of a late start during the 2nd phase of the project, good progress was made in NGO activities. An Operational Program Grant (OPG) to Winrock for working as a U.S. registered PVO resulted in the formation of a cell in the Winrock FP&D Project Office. Winrock managed and administered the development and funding of Pakistani NGO/PVO organizations through sub-grants. Advantage was taken of existing NGOs in the country, wherever interest was shown by them in organizing mostly rural people towards national resource development, environment and biodiversity activities in general. Even though time was short, the overall interest exhibited and progress recorded was more than satisfactory. A total of 71 projects were identified and encouraged to expand their activities to include social forestry, agroforestry and allied activities. Their programs included:

- organizing the supply of planting material as near the doorstep of the farmers as possible;
- stimulating farmers to plant trees on wastelands, field boundaries, irrigation channels and other vacant places in order to develop biomass reserves;
- transferring relevant technology and imparting necessary training to the farmers for proper maintenance and management of trees;
- raising school nurseries where students are taught to grow tree seedlings under the guidance of teachers. The seedlings are then turned over to their families for planting on farm lands;
- helping mentally ill patients to produce tree seedlings in nurseries, regain health and become productive members of the society by supplementing clinical therapy with silvo-therapy;
- organizing programs focused on harvesting and marketing of tree crops to ensure maximum economic benefits to the tree farmers; and
- increasing public awareness about the need to protect environment and preserve biodiversity;

The operational activities under the NGO grants show that:

1. 189 nurseries were established by the NGOs in Punjab, Sindh, NWFP, AJ&K and Northern Areas.

2. Nearly 6.0 million seedlings of assorted tree species were raised by the NGOs in different nurseries. Out of them 5.8 million seedlings were planted on farmerss fields.
3. 11 NGOs have taken up nurseries as a farm business.
4. 617 farmers (103 of them women) were trained in nursery raising techniques, planting of trees and their subsequent management.
5. Environmental education was imparted to farmers through 98 village organizations and to school children through essay competitions, rallies and observance of environmental days.
6. Four projects were implemented for the preservation of biodiversity which focused on tree cultivation and tree protection.

A summary of the grant commitments by type and location is given in Annex F.

NGO Convention

In order to enable the NGOs to review the experience gained in the field of social forestry and natural resource management and also to explore ways and means for continuing these activities, a two-day convention was held at Lahore from September 17-18, 1994. The main objective was to provide a chance to the NGOs to interact amongst themselves, with donor representatives and selected forestry staff from all over Pakistan. Discussions included consideration for development of a strategy for sustainability. Recommendations were given final shape by selected NGOs group for onward transmission to GOP.

Video

A video film was also prepared to show the activities and listen to the view point of NGOs regarding their work. Thus, during a short span the NGO operational activity under Forestry Planning and Development Project was a good success.

L. Privatization in Forestry

The involvement of farmers in forestry under the project opened a new chapter in forestry management in the country. This was the beginning of induction of private sector in activities not known before. It opened new vistas for the farmer not only to raise crops for meeting personal needs but also where the land holdings were reasonable for economic benefit. The rise in the price of firewood and timber was an indicator of good returns even though the farmer had to wait for returns.

The wood-based industry did not see much scope for availability of raw material from existing public forests. They depended more on imports. However, interest in private sector tree farming was a ray of hope for them. Efforts by project staff to bring growers and users together

were welcomed by both, as both saw a fruitful future in ultimate collaboration. The private sector nurseries developed well. Farmers took interest in raising various species under the advice of field extension staff. Women enlisted as nursery farmers and made good money for supplementing family income. The activity gradually changed from a firewood growing activity to the crop growing activity and then into agroforestry. Fast-growing trees like eucalyptus and poplar returns have become attractive. This experience benefitted many farmers. The provincial forestry departments also encouraged the farmers in raising tree crops and the activity in general spread fast with more and more farmers participating in it.

M. Technical Assistance Team (Contribution)

Technical assistance team members of Winrock International played their role by providing the required advice. Training, research and field activities were monitored, put on track whenever required and dialogues were held regularly with the extension staff, senior forestry officials and the farmers. The performance during phase II of the project was satisfactory in particular and gave dividends. In addition, the short-term specialists' advice on specific subjects helped by providing additional emphasis as required for the subject. Short-term consultants at the PFI also assisted in teaching, when required. The Chief of Party provided assistance to Punjab Forestry in framing a modern management plan for Changa Manga irrigated plantation. This should be a model for other plantations and useful implementation tool for future. Similarly in Sindh, the Hurry Plantation model was highlighted and this system (model) was computerized through involvement of a short-term consultant.

Extension material for the benefit and knowledge of farmers was prepared in the TAT office in English and Urdu languages. Guidance was provided at site and group discussions were held as and when considered necessary. This helped in success of the project considerably. Annexes D, G, H and I provide lists of studies, training material and publications and reports generated under the project.

VII. LESSONS LEARNED

Different in orientation from the traditional forestry in practice, the project had to face difficulties in the initial period. The basic training pattern and job experience in forestry in the country had created an attitude in employees that was not commensurate with the requirements of interaction with private sector. Thus, it took time to change the forest departments' orientation towards a non-traditional clientele: private tree farmers and industrial wood users. A gradual and systematic approach that resulted in limited success in the initial period of implementation generated an interest in the clientele and helped the process of reorientation of institutional focus and institutional change. This process has still to go a long way. Following are the major lessons learned during project implementation:

A. Ensuring host country's own approvals should be a prerequisite before initiating any development project.

The GOP cannot undertake any project amounting to Rs. 60 million (approximately $5 million at prevailing (1983) exchange rate) unless a PC-1 (GOP's funding document) is approved by the Executive Committee of the National Economic Council (ECNEC) at federal level. The USAID's project paper for FP&D was authorized on August 11, 1983 and the ProAg was signed on August 28, 1983, whereas the GOP's PC-1 was approved by ECNEC two years later, i.e., September 1985. Although during this period, USAID remained active in recruiting the TA team and procurement of certain essential commodities, actual implementation of the project activities could not be started until September 1985. The project suffered an irreparable loss due to this delay. In future, USAID should include a condition at the design stage that the GOP approvals be simultaneous with ProAg signing between the two parties.

B. The training of farmers should be conducted in an informal manner.

Training is generally couched in the formal context of structured workshop, seminar and course work programs. In farm forestry programs, activities associated with conducting farmer training in the informal, on-farm context must be legitimized. Cumbersome, time consuming, formal and theoretical training requiring considerable time of the farmer does not pay. It is more useful if it is on the farm(s). The FP&D project spent thousands of person-hours conducting structured workshops, seminars and conferences, yet the informal farmer training was its most successful extension activity.

C. An understanding of market linkages, from the start, is an essential element of a farm forestry extension program.

The utilization aspects, from the beginning of a farm forestry program, need to be kept in mind. Often emphasis is placed solely on wood producers (farmers) and wood users (industries) are ignored, yet the key to institutionalizing private forestry is in strengthening the industrial based wood demand and market infrastructure. Under the original FP&D project, this aspect was missing. However, the amended project successfully established wood producer-wood users linkages which provided unlimited number of opportunities to sustain the farm forestry program.

