THIRD PARTY MONITORING OF BILLION TREES TSUNAMI AFFORESTATION PROJECT IN KHYBER PAKHTUNKHWA

Monitoring conducted by:

WWF-Pakistan

January 2016

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Report prepared by:

1. Muhammad Ibrahim Khan, Senior Manager Conservation, WWF-Pakistan, Team Leader (Lead author)
2. Dr. Bashir Hussain Shah, Watershed Management and Slope Stabilization Specialist (Contributing author)
3. Iqbal Muhammad, Forest engineer and livelihoods expert Contributing author)
4. Syed Kamran Hussain, Research Coordinator WWF-Pakistan Peshawar, (Contributing author)
5. Muhammad Waseem, Project Coordinator WWF-Pakistan Galiat, (Contributing author)
6. Shafique Ullah Khan, Senior Project Officer WWF-Pakistan Chitral, (Contributing author)
7. Haleema Saad, Forest Field Monitor, WWF-Pakistan KPK Region (Contributing author)
8. Gul Rukh, Field Monitor, WWF-Pakistan KPK Region (Contributing author)
9. Malik Mudassar Ahmed, Field Monitor, WWF-Pakistan KPK Region (Contributing author)

TABLE OF CONTENTS

LIST OF ABBREVIATIONS

AT	Agror Tanawal
BTTAP	Billion Trees Tsunami Afforestation Project
CCF	Chief Conservator Forest
CDE&GAD	Community Development, Extension & Gender & Development
CF	Conservator Forest
cft	Cubic feet
D I Khan	Dera Ismial Khan
DFO	Divisional Forest Officer
FD	Forest Department
FGDs	Focused Group Discussions
FP&M	Forest Planning & Monitoring
ft	Feet
GIS	Geographic Information Systems
GPS	Global Positioning System
ha	Hectare
I&HRD	Institutional and Human Resource Development
JFMCs	Joint Forest Management Committees
KIIs	Key Informants Interviews
KPK	Khyber Pakhtunkhwa
LPG	Liquid Petroleum Gas
m	Meter
MAPs	Medicinal Plants
NGO	Non-Government Organization
NTFPs	Non Timber Forest Products
PSC	Project steering Committee
rft	Running feet
RND	Research and Development
RS	Remote Sensing
SDFO	Sub-divisional Forest Officer
sft	Square feet
TORs	Terms of reference
UNDP	United Nations Development Programme
VDCs	Village Development Committee
WWF-Pakistan	World Wide Fund for Nature-Pakistan

EXECUTIVE SUMMARY

The "Billion Trees Tsunami Afforestation Project in Khyber Pakhtunkhwa" shortly called as the BTTAP is aimed at planning, designing, commencing and implementing "Green Growth Initiative" in the Forestry Sector of Khyber Pakhtunkhwa Province. The project is being implemented by the Khyber Pakhtunkhwa Forest Department in the entire province through its three forest regions i.e. Southern and Central region, Malakand region and Hazara region. Hazara region also includes the Watershed Management Circle. The project has been split into two phases i.e. Phase 1 with a total cost of Rs 1912.0 million has been implemented during 2014-15, while Phase 2 with a total cost of Rs12422.72 million will be implemented during 2015-2017.

To ensure transparency, quality, and effective and judicious utilization of development funds, WWF-Pakistan has been assigned to carry out independent monitoring of the BTTAP project interventions. This assignment consists of two parts i.e. 1) training of the GIS staff of the planning and monitoring unit and 2) field monitoring of the interventions carried out in 28 territorial and watershed divisions of the KPK FD covering 50% of the implemented activities except farm forestry, which is 10%.

In order to ensure unbiased and effective monitoring a combination of various approaches and tools was employed during this assignment. These were aimed at collection of required quantitative and qualitative data as well as triangulation of collected information. These tools included desk review of secondary information, Key Informants Interviews (KIIs), Focused Group Discussions (FGDs) with project staff and beneficiaries, and detailed field surveys. For field surveys a combination of systematic random sampling technique was applied. A monitoring team of 18 professionals consisting of foresters, environmentalists, GIS experts and social scientists was launched to carry out this monitoring.

By August 2015 a total 238.71 hectare of central model nurseries had been established. Out of the 238 ha nurseries 132 were monitored. In tube nurseries a total of 49.95 million seedlings were verified. With an overall survival rate of 83% in total 41.41 million seedlings were successful while 26 million were ready for planting. In bare rooted nurseries the total verified planting stock was 10.94 million. With over 72% survival rate the net survived planting stock was 9.23 million out of which 1.854 million were ready for planting. In departmental tube nurseries more than 34 species had been raised in tube nurseries with eucalyptus 33.31%, Chir pine 30.78% and Phulai 8.43%. Similarly in bare rooted nurseries more than 14 different species have been raised. Major species are Robinia 33.85%, Poplar 29.46%, Ailanthus 11.29%, Bakine 8.21% and Walnut 4.59%.

A total of 2756 units of private nurseries had been established. In private tube nurseries the average number of units per farmer was found to be 3.5 ranging from one to 20 units. One unit consisted of 25,000 plants. Similarly in private bare rooted nurseries the average size was found 1.33 units per farmer ranging from 1 unit to 12 units per farmer. A total of 1339 units were monitored with 87% raised by men and 13% by women. In private potted nurseries the overall survival rate was 73% having 18.15 million survived seedlings out of which 10.41 million (57%) were ready for planting. In private bare rooted nurseries the survival rate was about 78%. Out of the total allocated stock of 7.89 million the net survived stock was 6.58 million out of which 5.47 million (83%) were ready to plant. In private tube

nurseries 28 species have been planted in the private tube nurseries with Eucalyptus 53.74%, Kikar 11.28%, Chir pine 10.07% and Phulai 9.65% as the major species.While in bare rooted nurseries more than 14 different species have been planted with Poplar 46.06%, Robinia 32.42%, Ailanthus 9.43%, Bakine 3.71%, Willow 3.32% and Shisham 1.24% as the major species.

A total of 6758 ha of block plantations and 494 ha of roadsides and canal-side plantations had been carried out till August 2015 out of which 3774 ha of block plantations and 257 ha of linear plantations were monitored. These plantations were 6-10 months old. The average survival rate of block plantations was 86% and while in roads and canal side plantations was 79%. More than 27 different species have been planted in these plantations. Chir pine, Eucalyptus, Robinia, Deodar, Phulai, Ailanthus, Kikar (*A. nilotica*), Shisham and *A*. *farnesiana* are the main species. The block and roadside and canal-side plantations were well according to the set standards and requirements. The areas of the plantations were a bit more than what were claimed. Plant to plant spacing was a bit wider while pit sizes were according to the specification.

The project successfully executed establishment of enclosures for improving natural forests. A total of 411 enclosures had been established out of which 210 enclosures were monitored. Average number of seedlings per hectare of enclosures was found as 2316. Over 13 different indigenous species had been regenerated, which also included some endangered species such as *Taxus walichiana* (Burmi).

Under the farm forestry 6.98 million seedlings had been distributed by the respective forest and watershed divisions benefiting over 30,000 beneficairies.The target had been over achieved by 49%. Out of this a total 0.804 million seedlings were monitored and verified. The overall survival rate was 65% which is quite acceptable keeping in view different priorities and practices of the farmers.

Under the rehabilitation of saline and waterlogged areas a total of 135 ha had been treated against the target of 150 ha out of which 81 ha area was monitored. Suitable species had been planted with an overall survival rate of 72%. Average spacing of plants and pits size were well within the recommended limit. There were no management plans available to deal with such sites. Planting of suitable species in trenches and on mounds had been carried out.