D. Affecting change in forest policies takes time.

In the forestry bureaucracy of Pakistan, revision of policies is not easy. The FP&D project design planned to formulate and direct a farm forestry policy agenda for Pakistan. This direction was interpreted to imply that a revised forest policy for Pakistan would be formulated and legislation then enacted so new administrative regulations could be issued. While the policy was revised in that direction and approved in 1991, the legislation has not yet been passed to

affect its implementation. There are questions in the minds of many individuals whether or not Pakistan's forest policy changed as a result of the project. It is not yet clear as to when the formal enactment of laws will take place. However, the O/IGF through FP&D project, proactively affected farm forestry policy agenda through the institutionalization of farm forestry programs within provincial forest departments. Throughout all provinces, farm forestry activities now are being formally incorporated into forest department program objectives, establishment appropriations, and permanent staffing structures.

E. If the members of technical assistance team are selected with relevant experience and academic qualification, they are generally useful.

The long-term advisors of TA team (Winrock) were generally highly qualified and possessed relevant experience for the positions they were hired for. They developed good relationships with local bureaucracy, forest departments' field staff and, more importantly, with farmers of project areas, which helped in smooth implementation of all project activities.

Short-term consultants, meant for assistance on specific subjects, are generally useful if selected in accordance with project needs. In the FP&D project they were very useful in undertaking specialized studies and training individuals and trainers. They also helped long-term advisors of the team to better understand complex technical issues and to present them to both host government and donor personnel.

F. For projects that enter new areas, infrastructure can play an important role in the assignment and retention of staff.

Besides construction of men's and women's hostels and training facilities, the FP&D project financed construction of 7 divisional forest offices, 19 range offices and 20 nursery huts at different locations. The provision of infrastructure in the form of office accommodation and residential buildings was very helpful and provided attraction to staff who otherwise do not serve willingly and try to find ways to move to other assignments.

G. Women's participation is indispensable for forestry activities on private farms and in rural areas.

In the absence of women it was extremely difficult for the forest departments to reach and strengthen activities focused on women groups. The FP&D project was a pioneer in trying to get women established in forestry throughout Pakistan. The project supported the training of women at the university level. There are now around 30 graduate women in forestry (BSc. & MSc.), some of them already employed by government and NGOs. For extension work, training of women is very useful as qualified women foresters can play a productive role.

H. Poorly established linkages between the field foresters and researchers hamper the ability to conduct effective farm forestry research.

Despite many problems, research is being conducted at PFI at a reasonable rate, considering the limited available financial resources. The forestry officials claim that PFI's research is not relevant to the work they are doing in the field. There is an apparent indifference among operational foresters and certainly a lack of appreciation for applied research. This lack of coordination between the researchers and extension foresters cries for a client-driven program where research is focused on the specific needs of the client. The extension foresters as well must show sensitivity in identifying the clients' needs.

I. The NGO grant program should be started early on in the project's activities rather than near the end.

An NGO grant unit was established in 1992 to award grants to environmental, industrial and village-level NGOs to strengthen their programs in conservation and forestry activities. The primary objective of the NGO component was to continue the practice of farm forestry after project termination. Although good progress was made during this short period by awarding grants to several NGOs to increase public awareness in farm forestry, to strengthen wood user-producer linkages and to train individuals in farm forestry production technologies, it would have more effective if the process was started early on. Early start would have allowed the NGO grant program ample time to progress through the learning stage and ready itself for the critical role of developing private forestry in Pakistan.

VIII. SUSTAINABILITY

The FP&D project support to forestry, over more than a decade, has created an awareness of the environmental as well as the economic benefits of tree farming. The project has been recognized as an advantageous effort towards development through involvement of private sector. It has opened a new chapter in the relationship between the foresters and the private sector. The government now has a different role than it had ten years before. Now it supports the private sector through provision of appropriate policies and infrastructure support such as information, assistance with marketing and communications.

Experience has shown farmers the monetary benefits of tree planting. Whatever was planted in the early period of the project on farms has become saleable to a reasonable extent, providing many times more returns than in agriculture. As a result not only are more farmers interested in raising trees, but they are interested even to the extent of planting on good land in place of agricultural crops.

With the auspices of FP&D project, the curricula has been revised for foresters and forest guard technicians training in accordance with present day needs. Both men and women are receiving

degree level training from PFI. Physical infrastructure has been provided for training and research facilities. NGOs are applying their organizational skills to strengthen and increase market linkages between the growers and industrial wood users. All these efforts and accomplishments of the project have provided a good solid base for continuation.

Most importantly, the GOP has itself shown commitment to continue the farm forestry activities. The provincial governments in Sindh, Punjab and NWFP have already floated projects to encourage farm forestry. In addition, the World Bank and Asian Development Bank are currently engaged in design efforts to develop social forestry projects in the NWFP and Punjab province and the FP&D project is serving as a model for their design. The input after approval of the Banks' supported projects is bound to provide further boost. The Banks and other donors have recognized the value of the basic FP&D model and are supporting and encouraging its adoption in social forestry projects. Continuance of technical know-how and provision of information through regular training at all levels, ensuring commitment besides providing minor incentives is a sure and certain guarantee towards sustainability of the activity. The climate that exists in this regard creates sufficient hope in the success over future years and in this regard the FP&D project has played a role in moving in the direction of ultimate sustainability.

TECHNICAL ASSISTANCE TEAM AND NGO GRANT UNIT MEMBERS

Technical Assistance Team

Advisors

C. Buford Brisco	Chief of Party	5/05/85-11/04/86
H. Eugene Ostmark	Chief of Party	1/19/87- 1/11/89
Charles R. Hatch	Chief of Party	6/19/89- 7/31/94
Dean Current	Extension Advisor	10/07/85-12/16/86
Gary G. Naughton	Field Demonstration For.	7/10/89-5/31/93
Kenneth McNabb	Research Advisor	6/09/85-10/04/88
William J. Hart	Training Advisor	9/29/85- 9/20/88
George M. Blake	Training & Research Adv.	9/04/89- 8/31/92
Michael R. Dove	Anthropologist	12/04/85- 6/18/89
Mahmood Iqbal Sheikh	For Mgmt Specialist	2/25/90- 9/30/94
Tahir Wadood Malik	Training & Comm Coord	11/19/89- 9/30/94

Technical Staff

Jamil A. Qureshi	Social Scientist	3/01/86-11/30/88
Mamoona Muhammed Wali	Extension Forester	11/18/90- 5/03/92
Nighat Mansoor	Extension Forester	11/18/90- 7/16/91
Gohar Rehman	Data Base Cell Off	8/18/91- 4/29/93
Ayaz Mehmood	Data Base Cell Off	8/18/91- 5/15/92
Ghulam O. Shah	Data Base Cell Off	6/15/92-12/17/92
Raja M. Omer	Data Base Cell Off	11/15/92- 9/30/94
Shauket Ali Khan	Data Base Cell Off	12/18/92- 4/29/93