For rehabilitation of landslides and Gallies erosions 178 ha had been treated with engineering and bio-engineering measures mostly in Upper Dir, Swat, Kohat, Gallies, Kaghan and Siran Forest and Kunhar Watershed Divisions. Out of the 178 ha 135.40 ha (75.90%) were monitored. The overall survival rate of brushwood and seedlings was 74%. Eleven types of engineering, bio-engineering and biological measures had been applied for badlands treatment. About 57% of the measures were suitable and relevant according to the selected sites while 86% of the measures had good layout and designs. In general the bioengineering works had been carried out during off season resulting in failure of plants material in these structures. Lack of knowledge and capacity regarding soil bio-engineering works were also noticed mainly in Malakand and Southern Regions.

Regarding watershed management three sites had been planned during Phase-1. Some selected activities mostly engineering and bioengineering structures had been carried out in Manur valley in Kaghan and Balakot village in Kalam forest division. Suitable engineering and bioengineering techniques

had been applied and the success rate of vegetation ranged from was 81% in Manur valley and 50% at Balakot village in Kalam forest division. The low success rate was mainly due to establishing these structures during off season.

A total of 50 ha of Mazri and Kana plantations were planned, which had been achieved. A total of 35 ha Kana plantation and 15 ha Mazri plantation had been carried out in Kohat Forest Division and Bannu Forest Division. Survival rates were excellent both in Kana and Mazri plantations. Plant to plant spacing was according to the standard 10ft by 10ft.

Progress on rangelands improvement and promotion of NTFPs was low. For rangelands improvement only sowing of Alpha Alpha on 25ha had been carried out in Golain valley in Chitral having 90% germination. Similarly under the NTFP promotion only a three days training had been conducted on "MAPs, Honey & Mushroom Production in Gurnai Valley, Bahrain Swat.

Regarding capacity building the HRD unit of the KPK FD had conducted a series of trainings and trained 1641 farmers against the total target of 1900 farmers. These trainings had been conducted after most of the nursery operations were over.

In the light of the findings it is concluded that an excellent effort has been made in achieving the ambitious targets of the BTTAP project. Success stories on 10 best performing individuals have been provided in the report. To encourage them and motivate others it is recommended that these individuals are given special awards. Moreover there is high need for trainings and capacity building of the field staff especially in integrated watershed management, range management, bioengineering techniques and social mobilization. In general it was noticed that the social mobilization process had been given least importance, which needs to be put on the forefront.

Badlands rehabilitation works are very technical and expensive requiring sound skills and proper planning. It is recommended that proper surveys should be conducted and plans comprising of type of treatment, their layout and designs and cost estimation be prepared well before initiation of any works.

An effective coordination and feedback mechanism needs to be established to have feedback from the field staff regarding various interventions of the project. Moreover there is need for developing sustainability and management plans to ensure scientific management of the planted areas.

1 INTRODUCTION AND BACKGROUND

1.1 Introduction to this document

This document presents a detailed picture of the third party monitoring of the BTTAP project conducted from 7th September 2015 to 15th January 2016. The data is presented both in graphic and tabulated forms. For ease of reading and understanding the overall and region wise analysis is given in the main text while detailed information at forest and watershed divisions level are given in the appendices.

The second component of this assignment is the training in GIS based monitoring. A summary of the training is given in the main text while the detailed report is given as a separately attached document and shared with the KPK FD along with this report.

Coordinates and location of activities and interventions monitored are given as Appendix-N.

The monitoring team has also collected information on the best performing individuals during the BTTAP implementation. Summaries of their success stories are also given in the main text. Similarly some selected photographs of the activities are given in the main text while the rest are given in the appendices.

1.2 The Billion Trees Tsunami Afforestation Project

The "Billion Trees Tsunami Afforestation Project in Khyber Pakhtunkhwa" shortly called as the BTTAP is aimed at planning, designing, commencing and implementing "Green Growth Initiative" in the Forestry Sector of Khyber Pakhtunkhwa Province. The project is being implemented by the Khyber Pakhtunkhwa Forest Department in the entire province through its three forest regions i.e. Southern and Central region, Malakand region and Hazara region. Hazara region also includes the Watershed Management Circle. The project has been split into two phases i.e. Phase 1 with a total cost of Rs 1912.0 million has been implemented during 2014-15, while Phase 2 with a total cost of Rs12422.72 million will be implemented during 2015-2017. Major objectives of the project are;

1. Support Khyber Pakhtunkhwa Forest Department, as a catalyst, to plan, design, and launch sustainable development in the Forestry Sector through active involvement of local communities;
2. Rehabilitate and improve existing forest ecosystems of the province through arresting environmental degradation;
3. Enhance forest resource base for livelihood improvement and job creation for rural youth at their door step.

The physical targets set for the Phase-1 of the project are;

- Initiation of closures in designated forests through 650 VDCs on 375000 ha area to improve natural regeneration

- Planting of multi-purpose fast growing tree species on 6000 ha communal and private lands between the natural forests and farmlands through departmental and outsourced planting
- Rehabilitation of three degraded Watersheds
- Reclamation/rehabilitation of 300 ha bad sites through soil and water conservation measures, bioengineering structures and planting of drought resistant species
- Reclamation of 150 ha saline and water logged areas
- Planting over 300 ha along roads, canals and railway tract including motorway
- Improvement of three of sites of rangelands and pastures
- Planting of 3.4 million seedlings under farm forestry and agro-forestry
- Promotion of forest based cottage industries related to Mazri and Kana through planting over 50 ha
- Promotion of NTFPs in one valley
- Collection and storage of 94677 kg seed
- Establishment of 349 ha Central Model Nurseries (departmental nurseries)
- Establishment of 2653 private forest nurseries through youth and women
- Capacity building of 1900 farmers communities and entrepreneurs

The project is executed by the KPK Forest Department through BTTAP project directorate and implemented in 28 forest and watershed divisions of the three forest regions i.e. Central Southern, Malakand and Hazara. The forest and watershed divisions are supported by the specialized units of Forest Planning & Monitoring (FP&M), Community Development, Extension & Gender & Development (CDE&GAD), Non Timber Forest Products (NTFP), Research and Development (R&D) and Institutional and Human Resource Development (I&HRD) for internal monitoring, social mobilization, NTFPs, research and capacity building.

2 TERMS OF REFERENCE AND SCOPE OF MONITORING

To ensure transparency, quality, and effective and judicious utilization of development funds, WWF-Pakistan has been tasked to carry out independent monitoring of the BTTAP project interventions. This assignment consists of two parts i.e. 1) training of the GIS staff of the planning and monitoring unit and 2) field monitoring of the interventions carried out in 28 territorial and watershed divisions of the KPK FD covering 50% of the implemented activities except farm forestry, which is 10%. This assignment is confined only to the targets achieved during phase-1 of the BTTAP project and covers the targets completed by August 2015.

Based on the monitoring results WWF-Pakistan was to provide regular feedback on the progress being made towards achieving the setout objectives including details of effectiveness of the developmental activities in line with key indicators provided by the BTTAP directorate (Appendices-A and B). Initially the

assignment period was three months i.e. from 7 September to 7 December 2015, which later on was extended to 15th of January 2016. WWF-Pakistan was required to provide the monitoring report at the end of the assignment covering the following indicative contents:

- Introduction
- Study methodology
- Outcome of document review
- Outcome of the field investigations
- Unmitigated environmental issues observed during field investigations
- Assessment of contracts/project vis-à-vis Government of Khyber Pakhtunkhwa safeguard policies and national environmental legislation/regulations
- Capacity building needs
- Conclusions and recommendations
- Appendices (photographs, and any other relevant supporting details).

3 A BRIEF INTRODUCTION OF WWF-PAKISTAN

WWF-Pakistan is an autonomous body registered under the Pakistan Societies Act of 1860 and governed by a Board of Governors. Established in 1970, the World Wide Fund for Nature-Pakistan (WWF-Pakistan) is a not-for-profit organization, committed to: the conservation of the country's rich biodiversity; the sustainable use of natural resources; and the promotion of actions to reduce pollution and wasteful exploitation and consumption of resources. WWF-Pakistan is part of the global WWF Network, one of the world's largest and most experienced independent conservation organizations, with active on-the-ground conservation projects in more than a 100 countries.