Field Assistants

Riaz Ahmad	Social Sci. Enumerator	7/03/86- 4/30/87
Nazeer Marwat	Social Sci. Enumerator	7/20/86- 4/30/87
Shamsul Qamar	Social Sci. Enumerator	7/20/86- 4/30/87
Nisar Ahmad	Social Sci. Enumerator	7/27/86- 4/30/87
Nadeem Shahzad	Social Sci. Enumerator	8/03/86- 5/27/87
Sarfraz Ahmad	Social Sci. Enumerator	8/03/86- 5/27/87
Zafar Masood	Social Sci. Enumerator	8/19/86- 5/09/87
Gul M. Umrani	Social Sci. Enumerator	8/19/86- 5/09/87
Abul Hassan	Social Sci. Enumerator	1/07/87- 4/30/87
Nisar Ahmad	Social Sci. Enumerator	7/01/87- 8/15/88
Shamsul Qamar	Social Sci. Enumerator	8/01/87-11/30/88
Gul M. Umrani	Social Sci. Enumerator	8/01/87-11/30/88
Sarfraz Ahmad	Social Sci. Enumerator	9/01/88-11/30/88
Sarfraz Ahmad	Social Sci. Enumerator	2/05/89- 7/03/89

Office Staff

Imtiaz A. Sheikh	Admin Officer	5/27/85- 4/09/92
Obaid-ur-Rehman	Accountant	4/12/92- 9/30/94
John W. Sandho	Secretary-Peshawar	12/01/85- 9/30/88
Khalid Naseer	Secretary	8/05/85- 6/30/91
M. Munir Malik	Secretary	3/29/87- 9/30/94
M. Aqeel Abbasi	Secretary	4/15/90- 9/30/94
Haroon Abassi	Secretary	8/01/91-12/30/91
Farman Ullah	Secretary	1/13/92- 2/18/92
M. Afzal Khan	Secretary	5/03/92- 5/05/94
Muhammad Din	Secretary	5/24/94- 9/30/94
Fahim A. Khan	Chauffeur-Peshawar	11/19/85- 7/13/88
Mohammad Parvez	Chauffeur	6/02/85- 9/30/94
Jamil Ahmad	Chauffeur	1/12/86- 1/31/87
M. Ibarat	Chauffeur	2/01/87-10/21/89
Nazar Shabarti	Chauffeur	10/22/89- 9/30/94
Munir Ahmed	Chauffeur	5/08/88- 9/30/94
Feroze Masih	Janitor	5/27/85- 9/30/94
Masood Alam	Maintenance Engineer	5/27/85- 9/30/94
Muhammad Alam	Gardner	5/27/85- 9/30/94

NGO Grant Unit

Management

Ahmed S. Bokhari	Grant Unit Mgr	6/22/92-9/30/94

Technical Staff

Qasim M. Ahmed	M&E Officer	11/15/92-9/30/94
Farhat Naseer	M&E Officer	12/15/92-9/30/94

Office Staff

Obaid-ur-Rehman	Accountant	10/01/94-9/30/94
Haroon Abassi	Secretary	7/15/92-9/30/94
Ch. Rashid Ahmed	Chauffeur	3/01/93-9/30/94
	Chauffeur	10/01/94-9/30/94
Irfan Masih	Janitor	9/08/92-9/30/94

FORESTRY PLANNING AND DEVELOPMENT PROJECT CONSULTANTS

Consultant	Activity	Period	Person-Months
1985			
None			
1986			
James S. Bethel	Curriculum Specialist	1/29/86- 4/30/86	3.5
E. Lee Medema	Curriculum Specialist	1/29/86- 4/30/86	3.5
Glenn Peterson	Irrigation Specialist	2/28/86- 5/15/86	4.4
George Belt	Curriculum Specialist	3/01/86- 4/26/86	2.1
Peter Felker	Prosopis Specialist	9/18/86-10/09/86	0.9
Carlos Garces	Irrigation Specialist	10/12/86-10/19/86	0.4
1987			
Nancy L. Ruther	U. Conn. Wksp. Trainer	6/19/87- 6/28/87	0.5
Gerard Schreuder	Forest Mgmt Specialist	8/01/87-12/31/87	2.1
Douglas Maguire	Growth & Yield Spec.	9/22/87-11/08/87	2.1
David C. Pearson	Computer Specialist	10/11/87-12/31/87	2.7
1988			
David C. Pearson	Computer Specialist	1/01/88- 2/15/88	1.5
Gerald Schreuder	Forest Mgmt Specialist	1/01/88- 2/29/88	1.7
A. Colin McClung	Report Prep. Spec.	2/13/88- 3/05/88	0.8
Charles R. Hatch	Report Prep. Spec.	2/13/88- 3/05/88	0.7
W.S. Null	Evaluation Specialist	3/09/88- 4/19/88	1.4
Gerald Schreuder	Forest Mgmt Specialist	3/11/88- 3/27/88	0.7
John Gordon	Project Design Spec	4/22/88- 5/10/88	0.8
Jo Ellen Force	Project Design Spec	4/23/88- 5/10/88	0.8
Ms. Roen Repp	Computer Training	7/20/88- 7/21/88	0.1
1989			
Charles Hatch	Management Specialist	2/28/89- 3/30/89	1.2
Gary Naughton	Extension Specialist	3/18/89- 4/16/89	1.1
Peter Felker	Prosopis Specialist	3/25/89- 4/02/89	0.1
Ms. Kay Huth	Editor	4/27/89- 5/11/89	0.2
Jeff Campbell	Tour Leader	11/03/89-11-30/89	0.2
Sarah T. Warren	WID Specialist	12/09/89-12/15/89	0.2
1990			
George E. Slagle	Tractor Specialist	1/18/90- 3/05/90	1.8
Lester A. DeCoster	Tree Farm Specialist	4/27/90- 5/19/90	0.7
Gerald G. Wire	Pulp & Paper Spec	5/08/90- 8/21/90	3.5
Wendell P. Clark	Marketing Specialist	5/09/90- 6/08/90	0.6
Charles W. McKetta	Forest Economist	5/10/90- 8/23/90	1.5
William Beaufait	Research Mgmt Spec	5/14/90- 6/05/90	0.9
T.A. Ansari	Wood Study Consultant	7/01/90- 8/31/90	2.0
G.M. Khattak	Wood Study Consultant	7/01/90- 8/31/90	1.0

Iqbal Sial	Wood Study Consultant	7/01/90- 8/31/90	1.0
Nat. Mgmt. Consult	Wood Study Consultant	7/01/90- 8/31/90	2.0
PFI	Wood Study Consultant	7/01/90- 8/31/90	2.0
Envoforestry	Wood Study Consultant	7/01/90- 9/30/90	3.0
MSJ Res Inst	Wood Study Consultant	7/01/90-10/31/90	4.0
TurkPak Int'l	Wood Study Consultant	7/01/90-10/31/90	4.0
Kenneth McNabb	Research Management	8/28/90- 8/30/90	0.1
Wendell P. Clark	Marketing Specialist	11/01/90-12/22/90	1.7
Joe Zimmer	Comm. Wksp. Prep.	11/05/90-12/18/90	0.6
Melvin Clausen	Comm. Wksp. Prep.	11/21/90-12/05/90	0.1
Nico Marcar(SC)	Soils/Water Log. Wksp.	11/25/90-12/11/90	0.8
1991			
Gerald G. Wire	Pulp & Paper Spec	1/02/91- 5/29/91	1.3
Joe Zimmer	Communications Wksp.	5/01/91- 6/12/91	1.7
Melvin Clausen	Communications Wksp.	5/01/91- 6/12/91	1.6
Doug Richards(SC)	Regeneration Spec.	6/25/91- 7/15/91	0.8
Jo Ellen Force	Land Use Plan. Wksp.	10/04/91-11/26/91	1.1
Debbie Forester	Land Use Plan. Wksp.	10/04/91-11/26/91	1.2
Jack Vozzo(SC)	Seed Tech. Wksp.	10/14/91-11/08/91	0.8
Frank Bonner(SC)	Seed Tech. Wksp.	10/14/91-11/05/91	0.6
Larry Davis	Harvest Sched. Wksp.	11/16/91-12/18/91	1.0
1992			
Mark Behan	Ecology Instructor	1/21/92-11/09/92	6.5
Jack Vozzo (SC)	Intl. Seed Conf.	2/02/92- 2/23/92	1.0
Bill Gladstone	Tree Imp. Plan.	2/23/92- 5/20/92	0.3
Sam Land (SC)	Tree Imp. Plan.	2/24/92- 4/30/92	0.6
Charlie Long	Urban Forestry Train.	5/27/92- 6/24/92	1.2
Houchang Khatamian	Urban Forestry Train.	5/27/92- 6/24/92	1.2
Hans Zuuring	Res. Methods Instructor	5/27/92- 8/13/92	2.7
Gary Archer	GIS Specilist	6/01/92-10/31/92	0.8
Jack Vozzo (SC)	Nat. Seed Conf.	11/06/92-11/27/92	0.8
Charles McKetta	Economics Instructor	11/12/92-12/11/92	1.2
Bill Elam (SC)	Nat. Seed Conf.	11/13/92-11/27/92	0.6
1993			
Burton Swain (SC)	Veneer Slicing Spec.	1/07/93- 2/03/93	1.1
Don Grebner	Project Evaluation	5/26/93- 7/13/93	1.7
Gary G. Naughton	Field Extension Spec	10/01/93-11/15/93	2.0
1994			
Paula Spaine	WID Conf. Speaker	3/24/94- 4/05/94	0.6
Gary G. Naughton	Log Grading Specialist	3/25/94- 4/30/94	1.2
Yet to be ID	GIS Training	8/ /94- 8/ /94	0.4
John De Boer	Close-out Specialist	90/3/94- 9/30/94	0.9

PARTICIPANTS FUNDED FOR DEGREE STUDIES

Completed

M.Sc. Degree

ANSARI, M. Alam	Sindh	Mgmt & Planning	08/27/86	05/22/88
RAFIQ, Mohammad	NWFP	Mgmt & Planning	08/25/86	06/30/88
KHAN, Safdar Ali	PFI	Forestry Outreach	01/19/87	04/30/89
KHAN, Mohammad	PFI	Silviculture	08/26/87	08/31/89
KHAN, Malik M.	Punj	Mgmt & Planning	01/13/88	01/12/90
SUBHAN, Fazali	PFI	Mgmt & Planning	01/13/88	05/31/90
JAMIL, Abdul	NWFP	Budget/Res Mgmt	01/11/89	01/31/91
ALI, Shaukat	NWFP	Forestry Outreach	01/02/89	03/31/91
KEERIO, Ghulam R.	Sindh	Forest Mgmt	08/27/89	08/26/91
LEKHRAJ, Kella	Sindh	Forestry-Outreach	09/18/89	09/30/91
VIRK, Amjad T.	Baloch	Wildlife	09/20/89	12/19/91
IQBAL, Mohammad	NA	Silviculture	09/01/88	12/23/92
FAROOQ, Muhammad	Punj	Social Forestry	01/07/91	01/06/93
MOHAMMAD, Taj	Baloch	Economics	05/28/91	08/15/93
AHMAD, Manzoor	Baloch	Forest Mgmt	08/22/91	08/21/93
CHIMA, Amjad M.	Punj	Forestry Extn	09/09/91	09/08/93
MEHMOOD, Tariq	Punj	Forest Econ	01/14/92	09/17/93
AWAN, Shahid R.	Punj	Forestry Extn	01/21/92	09/17/93
VISTRO, Najmuddin	Sindh	Econ Farm For	01/14/92	09/17/93
LAEEQ, M. Tahir	PFI	Silviculture	08/28/91	09/30/93
KHAN, Mohammad S.	NWFP	Research	09/22/91	10/31/93
SULEMAN, Kanwar M.	PFI	Pulp & Paper	01/10/92	12/31/93

Ph.D Degree Coursework

VIRK, Amjad T.	Baloch	Wildlife	12/20/91	05/31/93

Ph.D Degree

KEERIO, Ghulam R.	Sindh	Agroforestry	05/30/93	12/22/93

In-Training

Ph.D Degree

EJAZ, Babar	Punj	Mgmt & Planning	01/23/90	07/22/93

M.Sc. Degree

KHAN, Gul M.	NWFP	Res Economics	08/16/92	08/15/94
MOHAMMAD, Syed G.	Baloch	Silviculture	08/16/92	08/15/94
BAKHSH, Ilahi M.	PFI	Silviculture	08/24/92	08/01/94
HUSSAIN, Zameer	Punj	Silviculture	08/27/92	08/26/94

PARTICIPANTS FUNDED FOR OVERSEAS SHORT-TERM TRAINING

Special Short-term Courses

BHATTI, Sanaullah	Punj	Proj Eval-UC	09/24/86	12/09/86
KHARAL, A.R.	Sindh	Proj Eval-UC	09/24/86	12/09/86
KUNAIN, S. M.	NWFP	Proj Eval-UC	09/24/86	12/09/86
REHMAN, Shah	Baloch	Proj Eval-UC	09/24/86	12/09/86
SHAMIM, Mian M.	Punj	Proj Eval-UC	09/24/86	12/09/86
SURAHIO, Ibrahim	Sindh	Proj Eval-UC	09/24/86	12/09/86
ABRO, Ali Asghar	Sinch	Proj Eval-UI	05/22/89	06/30/89
AHMAD, Mian M.	Punj	Proj Eval-UI	05/22/89	06/30/89
AHSAN, Javed A.	Punj	Proj Eval-UI	05/22/89	06/30/89
ARSHAD, Abdul R.	NWFP	Proj Eval-UI	05/22/89	06/30/89
ASHFAQUE, Raja M.	PFI	Proj Eval-UI	05/22/89	06/30/89
HAYAT, Mohammad	NWFP	Proj Eval-UI	05/22/89	06/30/89
INSHA ULLAH, M.	Punj	Proj Eval-UI	05/22/89	06/30/89
KAZI, Ashfaq	Sindh	Proj Eval-UI	05/22/89	06/30/89
KHALIQ, Ch. Abdul	Fed	Proj Eval-UI	05/22/89	06/30/89
KHAN, Mohammad I.	NWFP	Proj Eval-UI	05/22/89	06/30/89
KHAN, Mumtaz	NWFP	Proj Eval-UI	05/22/89	06/30/89
KHARAL, A.R.	Sindh	Proj Eval-UI	05/22/89	06/30/89
MEMON, M. Yousaf	Sindh	Proj Eval-UI	05/22/89	06/30/89
MEMON, Shamsul H.	Sindh	Proj Eval-UI	05/22/89	06/30/89
QAYUM, Abdul	NWFP	Proj Eval-UI	05/22/89	06/30/89
RAFIQ, Muhammad	Baloch	Proj Eval-UI	05/22/89	06/30/89
SHAH, Bashir H	Fed	Proj Eval-UI	05/22/89	06/30/89
SHAH, Mubarik H.	NWFP	Proj Eval-UI	05/22/89	06/30/89