WWF-Pakistan is currently the largest conservation NGO in Pakistan. With its Head Office in Lahore, 6 regional offices and 25 project site offices, WWF-Pakistan has a presence in all the provincial capitals, as well as outreach in targeted field sites and protected areas through project offices.

Due to its involvement in different aspects of biodiversity, WWF-Pakistan has rich experience in working in different ecosystems and geographical areas. WWF-Pakistan has successfully implemented projects and conducted studies in protecting and expanding forest cover.

4 METHODOLOGY

4.1 Field monitoring methods

In order to ensure unbiased and effective monitoring a combination of various approaches and tools was employed during this assignment. These were aimed at collection of required quantitative and qualitative data as well as triangulation of collected information. These tools included desk review of secondary information, Key Informants Interviews (KIIs), Focused Group Discussions (FGDs) with project staff and beneficiaries, and detailed field surveys. Project documents, management plans, progress reports, compartment history files, nursery journals, plantation records and internal monitoring reports along with maps and other available data were reviewed to have a clear picture about the implementation approaches, designs, location, extent and status of works carried out during Phase-I. These works included departmental nurseries, private nurseries, departmental plantations, outsourced

plantations, rehabilitation of degraded watersheds, improvement of pastures and rangelands, reclamation of bad sites, reclamation of saline and waterlogged areas and Mazri and Kana plantations for livelihoods improvement and activities implemented by the specialized directorates.

Upon review of the secondary information a checklist of questions was developed for KIIs and FGDs with the concerned Forest department (FD) officials, local communities and other relevant stakeholders to collect the qualitative information for creating further clarity. Based on the information collected during the secondary data review, KIIs and FGDs as well as the available monitoring indicators elaborate survey sheets and questionnaires were designed to capture all quantitative information about the project works. The questionnaires and survey sheets were presented to the BTTAP officials and their input incorporated. The monitoring tools and methods were then pilot tested by the WWF-Pakistan's monitoring team and adjusted according to their feedback. Samples of data collection sheets, questionnaires and checklists are given as (Appendices-C and D).

Regarding sampling schemes and field data collection tools a combination of stratified random and systematic sampling techniques was used. The project sites were stratified according to the administrative, geographic and ecological characteristics ensuring that all forest regions, forest divisions and ecological zones/ forest types are covered with proportionate sample size based on the actual work carried out.

Regarding randomization in sites selection the interventions were stratified according to the forest/ watershed divisions and ecological zones. Lists of sites of each intervention were prepared and numbered. The randome numbers were generated and selected from the lists keeping in view the total target to be monitored under each intervention.

In total 50% of the total implemented targets were covered except the farm forestry where 10% work was covered. Detiles of targets monitored are given in table-1 below. Sites of each intervention were randomly selected using lists of activities and sites provided by the concerned Divisional Forest Officers. The information collected in each site comprised of two sets of data that is; 1) general aspects and management related information and 2) specific monitoring data collected through sampling.

For block plantations, woodlots, Mazri Plantations, Kana plantations, reclamation of saline and waterlogged areas and closures systematic plots were laid out at 100 meter spacing along randomly selected transects with five percent sampling intensity. The number of transects and plots were worked out on the basis of the total area of each site keeping in view its geometry and terrain. Parameters like altitude, aspect, soil, slope, species, total number of plants planted, survival rate, spacing, pit size and signs of damage were recorded in each fixed circular plot measuring 1000m^2. Prior to plots/ transect surveys location of each site was recorded and area measured using GPS.

For nurseries two types of information were collected i.e. data according to the nurseries records and data based on actual observations, measurements and counting through sampling. Location of each nursery was recorded and area measured using GPS. This was then followed by species wise counting of planting stock, their survival rate and plant-able and un-plant-able sizes. Moreover nursery management operations such as cleaning, weeding, watering, shifting and root pruning were also noted.

For interventions regarding rehabilitation of degraded watersheds, improvement of rangelands and pastures and reclamation of bad sites a combination of methods was used. General information about existence of management plans, designs of planned structures, communities involvement etc. were collected. Regarding specific interventions like engineering and bio-engineering structures 10% sampling intensity was adopted and data about parameters such as location, design, size, material used, species planted, spacing and survival rate were collected. Moreover general observations regarding implementation modalities, site suitability, species suitability and designs were also recorded.

Future ecological, social and livelihood impacts of watershed rehabilitation, rangelands improvement, plantations and nurseries were assessed on the bases of the above-mentioned field monitoring data for each intervention.

Though it's not included in the TORs WWF-Pakistan's monitoring team identified and developed success stories on best performing beneficiaries (men, women and CBOs) and project staff that showed commitment and implemented innovative ideas. The main objective is to encourage these best practitioners and motivate others.

Table 1: Targets achieved and monitored

Activity	Target PC 1	Target Achieved by FD (Phase-1)	Target Monitored (Aug-Dec 2015)	%
Central Model Nurseries (ha)	349	239	132	55
Private forest nurseries (units)	2653	2756	1339	49
Planting of on communal and private lands (ha)	6000	6758	3774	56
Planting along roads, canals (ha)	300	494	257	52
Establishment of closures in designated forests (No.)	650	411	210	51
Reclamation/rehabilitation of bad sites (ha)	300	149	129	85
Reclamation of saline and waterlogged areas (ha)	150	130	81	62
Farm forestry (million seedlings)	3.400	6.977	0.804	12
Promotion of cottage based industry through Kana and Mazri plantation (ha)	50	50	36.2	72
Rehabilitation of degraded watersheds (watershed sites)	3	2	2	100
Improvement of rangelands and pastures (sites)	3	1	1	100
Promotion of NTFPs (Valley/ Site)	1	0	0	0
Capacity building of farmers (no. of farmers)	1900	1641	832	51

4.2 Monitoring team and coordination

The monitoring team consisted of experts, field monitors and surveyors. The monitoring team was split into four units i.e. the coordination and implementation unit, the experts unit, monitors and surveyors and GIS/ RS experts (Figure-1 and Table-2).

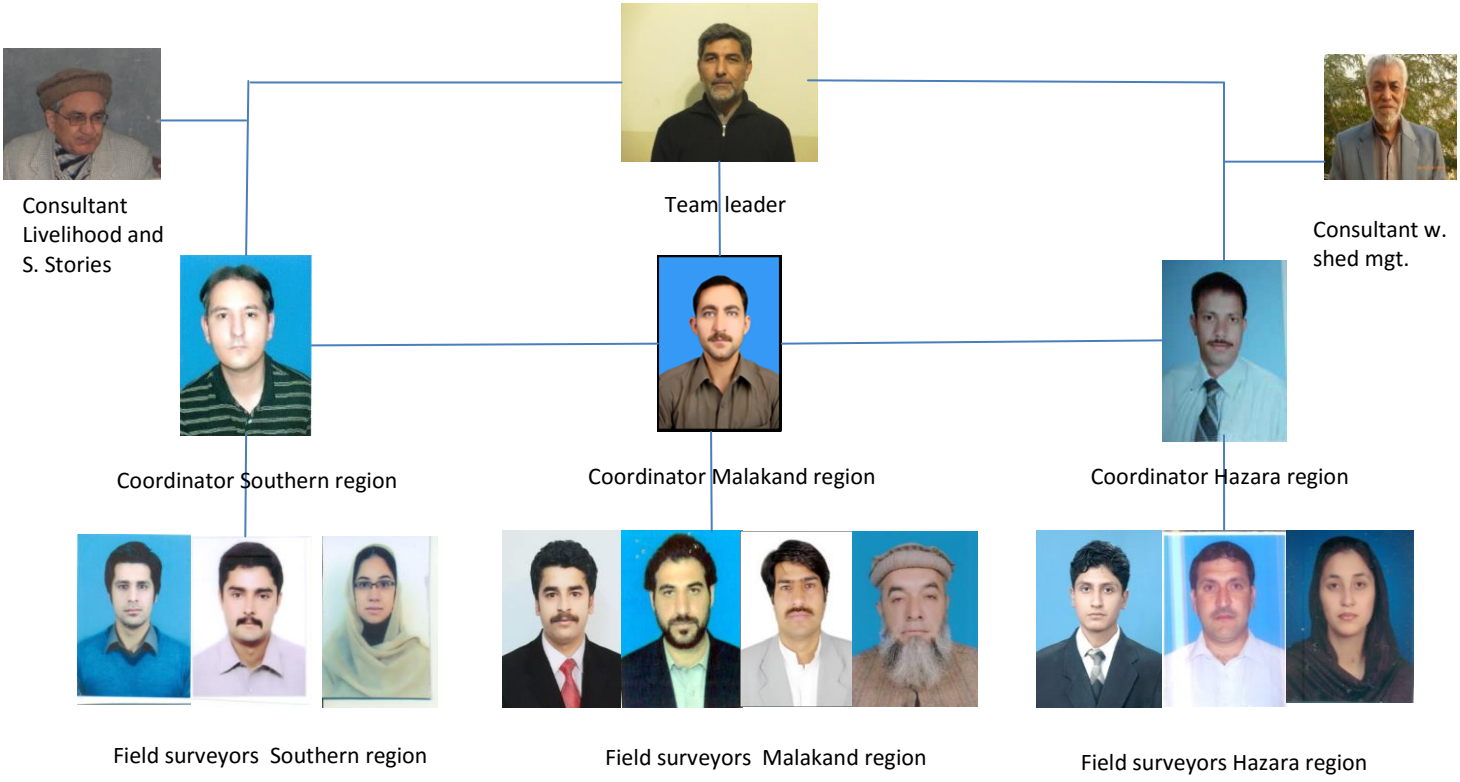


Figure 1, 2: The WWF-Pakistan team for the BTTAP third party monitoring

Table 2: Monitoring team

Name and title	Task	Thematic Area/ Region
Muhammad Ibrahim Khan, Senior Manager Conservation (Forests) WWF-Pakistan	Team leader	KP Province (BTTAP Area)
Dr. Bashir Hussain Shah, Watershed Specialist	Consultant	Watershed Management and Badlands reclamation in BTTAP
Iqbal Muhammad Forest Livelihoods Specialist	Consultant	Livelihood activities and success stories in BTTAP
Syed Kamran Hussain, Research Coordinator (Forests) WWF-Pakistan	Coordinator	Central and south region
Muhammad Waseem, Project Coordinator Watershed Project WWF-Pakistan	Coordinator	Hazara region
Shafiqullah Khan	Coordinator	Malakand region
Haleema Saad	Field monitor	Central and South Region
Gul Rukh Durrani	Field monitor	Hazara region
Malik Mudassar Ahmad	Field monitor	Hazara region
Faiz-Ullah Khan	Field monitor	Malakand region
Murtaza Ali Khan	Field monitor	Hazara region
Kamran Khan	Field surveyor	Malakand region
Muhammad Hashim Khan	Field surveyor	Malakand region
Ejaz Ahmad Khan	Field surveyor	Malakand region
Syed Aslam Shah	Field surveyor	Central and South region
Essa Sajjad	Field surveyor	Central and South region

5 OUTCOME OF THE DOCUMENTS REVIEWED

5.1 The BTTAP Project design;

In general the BTTAP Project PC-1 is a well written document with clear objectives, interventions and targets. The activities are well connected with the project objectives and are closely linked with provincial and national environmental and developmental objectives. However for the field managers and implementers the project document has some gaps and weaknesses as well. These gaps and weaknesses were noted as a result of thorough review of the PC-1 as well as the concerns of the field managers comprising of CCF's CF's, DFO's and SDFOs noted during the field monitoring and interviews. These are explained below;

- Criteria provided for identification and selection of beneficiaries is either missing or too brief to properly guide the community organizations and field managers;
- Recommended standard designs and specifications are sketchy and miss some of the required specifications. For example there is no standard pit size provided in the PC-1. The field managers are relying either on their past experience and practices or getting information from previous PC-1s.
- Regarding establishment and management of closures a very brief criteria and process has been described lacking details such as development of management plans and community's share in resource management and uses. Moreover the VDCs role was mainly confined to the closures with no other roles in development and natural resource management. This has resulted in low interest on the part of the VDC members.
- The PC-1 has no provision and guidelines for future sustainability of the activities and their management on scientific bases.
- The specialized directorates have been given very limited role.
- The PC-1 has limited resources and staff at the BTTAP directorate. There should have been regional coordinators to closely liaison with the field managers.

5.2 Documentation of the activities and interventions

During the field monitoring availability and status of all documentation such as nursery journal, plantation journal, management plans, MoUs and agreements of all the activities and interventions were also monitored and reviewed. Following are the general findings regarding documentation;

- Regarding departmental nurseries 96% of the total nurseries had nursery journals out which 84% had been maintained properly.

- Regarding private nurseries except a few cases there was no such formal documentation. It is therefore recommended to develop a system of documentation of the private nurseries as well.

- For departmental plantations formal plantation journals were maintained for 71 sites while 4 sites had no proper documentation.

- For Mazri and Kana plantations proper plantation journals had been maintained.

- Regarding forest enclosures 98% of the sites had been notified with proper agreements signed by the concerned DFOs and community representatives. However there were no formal management plans available for any of these enclosures.

- Regarding farm forestry out of the 28 forest and watershed divisions 15 had fully maintained record containing name, address and contact of beneficiaries and number of plants provided while 11 divisions had partially maintained record.

- Regarding rehabilitation of degraded watersheds the management plan existed for Manur sub-watershed in Kaghan Forest Division adopting the UNDPs template while for the Balakot Village Sub-watershed in Kalama Forest Division there was no management plan.

- For rehabilitation of badlands, saline and water logged areas there were no management plans as well as plantation journals.

6 FINDINGS OF THE FIELD MONITORING

6.1 Progress on the BTTAP interventions (quantitative and qualitative progress)

6.1.1 Establishment of central model nurseries

Under this category a total target of 126 ha of potted and 223 ha of bare rooted nurseries was set during the first phase of the project. Each forest division was assigned to establish at least one central model nursery on five hectares for raising both tube and bare-rooted seedlings of suitable species for establishing plantations. In addition to meeting requirements for planting stock these nurseries were also to be used as demonstration and training sites for the private nursery growers.

Photo 1: Departmental Tube Nursery

Photo 2: Departmental Bare-rooted Nursery

According to the BTTAP/ FD records 238.71 hectare of central model nurseries had been established by August 2015. The WWF-Pakistan team monitored 74 tube and 76 bare rooted nurseries having areas of 43 and 88.9 hectares respectively. Of the 74 tube nurseries 21 were in Southern region, 20 in Malakand, 16 in Hazara territorial and 17 in Hazara watershed. Similarly out of the 76 bare rooted nurseries 12 were in Southern region, 30 in Malakand, 20 in Hazara territorial and 14 in Hazara watershed.

Parameters like layout and facilities, operation and maintenance practices, total stock and species wise number of seedlings, survival rate, net available stock and number of fit and unfit seedlings were monitored.

6.1.1.1 Nurseries layout, facilities and operation and management practices

With some minor exceptions the overall situation of nurseries layout, operations and management practices is quite encouraging. The entire potted and 95% of the bare rooted nurseries established by the Forest Department had well-planned Inspection Paths, making easy access to all the beds and ensuring proper maintenance and other operations. Moreover 88% potted nurseries had sufficient space for loading and unloading of materials.

Facilities such as proper fencing existed in 65% potted and 43% bare rooted nurseries while sheds to provide necessary shelter to plant material and labor were found in 57% potted and 30% bare rooted nurseries.