Workshops/Short Courses

CHAUDHRY, S. Ali	Punj	OICD-Res Mgmt	07/28/86	09/05/86
KHAN, Mirza Hakim	PFI	OICD-Res Mgmt	07/28/86	09/05/86
REHMAN, Shams-ur	PFI	NCSU-Forestry	10/12/86	10/22/86
CHEEMA, M. Afzal	FPI	OICD-LU Plan	06/15/87	07/24/87
BALOCH, M. Anwar	Sindh	OICD-Wtr Mgmt	06/15/87	08/07/87
SHAH, Ehtesham H.	Sindh	OICD-Wtr Mgmt	06/15/87	08/07/87
RANDHAWA, Rashid	Punj	OICD-Arid For	07/20/87	08/14/87
REHMAN, Shams-ur	PFI	OICD-Arid For	07/20/87	08/14/87
SALEEM, Mohammad	Punj	OICD-Arid For	07/20/87	08/14/87
KHAN, Akhlaq Ahmed	Punj	OICD-Proj Mgmt	09/21/87	10/30/87
SHEIKH, Ghulam M.	Sindh	UW-Forestry	02/29/88	03/30/88

AHMED, Rana Rafiq	Fed	OICD-Gen Mgmt	05/30/88	07/01/88
AZIZ, Nasrullah K.	Fed	OICD-Agric Dev	06/06/88	07/15/88
CHIMA, Amjad M.	Punj	OICD-Agri Res	05/30/88	07/15/88
SHAH, Qasim Ali	PFI	OICD-Micro Comp	06/27/88	08/05/88
ZAFARULLAH, M.	Punj	OICD-Res Mgmt	06/06/88	08/12/88
BANGASH, Amanullah	NWFP	OICD-Proj Mgmt	07/18/88	08/26/88
MEMON, Abdul Aziz	Sindh	OICD-Proj Mgmt	07/18/88	08/26/88
SIDDIQUI, Khalid	PFI	OICD-Proj Mgmt	07/18/88	08/26/88
AHMED, Tanver	PFI	OICD-Mgmt/Plan	07/18/88	08/26/88
RANI, M. Ataullah	Punj	OICD-Proj Mgmt	08/08/88	09/16/88
WANI, Bashir Ahmed	Fed	OICD-LU Plan	06/12/89	07/21/89
AHMAD, Manzoor	Baloch	OICD-Ran Mgmt	06/05/89	08/04/89
ALAM, Mian Maqsood	Punj	OICD-Ran Mgmt	06/05/89	08/04/89
BAZAI, Akhtar M.	Baloch	OICD-Ran Mgmt	06/05/89	08/04/89
ABDUL, Ali	Baloch	OICD-Arid For	07/17/89	08/11/89
AHMAD, Rana Rafiq	Fed	OICD-Arid For	07/17/89	08/11/89
AZIZ, Nasrullah K.	Fed	OICD-Arid For	07/17/89	08/11/89
AMIN, Mohammad	Punj	OICD-Trn Trn	08/07/89	09/15/89
BHATTI, Abdul H.	Sindh	OICD-Trn Trn	08/07/89	09/15/89
SULEHRIA, M. S.	Punj	OICD-Trn Trn	08/07/89	09/15/89
REHMAN, Wali-Ur	PFI	Pest Control	06/19/90	07/13/90
AHMAD, Ghiasuddin	Baloch	OICD-Proj Impl	07/16/90	08/24/90
RANDHAWA, Rashid	Punj	OICD-Proj Impl	07/16/90	08/24/90
MALIK, Nazir Ahmad	Punj	OICD-Trn Trn	08/06/90	09/14/90
MUHAMMAD, Ali	Punj	OICD-AF Extn	08/13/90	09/15/90
RAZA, Ali	Fed	OICD-AF Extn	08/13/90	09/15/90
WANI, Bashir Ahmed	Fed	OICD-AF Extn	08/13/90	09/15/90
AHMED, Imtiaz	Fed	OICD-Agr Stat	09/10/90	10/19/90
CHEEMA, M. Afzal	PFI	OICD-Agr Stat	09/10/90	10/19/90
BHUTTO, M. Ramzan	Sindh	OICD-Ag Extn	08/27/90	10/26/90
RAJPAR, Anwar Ali	Sindh	OICD-Ag Extn	08/27/90	10/26/90
SOOMRO, Abdul M.	Sindh	OICD-Ag Extn	08/27/90	10/26/90
AHMAD, Rana Rafiq	Fed	OICD-Intg Dev	09/17/90	10/26/90
CHAUDHRY, M. Afzal	Punj	OICD-Intg Dev	09/17/90	10/26/90

KHAN, Shah Wazir	NWFP	OICD-Intg Dev	09/17/90	10/26/90
REHMAN, Shams-ur	PFI	OICD-Intg Dev	09/17/90	10/26/90
ASHRAFF, Qazi M.	NWFP	OICD-AF Extn	05/13/91	06/14/91
HAQ, Noor ul	NWFP	OICD-AF Extn	05/13/91	06/14/91
KHAN, Hafeezullah	Punj	OICD-AF Extn	05/13/91	06/14/91
MALIK, Mohammad N.	Punj	OICD-AF Extn	05/13/91	06/14/91
KUNAIN, S. M.	NWFP	OICD-Mgmt Skill	05/27/91	06/28/91
RANA, Mohammad M.	NWFP	OICD-Mgmt Skill	05/27/91	06/28/91
AYAZ, Mohammad	PFI	OICD-LU Plan	06/24/91	08/02/91
MUHAMMAD, M. W.	WI	OICD-LU Plan	06/24/91	08/02/91
HABIBULLAH	Baloch	OICD-Arid For	07/15/91	08/09/91
KHAN, Akhtar Saeed	Punj	OICD-Agro Ext	05/11/92	06/12/92
KHAN, F. Ur Rehman	NWFP	OICD-LU Plan	06/08/92	07/17/92
MARJAN, Ghazi	NWFP	OICD-LU Plan	06/08/92	07/17/92
AHMED, Aftab	Punj	OICD-LU Plan	06/08/92	07/17/92
ALI, Qazi Abdul	Baloch	OICD-FSRE	07/06/92	08/07/92
KHAN, Anwar Ahmed	PFI	OICD-FSRE	07/06/92	08/07/92
WANI, Bashir Ahmed	Fed	OICD-Ag Extn	06/22/92	08/14/92
AHMED, Imtiaz	Fed	OICD-Micro Comp	07/06/92	08/14/92
KHAN, Raja A.	Punj	MSU-Seed Tech	06/17/92	08/31/92
KHAN, Mohammad	PFI	MSU-Seed Tech	06/17/92	08/31/92
SULEHRIA, M. S.	Punj	OICD-Adv Trn Trn	09/21/92	10/16/92
SWATI, M. Iqbal	NWFP	UW/USFS-For Mgmt	08/31/92	10/24/92
KHAN, Yar Mohammad	NWFP	USDA GS-Proj Mgmt	03/01/93	04/02/93
SIRHINDI, B.	Sindh	OICD-Proj Mgmt	05/31/93	07/09/93
AHMAD, Rana Rafiq	Fed	UT-Sus Nat Res	06/27/93	07/23/93
KHAN, Ali Akbar	NWFP	UT-Sus Nat Res	06/27/93	07/23/93
NAZIR, Ch. Tariq	Fed	UT-Sus Nat Res	06/27/93	07/23/93
SHEIKH, Ghulam M.	Sindh	UT-Sus Nat Res	06/27/93	07/23/93
BALOCH, Abdul R.	Baloch	OICD-Res Mgmt	06/21/93	07/30/93
MEMON, Shamsul H.	Sindh	OICD-Sus Devel	06/28/93	08/06/93
ABBASI, Raja M. Z.	Punj	OICD-Ag Extn	06/21/93	08/12/93
SAMIULLAH	NWFP	OICD-Ag Extn	06/21/93	08/12/93