Other management practices such as weeding and cleaning were observed in 97% potted and 95% bare rooted nurseries while shifting and root pruning were found in 74% potted nurseries. In 93% tube nurseries proper hand watering had been applied. Similarly fertilizers had been applied in over 93% while pesticides applied in over 89% of potted and bare rooted nurseries respectively.

From the above results it is also concluded that in 26% potted nurseries no shifting and root pruning had been done while in 6.76% of the tube nurseries flood irrigation had been applied. These practices are not advisable as they result in excessive weeds and roots anchoring in soil badly affecting the quality of planting stock. This problem was mainly observed in Hazara territorial and watershed divisions (Table-3, 4 and Appendix-E).

Table 3: Layout, facilities and management and operations in departmental tube nurseries

Regions	Layout and facilities					Operation and management					
	Insp. Path	Fencing	Sheds	Loading space	G House	H. Watering	Flood irrigation	Weeding	Shifting/ R. trimming	Fertilizer	Pesticide
Southern	100.00	71.43	66.67	85.71	61.90	85.71	0.00	100.00	90.48	100.00	100.00
Malakand	100.00	60.00	65.00	95.00	75.00	95.00	0.00	100.00	80.00	100.00	85.00
Hazara territorial	100.00	62.50	50.00	75.00	31.25	93.75	6.25	93.75	37.50	81.25	75.00
Hazara watershed	100.00	64.71	41.18	94.12	41.18	100.00	23.53	94.12	82.35	100.00	94.12
All regions	**100.00**	**64.86**	**56.76**	**87.84**	**54.05**	**93.24**	**6.76**	**97.30**	**74.32**	**95.95**	**89.19**

Table 4: Layout, facilities and management and operations in departmental bare rooted nurseries

Regions	Layout and facilities			Operation and management			
	Insp Path	Fencing	Shed	Irrigation	Weeding	Fertilizer	Pesticide
Southern	75.00	41.67	16.67	100.00	75.00	66.67	50.00
Malakand	100.00	43.33	46.67	100.00	96.67	96.67	86.67
Hazara territorial	95.00	40.00	20.00	100.00	100.00	100.00	95.00
Hazara watershed	100.00	50.00	21.43	100.00	100.00	100.00	85.71
All regions	**94.74**	**43.42**	**30.26**	**100.00**	**94.74**	**93.42**	**82.89**

6.1.1.2 *Planting stock and survival rate*

In departmental potted nurseries a total of 49.95 million seedlings were verified out of which 41.41 million were successful with 26 million ready for planting (Figure-5). For tube plants the plantable size was considered as nine inches and above. The overall survival rate of seedlings was excellent i.e. 82.87%. The best survival rate was recorded in Southern and Malakand regions well over 89% followed by Hazara watershed with 82%. In Hazara territorial the survival rate was below 70% figures-3 and 4.

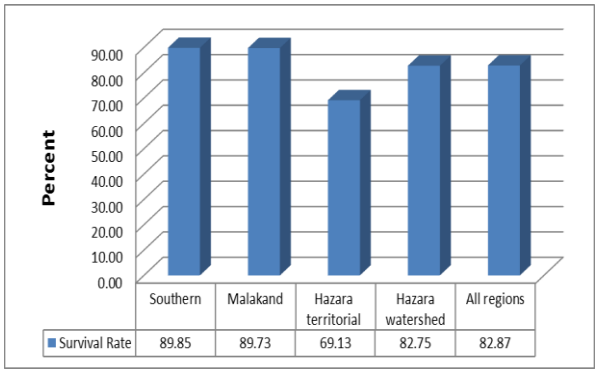


Figure 3: Survival rate in departmental tube nurseries

In bare rooted nurseries the total verified planting stock was 10.94 million. With over 72% survival rate the net available planting stock was 9.23 million out of which 85.37% were fit for planting and 14.63% were unfit for planting. For the bare rooted plants the platable size was considered as five feet and above. Thus the overall fit planting stock was 1.854 million (Figure-6). The unfit planting stock is expected to reach plant-able size within the coming three months.

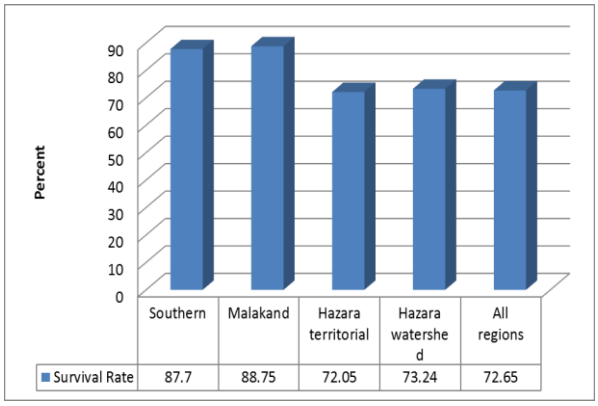


Figure 4: Survival rate in departmental bare rooted nurseries

Over 34 species have been raised in tube nurseries with eucalyptus 33.31%, Chir pine 30.78% and Phulai 8.43% (Figure-8). From biodiversity point of view the eucalyptus percentage is quite high and needs to be reduced drastically during the coming phase.

In bare rooted nurseries more than 14 different species have been raised. Major species are Robinia 33.85%, Poplar 29.46%, Ailanthus 11.29%, Bakine 8.21% and Walnut 4.59% (Figure-7). Forest Divisions wise details of seedlings in nurseries are given in Appendix-E.

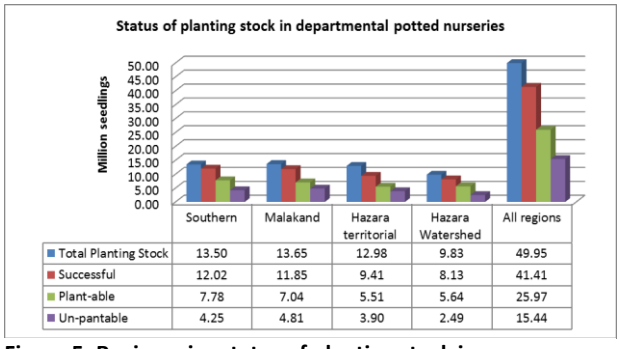


Figure 5: Region wise status of planting stock in departmental potted nurseries

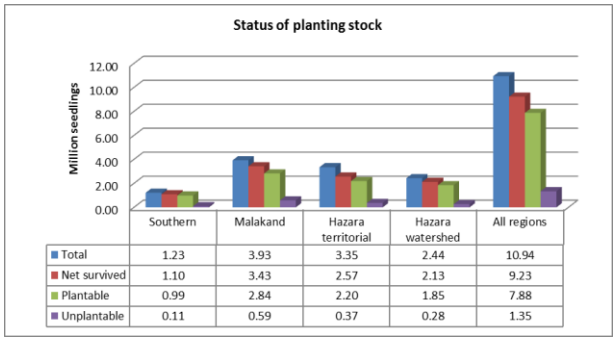


Figure 6: Region wise status of planting stock in departmental bare rooted nurseries

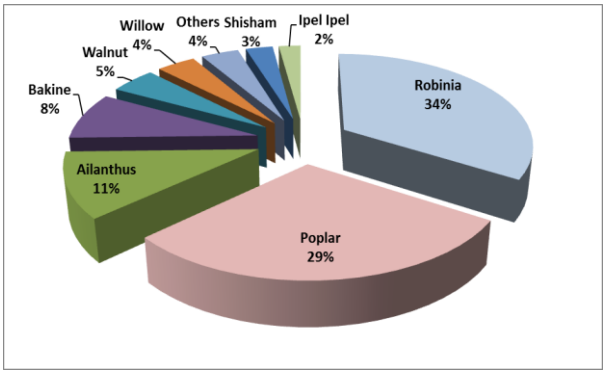


Figure 7: Species composition in departmental bare rooted nurseries

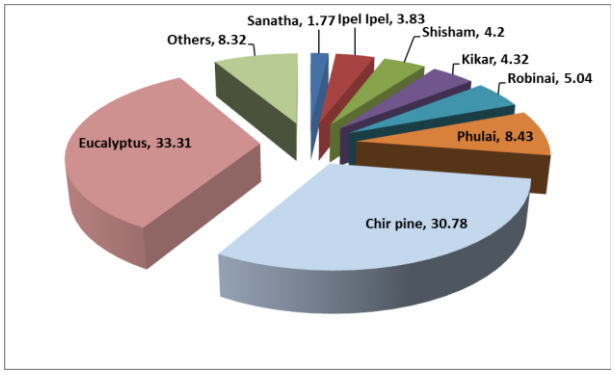


Figure 8: Species composition in departmental potted nurseries

6.1.2 Establishment of private forest nurseries through youth and women

A total of 2653 (1504 potted and 1149 bare-rooted) nurseries with 66 million seedlings were targeted to be raised through selected youth and women during phase-1. Maximum seedlings to be produced in one unit were fixed to be 25000. This activity was aimed at raising planting stock as well as providing green jobs to youth and women. The PC-1 has provided a performance based payment mechanism to buyback the plants grown by the beneficiaries.

Table 5: Region wise monitored units of private nurseries

Region	Private tube	Private Bare rooted
Southern	438	45
Malakand	306	123
Hazara territorial	107	93
Hazara watershed	132	95
Total	**983**	**356**

According to the field monitoring a total of 2756 units of private nurseries had been established by August 2015 out which 1339 (49%) units were monitored and verified physically. Of the 1339 monitored private nursery 983 were tube while 356 were bare rooted (Table-5).

Parameters such as layout and facilities, operation and maintenance practices, total stock and species wise number of seedlings, survival rate, net available stock and number of fit and unfit seedlings were monitored.

The male/ female nursery growers' ratio was well according to the PC-1 targets. The BTTAP PC-1 had a target of 10% of the total private potted nurseries to be allocated to women. As given in figure-9 about 87% nursery growers were male and 13% were female.

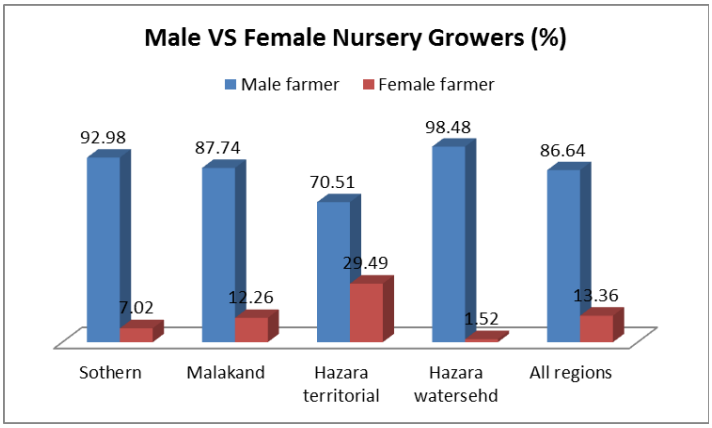


Figure 9: Ratio of male and female nursery growers (potted nurseries)

Photo 3: Private Tube Nursery, Peshawar

Photo 4: Private Bare Rooted Nursery, Charsadda

6.1.2.1 Nurseries layout, facilities and operation and management practices

Overall situation about layout, facilities and operation and management practices in private nurseries was good. As a whole 97% nurseries had proper layout and inspection paths, over 18% had proper sheds for equipment and nursery works and over 53% had fencing. Similarly in over 87% nurseries proper weeds cleaning had been done, shifting of seedlings had been completed in over 64%, proper hand watering applied in 97%, fertilizers applied in 86% and pesticides used in 56% nurseries. In 8% private potted nurseries flood irrigation had also been applied which is not a good practice and as mentioned earlier it affects the quality of planting stock. Moreover in about 36% nurseries shifting and root trimming had not been done which again affected the quality of planting stock. It is recommended that the concerned DFO and SDFO should ensure that proper shifting and root trimming is dome well before transporting the seedlings to the plantation sites.

The problem of avoiding shifting and root trimming and hand watering was mainly observed in Hazara territorial (Table-6). This is due to the reason that in Hazara region nursery raising had mostly been done by the Watershed divisions while the Hazara territorial used to be busy in forest protection and regulation activities. Therefore proper training is needed for the territorial staff in nursery raising techniques and also they should be strictly advised to provide technical knowhow to the farmers.

In private bare rooted nurseries 95% had proper layout and paths and 15% had proper fencing. Moreover in 89% nurseries proper weeding had been done, in 80% fertilizers had been applied while in 47% necessary pesticides had also been applied (Table-7).Low percentage of fencing in bare rooted nurseries is due to the fact that most of the farmers used to be present at their sites and closely guarded their nurseries against livestock and other damages.

Photo 5: Female Nursery, Agror Tanawal

Photo 6: Female Nursery, Malakand

Table 6: Layout, facilities and operation and management of private potted nurseries

Region	Layout and facilities			Operation and management practices					
	Insp Path	Sheds	Fencing	Cleaning	Shifting/ R. Trimming	Hand Watering	Flood irrigation	Fertilizer	Pesticide
Southern	100.00	32.50	58.75	75.00	*97.50*	75.00	18.75	70.00	35.00
Malakand	95.28	20.75	60.38	90.57	59.43	90.57	4.72	87.74	47.17
Hazara territorial	93.59	5.13	42.31	65.38	38.46	98.72	2.56	74.36	60.26
Hazara watershed	98.48	9.09	30.30	92.42	62.12	96.97	3.03	86.36	69.70
Total	96.84	18.89	53.42	87.30	64.38	96.74	7.82	85.99	55.70

Table 7: Layout, facilities and operation and management practices in private bare rooted nurseries

Region	Layout and facilities		Operation and management practices		
	Insp Path	Fencing	Weeding	Fertilizer	Pesticide
Southern	31.71	90.24	90.24	90.24	65.85
Malakand	91.89	13.51	96.40	95.50	60.36
Hazara territorial	89.09	7.27	76.36	74.55	29.09
Hazara watershed	94.55	14.55	89.09	80.00	47.27
Total	94.55	14.55	89.09	80.00	47.27

6.1.2.2 Planting stock and survival rate

In private potted nurseries the total contracted planting stock was 22.537 million. With an overall survival rate of 72.64% the net available stock was 18.151 million seedlings out of which 10.408 million (57%) were fit for planting while the remaining 7.742 million seedlings were unfit for planting (Figure-8 and 10). In Malakand and Hazara Watershed the survival rate is very good while in Southern and Hazara territorial the survival rate is fair. More than 28 species have been planted in the private tube nurseries with Eucalyptus 53.74%, Kikar 11.28%, Chir pine 10.07% and Phulai 9.65% as the major species. In private bare rooted nurseries the survival rate was about 78%. Out of the total allocated stock of 7.890 million the net survived stock was 6.583 million out of which 5.468 million (83.06%) was fit for planting while the remaining 2.079 million (38.02%) was unfit for planting. Survival rate is exceptionally good in Southern, Hazara watershed and Malakand regions while in Hazara territorial region it was fairly good (Figure-8). In private bare rooted nurseries more than 14 different species have been planted with

Poplar 46.06%, Robinia 32.42%, Ailanthus 9.43%, Bakine 3.71%, Willow 3.32% and Shisham 1.24% as the major species (Figure-12 and 13).