IQBAL, Zafar	Punj	OICD-FSRE	07/06/93	08/06/93
KHAN, Inam Ullah	Baloch	OICD-FSRE	07/06/93	08/06/93
SHAH, S. Ijaz H.	Fed	OICD-Agr Stat	09/07/93	10/15/93

Study Tours

ASHRAF, Ch. M.	Punj	US Forestry	06/15/86	07/02/86
JAN, Abeedullah	NWFP	US Forestry	06/15/86	07/02/86
QAZI, I.A.	Fed	US Forestry	06/15/86	07/02/86
RAFIQ, Mohammad	Baloch	US Forestry	06/15/86	07/02/86
KHAN, A.R.	NWFP	UM-For Mgmt	09/30/86	10/24/86
ABBAS, Sardar G.*	Punj	Thai,Phil,Nep	06/28/87	07/19/87
AHSANULLAH*	NWFP	Thai,Phil,Nep	06/28/87	07/19/87
HUSSAIN, Ajmal*	Punj	Thai,Phil,Nep	06/28/87	07/19/87
JAMALI, Ali H.*	Baloch	Thai,Phil,Nep	06/28/87	07/19/87
KHEL, S. M.*	NWFP	Thai,Phil,Nep	06/28/87	07/19/87
LALEKA, M. A. Ali*	Punj	Thai,Phil,Nep	06/28/87	07/19/87
AHMED, Lal Fazal	Sindh	Thai,Phil,Nep	06/28/87	07/19/87
ASHRAF, Qazi M.	NWFP	Thai,Phil,Nep	06/28/87	07/19/87
HABIBULLAH	Baloch	Thai,Phil,Nep	06/28/87	07/19/87
MASRUR, Anwar	Punj	Thai,Phil,Nep	06/28/87	07/19/87
SHAH, Abdul S. H.	Fed	Thai,Phil,Nep	06/28/87	07/19/87

NOTE: * - Farmers

KHAN, G.-ur-Rehman	NWFP	UM-For Mgmt	10/02/87	10/28/87
KHANZADA, S.K.	Punj	UM-For Mgmt	10/02/87	10/28/87
RAFIQ, Mohammad	Baloch	UM-For Mgmt	10/02/87	10/28/87
AHMAD, Ashiq	PFI	Thai/Malay/Ken	10/08/88	11/04/88
CHAUDHRY, M. Afzal	Punj	Thai/Malay/Ken	10/08/88	11/04/88
HAQ, Afzal	Sindh	Thai/Malay/Ken	10/08/88	11/04/88
HUSSAIN, Raja W.	PFI	Thai/Malay/Ken	10/08/88	11/04/88
KHAN, Saliheen	PFI	Thai/Malay/Ken	10/08/88	11/04/88
REHMAN, Maqbool-ur	NWFP	Thai/Malay/Ken	10/08/88	11/04/88
REHMAN, Shams-ur	PFI	Thai/Malay/Ken	10/08/88	11/04/88
SHAH, A. Sattar H.	Fed	Thai/Malay/Ken	10/08/88	11/04/88
HUSSAIN, Raja W.	PFI	UM-For Mgmt	09/17/89	10/11/89
NAEEM, Taj M.	Baloch	UM-For Mgmt	09/17/89	10/11/89
AHMAD, Farid Uddin	Punj	Miss St For Tour	09/25/90	10/02/90
QAZI, I.A.	PP	UM-For Mgmt	09/13/92	10/06/92
JAH, Asif	PFI	UM-For Mgmt	09/13/92	10/06/92

Special Conferences

RAZA UL HAQ, Haji	PFI	World For Congr	09/07/86	09/21/86
JAN, Abeedullah	Fed	IUFRO Congr	08/04/90	08/17/90
KHAN, Yar Muhammad	NWFP	World For Congr	09/15/91	10/03/91
MASRUR, Anwar	Punj	World For Congr	09/15/91	10/03/91
SIDDIQUI, K. M.	PFI	World For Congr	09/15/91	10/03/91
SIDDIQUI, K. M.	PFI	Int'l Poplar Comm	09/22/92	10/03/92
JAVID, Zahid	Punj	Int'l Poplar Comm	09/22/92	10/03/92
WANI, Bashir Ahmed	Fed	F/FRED Mkt Sem	12/05/93	12/10/93
AZIZ, Nasrullah K.	Fed	F/FRED Mkt Sem	12/05/93	12/10/93

CONSULTANT REPORTS PREPARED BY THE PROJECT

The Economics of Farm and Energy Forestry in Pakistan by Henry Kernan, 1983, Prepared for USAID, 29 p.

Training Needs for Farm Forestry in Pakistan by Christopher Gibbs, 1983, Prepared for USAID, 98 p.

Forest Plantation Irrigation and Riverine Forests by Paul H. Kirshen, 1983, Prepared for USAID, 45 p.

A Recommended M.Sc. Forestry Curriculum - Farm and Energy Forestry by James S. Bethel, George Belt and Lee Medema, 1986, 152 p.

Irrigation and Land-leveling in the Penah Forest of Sind by Glenn Peterson, 1986, 105 p.

Midterm Evaluation by T.M. Catterson, Hameed Ahmad, K.J. Byrnes and J. Hoffman, 1987, Prepared by Associates in Rural Development, Inc. for USAID, 73 p.

Phase II Technical Feasibility Report by George H. Belt, 1987, Prepared by Ronco Consulting Corporation for USAID.

Extension of the Forestry Planning and Development Project - Ministries Support and Research/Training Facilities Needs by George Belt, Gerald Schreuder and A.S. Bokhari, 1987, Prepared by Ronco Consulting Corp. for USAID, 45 p.

Extension of the Forestry Planning and Development Project - Integrated Forestry/Watershed Demonstration by Gerald Schreuder and A.S. Bokhari, 1987, Prepared by Ronco Consulting Corp. for USAID, 32 p.

Extension of the Forestry Planning and Development Project - Social Feasibility Issues by Carol Carpenter and Riffat Sardar, 1987, Prepared by Ronco Consulting Corp. for USAID, 54 p.

IPS International Training Trip Report by Nancy L. Ruther, 1987, Prepared by University of Connecticut, 7 p.