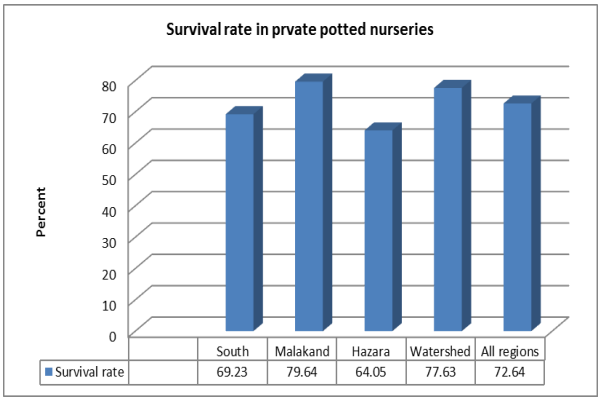


Figure 8: Survival rate in private potted nurseries

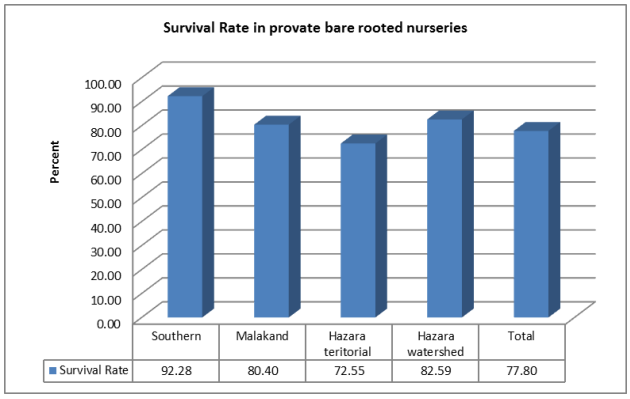


Figure 9: Survival rate in private bare rooted nurseries

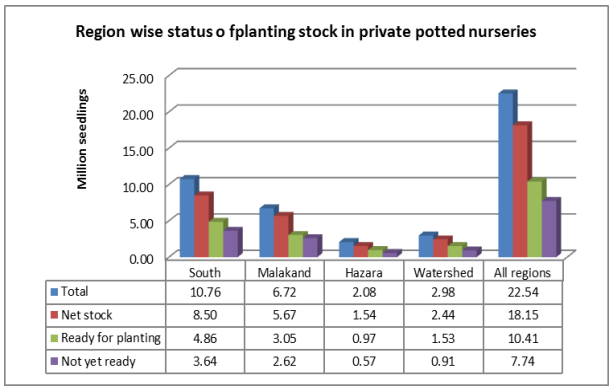


Figure 10: Region wise status of planting stock in private potted nurseries

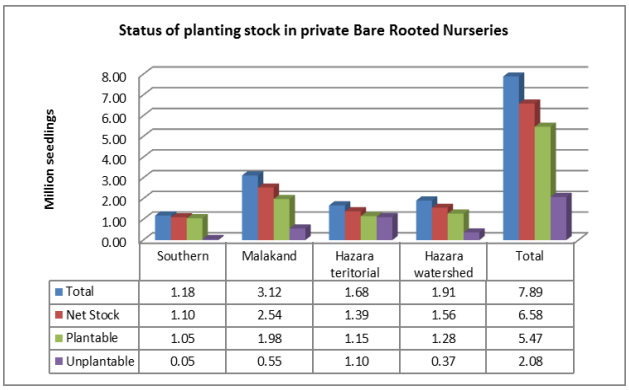


Figure 11: Region wise status of planting stock in private bare rooted nurseries

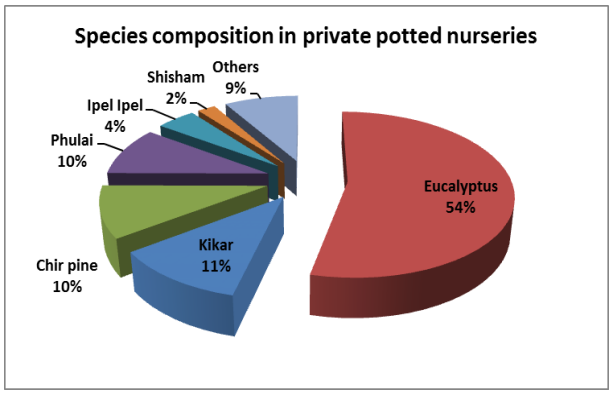


Figure 12: Species composition in private potted nurseries

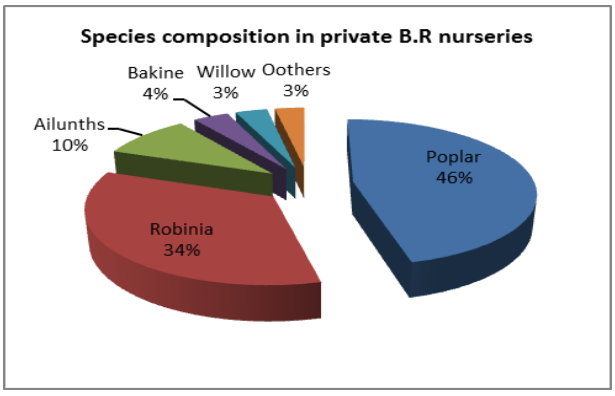


Figure 13: Species composition in private bare rooted nurseries

6.1.3 Planting of multi-purpose fast growing tree species on communal and private lands

During phase-1 a total of 6000 ha area was targeted to be planted with multipurpose fast growing tree species on communal and private waste lands preferably situated nearby the natural forests. Major objectives of the activity are to meet the firewood and timber demand and decrease pressure on the surrounding natural forests. Out of the total 6000 ha 5500 ha were to be planted by the KP FD itself while 500 ha were to be outsourced to private sector. The design and quality standards provided in the PC-1 are;

- Effective involvement of local communities and getting their opinion in site identification and selection, species selection and support in watch and ward;

- Execution of all planting activities including provision of planting stock, labor cost and provision of watcher by the KP FD;
- Planting of suitable species at 10 ' by 10 ' spacing.
- The standard pit size for plantation is not mentioned in the PC-1 however the KP FD in its other plantation standards has provided a trapezoid pit of 1.5' x 1.0 ' x 1.0 ' having volume of 1.23 cft (0.035 m^3) for tube plants while 1.5' x 1.0 ' x 2.0 ' having volume of 2.46 cft (0.07 m^3) for bare-rooted plants.
- Need based watering during the first year of planting for plantations in the southern region.

By August 2015 the FD achieved 6758 ha against the total target of 6000 ha under this category of plantations. The WWF-Pakistan team monitored 76 plantation sites with a total area of 3774 ha, which is 56% of the total target achieved during Phase-1. These sites spread all over the major ecological zones of the 28 Forest and Watershed divisions. Out of the 76 sites 15 fall in Southern region, 24 in Malakand and 37 in Hazara region (23 in territorial and 13 in watershed divisions). Following are the major findings while details are given as Appendix-E.

6.1.3.1 Plantation areas and number of plants planted

A total of 3774 hectares of plantations had been claimed by the FD officials which after measurement by the monitoring team came out to be 3796 hectares i.e. 22 hectare (0.59%) more than what was claimed. Except Hazara watershed where a slight negative variance was observed the rest were fairly good (Figure-14).

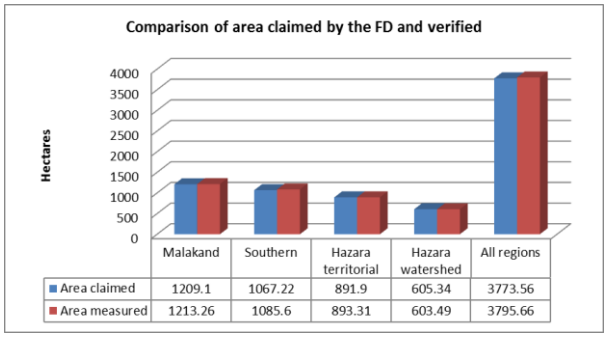


Figure 14: Comparison of area of plantations claimed by the FD and verified by the monitoring team

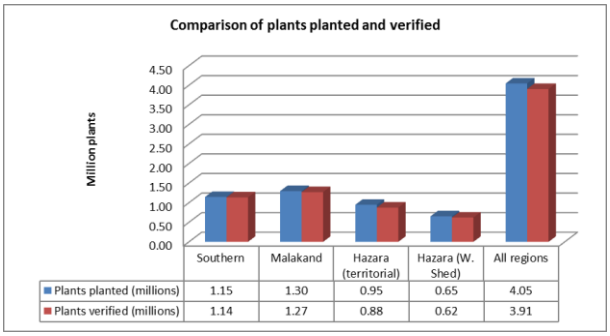


Figure 15: Comparison of plants claimed to be planted by the FD and verified by the monitoring team

Similarly a negative variance of -3.47% was observed in number of plants claimed to be planted and the number of plants verified by the monitoring team. The total number of plants claimed to be planted was 4.046 million while according to the sampling survey this number turned out as 3.905 million with a net shortfall of 0.140 million (Figure-15). This negative variance is high in Hazara region (territorial), followed by Hazara watershed, then Malakand and lastly by the Southern region. For division wise details are given in Appendix-F.