Recommendations for Development of Prosopis in Pakistan including a supplement on Prosopis Weed Control, Influence on Grass Species Composition, Pod Feeding Values and Taxonomy in Pakistan by Peter Felker, 1987 (supplement 1989), 19 p. plus 17 p. supplement.

Computer Installation and Training Consultancy by David C. Pearson, 1988, 2 p.

HYMNS - Hury Yield Model and Economic Synthesis by Douglas A. Maguire, Gerald F. Schreuder, David G. Briggs and Mustafa Shaikh, 1988, 45 p.

Pakistan Tree Seed Center by Franklin T. Bonner, 1988, Prepared by USDA Forest Service and F/FRED for USAID, 18 p. plus appendices.

Guidelines for Report Preparation by A. Colin McClung and Charles R. Hatch, 1988, 50 p.

Evaluation of Project Field Operations by W.S. Null, 1988, 44 p.

Phase II Technical Assistance Re-Design and Suggested Contract Amendment by David Daugherty, John Gordon and Jo Ellen Force, 1988, 76 p.

Formulation of a Scope of Work for a Consultancy to Develop a Women's Strategy for the Forestry Planning and Development Project by Sarah T. Warren, 1989, 6 p.

Tractor Operation and Training by George E. Slagle, 1990, 4 p.

Communicating to Yield Multiple Benefits to Pakistanis by Lester A. DeCoster, 1990, 8 p.

Forestry Research, Education and Training by William R. Beaufait, 1990, 8 p.

A Study of Tree Farm Wood Utilization for Wood Pulp Production in Pakistan by Gerald G. Wire, 1990, 28 p. plus exhibits and appendices.

Agroforestry Investment Analysis in Pakistan: The Private Farm Tree Planting Decision by Charles W. McKetta, 1990, 39 p.

Marketing Farm Produced Timber in Pakistan by Wendell P. Clark, 1990, 99 p. plus appendices.

Consumption of Wood in the Chipboard/Particle Board and Hardboard Industries of Pakistan by National Management Consultants, 1990, 39 p. plus annexures.

A Survey of the Pulp and Paper Industry in Pakistan by T. A. Ansari, 1990, 73 p. plus annexures.

Wood Consumption in the Flue-Cured Virginia Tobacco Industry in Pakistan by G.M. Khattak and Mohammad Iqbal, 1990, 43 p. plus appendices.

Wood Consumption Survey of the Railway Industry in Pakistan by Envoforestry (Pvt) Limited, 1990, 41 p. plus annexures.

Wood Use in the Match Industry of Pakistan by K.M. Siddiqui and Saliheen Khan, 1991, 21 p. plus appendices.

Wood Use in the Plywood Industry of Pakistan by K.M. Siddiqui and Saliheen Khan, 1991, 27 p. plus appendices.

Wood Use in the Mining Industry of Pakistan by Turkpak International (Pvt) Limited, 1991, 68 p.

A Study of Wood Yards in Pakistan by Turkpak International (Pvt) Limited, 1991, 49 p.

Wood Use in the Brick Kiln Industry of Pakistan by Turkpak International (Pvt) Limited, 1991, 50 p.

A Survey of the Sawmilling/Crate/Box Making Industry in Pakistan by MSJ Research Institute, 1991, 54 p. plus annexures.

A Survey of the Furniture Industry in Pakistan by MSJ Research Institute, 1991, 56 p. plus annexures.

A Survey of the Truck & Bus Body, Tractor Trolley and Boat Building Industry in Pakistan by MSJ Research Institute, 1991, 59 p. plus annexures.

A Wood Use Overview of the Sawmilling/Crate/Box Making; Truck & Bus Body, Tractor Trolley and Boat Building; and Furniture Industries of Pakistan by MSJ Research Institute, 1991, 17 p.

Wood Use in the Sports Equipment Industry by Envoforestry (Pvt) Limited, 1991, 35 p. plus annexures.

Training Report for the Workshop on Management of Trees on Saline, Sodic and Waterlogged Soils by Nico Marcar, 1991, 4 p. plus appendices.

Pulp & Paper Making from Tree Farm Grown Eucalyptus camaldulensis at Adamjee Paper & Board Mills Ltd., Nowshera, Pakistan by Gerald G. Wire, 1991, 28 p. plus appendices.

Training Report for the Workshops on Interpersonal and Communication Skills in Natural Resources by M.J. Zimmer and M.D. Clausen, 1991, Prepared by Zimmer & Associates, 11 p. plus appendices.

A Plan of Work for Technical Training in Tree Improvement Tree Seed Technology and Nursery Technology by Douglas P. Richards, 1991, 25 p. plus appendices.

Midterm Evaluation by M. Stevens, P. Hammett, D. Minnick, B. Mitchie and K.G. Yasin, 1991, Prepared by Tropical Research & Development, Inc. for USAID, 172 p.

Training Report for the Workshop on Forest Seed Technology by Frank Bonner and John A. Vozzo, 1991, 10 p. plus appendices.

Training Report for the Workshop on Land Use Planning Methodologies in Social Forestry by Jo Ellen Force and Deborah Forester, 1991, 9 p. plus appendices.

Training Report for the Workshop on Advanced Quantitative Forest Management by Lawrence S. Davis, 1992, 11 p.

Enhancing the Potential of Pakistan Forest Tree Seeds by J.A. Vozzo, 1992, 7 p. plus appendices.

Remarks for a National Plan of Action on Tree Improvement as part of a Pakistan National Tree Seed Technology and Improvement Conference by S.B. Land, Jr and W.T. Gladstone, 1992, 22 p.

Arborist Training and Urban Environmental Management by Charles E. Long and Houchang Khatamian, 1992, 11 p.

Training Report for Instruction and Workshops on Research Methods by Hans Zuuring, 1992, 12 p.

Recommendations on Geographic Information System Facilities for the Pakistan Forest Institute, Peshawar, Pakistan by G.R. Archer, 1992, 15 p.

Report on Forest Ecology Teaching Consultancy by Mark Behan, 1992, 16 p.

National Workshop on Seed Technology by William Elam and J.A. Vozzo, 1992, 5 p. plus appendices.

Report on Forest Economics and Management Teaching Consultancy by Charles W. McKetta, 1992, 6 p.

NGO Management by Richard Bottger, 1993, 10 p.

Veneer Slicing Consultancy by B.F. (Ted) Swain, 1993, Prepared by International Executive Service Corps, 2 p.

Review of Forestry Planning and Development Project by Donald L. Grebner, 1993, 27 p. plus appendices.

Farmer-Market Linkages for Forest Products by Gary G. Naughton, 1993, 21 p.

Forest Extension/Outreach with Emphasis on Log Grading Rules by Gary G. Naughton, 1994, 12 p. plus appendices.

BREAKDOWN OF CONSTRUCTION

LOCATION	TYPE	QUANTITY	UNIT COST (U.S. $)	TOTAL COST (U.S. $)
Pakistan Forest Institute	Men's Hostel	1	260,000	260,000
	Women's Hostel	1	160,000	160,000
	Upgrade for Women Students	N/A	75,000	75,000
Punjab	Conservators' Office	1	75,000	75,000
	DFO's Office	4	50,000	200,000
	RFO's Office	11	25,500	280,500
	Nursery Huts	11	18,500	203,500
	Nurseries	39	1,000	39,000
	Training Facility	1	100,000	100,000
	Research Center Upgrade	1	100,000	100,000
	Soil Conservation	2500 acres	395	987,500
NWFP	DFO's Office	1	50,000	50,000
	RFO's Office	3	25,500	75,500
	Nursery Huts	3	18,500	55,500
	Nurseries	30	1,000	30,000
	Training Facility	1	100,000	100,000
	Research Center Upgrade	1	100,000	100,000
	Soil Conservation	2500 acres	395	987,500
Balochistan	DFO's Office	1	50,000	50,000
	RFO's Office	3	25,500	75,500
	Nursery Huts	3	18,500	55,500
	Nurseries	30	1,000	30,000
	Training Facility	1	100,000	100,000
	Research Center Upgrade	1	100,000	100,000
	Soil Conservation	800 acres	395	316,000
Sindh				
A. Farm Forestry	DFO's Office	1	50,000	50,000
	RFO's Office	2	25,500	51,000
	Nursery Huts	3	18,500	55,500
	Nurseries	38	1,000	38,000
	Training Facility	1	100,000	100,000
	Research Center Upgrade	1	100,000	100,000
	Soil Conservation	1200 acres	395	474,000
B. Government Land	Forest Minor	3 miles	100,000	300,000
	Irrigation System *	5000 acres	160	800,000
			TOTAL COST:	$6,474,500

- Irrigation system includes the per acre costs of land leveling, installing distribution canals; does not include cost of planting trees.

NGO GRANTS BY TYPE AND PROVINCE

	TYPE OF GRANT											
	Seedling Production		Environmental Awareness		Biodiversity		Institutional Capacity		Training		Total	
COMPLETED GRANTS	No.	US $	No.	US $	No.	US $	No.	US $	No.	US $	No.	US $
Punjab	21	125,000	2	5,402	0	0	3	12,600	1	2,049	27	145,051
Sindh	9	37,035	1	3,448	0	0	1	13,257	2	4,350	13	58,090
Balochistan	1	7,208	0	0	2	36,992	0	0	0	0	3	44,200
NWFP	4	48,258	1	14,190	0	0	0	0	1	1,982	6	64,430
AJ&K	1	6,839	1	2,561	0	0	0	0	0	0	2	9,400
Islamabad	4	29,080	5	58,741	0	0	2	21,175	0	0	11	108,996
Federal	0	0	1	8,188	2	17,827	1	5,294	0	0	4	31,309
Subtotal	40	253,420	11	92,530	4	54,819	7	52,326	4	8,381	66	461,476
EXPENDITURES UNDER TERMINATED/CANCELLED GRANTS												
Punjab	1	7,992	0	0	0	0	0	0	0	0	1	7,992
Sindh	1	977	0	0	0	0	0	0	0	0	1	977
Balochistan	0	0	0	0	0	0	0	0	0	0	0	0
NWFP	0	0	0	0	0	0	0	0	0	0	0	0
AJ&K	0	0	0	0	0	0	0	0	0	0	0	0
Islamabad	0	0	2	22,142	0	0	1	0	0	0	3	22,142
Federal	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	2	8,969	2	22,142	0	0	1	0	0	0	5	31,111
TOTAL GRANTS												
Punjab	22	132,992	2	5,402	0	0	3	12,600	1	2,049	28	153,043
Sindh	10	38,012	1	3,448	0	0	1	13,257	2	4,350	14	59,067
Balochistan	1	7,208	0	0	2	36,992	0	0	0	0	3	44,200
NWFP	4	48,258	1	14,190	0	0	0	0	1	1,982	6	64,430
AJ&K	1	6,839	1	2,561	0	0	0	0	0	0	2	9,400
Islamabad	4	29,080	7	80,883	0	0	3	21,175	0	0	14	131,138
Federal	0	0	1	8,188	2	17,827	1	5,294	0	0	4	31,309
Total	42	262,389	13	114,672	4	54,819	8	52,326	4	8,381	71	492,587

WOOD USE STUDIES UNDERTAKEN BY THE PROJECT

A Study of Tree Farm Wood Utilization for Wood Pulp Production in Pakistan. 1990. Consultant Report by Gerald G. Wire.

Marketing Farm Produced Timber in Pakistan. 1990. Consultant Report by Wendell P. Clark.

The Wood Shortage in Pakistan: Hypothetical Contradictions. 1990. Analytical Study by Charles W. McKetta.

Consumption of Wood in the Chipboard/Particle Board and Hardboard Industries of Pakistan. 1990. Consultant Report by National Management Consultants.

A Survey of the Pulp and Paper Industry in Pakistan. 1990. Consultant Report by T. A. Ansari.

Wood Consumption in the Flue-Cured Virginia Tobacco Industry in Pakistan. 1990. Consultant Report by G.M. Khattak and Mohammad Iqbal.

Wood Consumption Survey of the Railway Industry in Pakistan. 1990. Consultant Report by Envoforestry (Pvt) Limited.

Wood Use in the Match Industry of Pakistan. 1991. Consultant Report by K.M. Siddiqui and Saliheen Khan.

Wood Use in the Plywood Industry of Pakistan. 1991. Consultant Report by K.M. Siddiqui and Saliheen Khan.

Wood Use in the Mining Industry of Pakistan. 1991. Consultant Report by Turkpak International (Pvt) Limited.

A Study of Wood Yards in Pakistan. 1991. Consultant Report by Turkpak International (Pvt) Limited.

Wood Use in the Brick Kiln Industry of Pakistan. 1991. Consultant Report by Turkpak International (Pvt) Limited.

A Survey of the Sawmilling/Crate/Box Making Industry in Pakistan. 1991. Consultant Report by MSJ Research Institute.

A Survey of the Furniture Industry in Pakistan. 1991. Consultant Report by MSJ Research Institute.

A Survey of the Truck & Bus Body, Tractor Trolley and Boat Building Industry in Pakistan. 1991. Consultant Report by MSJ Research Institute.

A Wood Use Overview of the Sawmilling/Crate/Box Making; Truck & Bus Body, Tractor Trolley and Boat Building; and Furniture Industries of Pakistan. 1991. Consultant Report by MSJ Research Institute.

Wood Use in the Sports Equipment Industry. 1991. Consultant Report by Envoforestry (Pvt) Limited.

Pulp & Paper Making from Tree Farm Grown Eucalyptus camaldulensis at Adamjee Paper & Board Mills Ltd., Nowshera, Pakistan. 1991. Consultant Report by Gerald G. Wire.

Veneer Slicing Consultancy. 1993. Consultant Report by B.F. (Ted) Swain.

Forest Extension/Outreach with Emphasis on Log Grading Rules. 1994. Consultant Report by Gary G. Naughton.

TRAINING MATERIALS PREPARED BY THE PROJECT

Books

Jan, A.U. 1993. Review and Analysis of Forest Policies of Pakistan (English). Pictorial Printers, Islamabad, 146 p.

Jan, A.U. 1993. Fundamentals of Photointerpretation and Photogrammetry (English). Pictorial Printers, Islamabad, 103 p.

Sheikh, M.I. 1993. Trees of Pakistan (English). Pictorial Printers, Islamabad, 142 p.

Jan, A.U. 1993. Forest Policy Administration and Management in Pakistan (English). Pictorial Printers, Islamabad, 193 p.

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