Photo 7: Block Plantation, Heroshah, Malakand

Photo 8: Block Plantation, D I Khan

Photo 9: Block Plantation Bannu

Photo 10: Block Plantation D I Khan

6.1.3.2 Species suitability and overall survival rate

More than 27 different species have been planted in these plantations. Chir pine, Eucalyptus, Robinia, Deodar, Phulai, Ailanthus, Kikar (*A. nilotica*), Shisham and *A. farnesiana* are the main species (Appendix-G) and Figure-16). Except Eucalyptus, Robinia, Ailanthus and *Acacia Farnesiana* the rest are local and indigenous species.

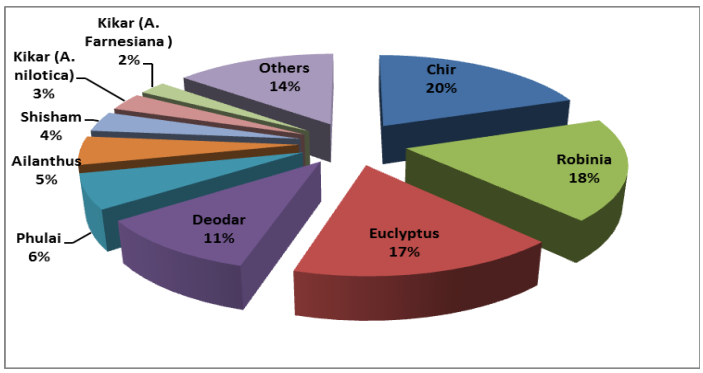


Figure 16: Species composition in block plantations

The overall survival rate of the plants in these plantations is 85.77% with 92.5% in Southern Region, 89.96% in Malakand Region, 86.26% in Hazara watershed and 70.35% in Hazara territorial region (Figure-17).

In Southern region the average survival rate ranges from 90.35% in Kohat Forest Division to as high as 94.48% in D.I. Khan Forest Division. Similarly in Malakand Region the average survival rate ranges from 84.10% in Kalam Forest Division to as high as 97.53% in Dir Lower. In Hazara region (territorial) the survival rate ranges from as low as 4.16% in Upper Kohistan to as high as 93.08% in Agror Tanawal Forest Division. Survival rate in watershed divisions is also good and ranges from 61.97 in Buner Watershed Division to 98.49% in Unhar Watershed Division (Figure-18, 19, 20 and 21).

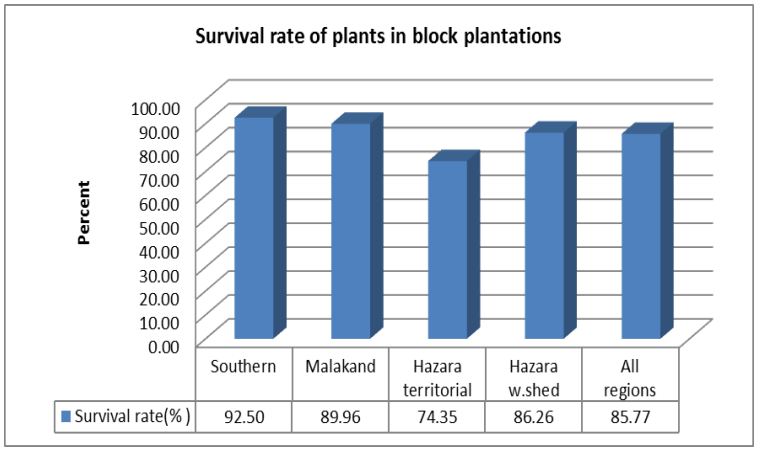


Figure 17: Survival rate in block plantations

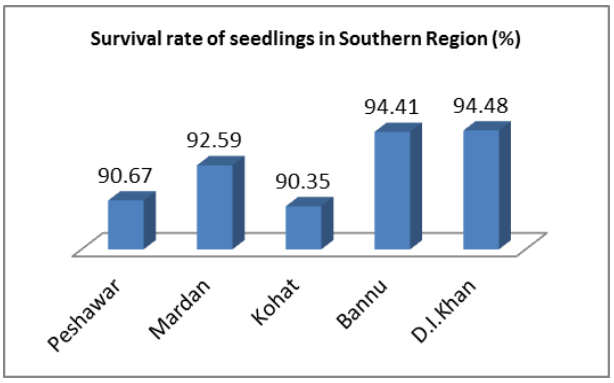


Figure 18: Division wise survival rate in Southern Region

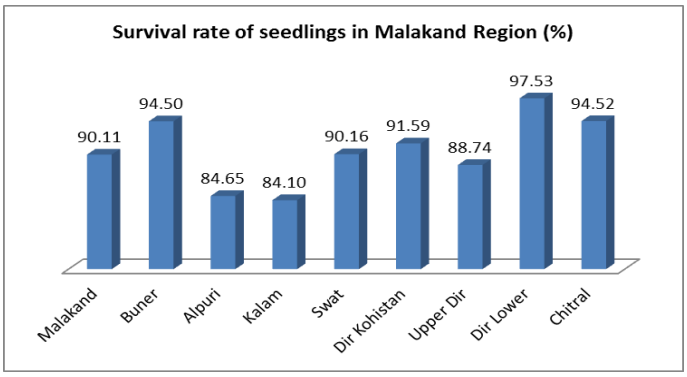


Figure 19: Division wise survival rate in Malakand Region

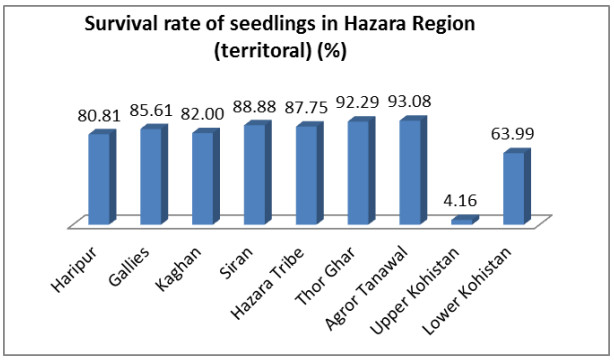


Figure 20: Division wise survival rate in Hazara Region (Territorial)

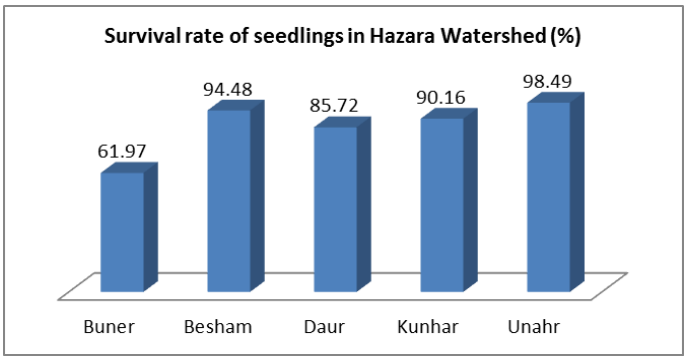


Figure 21: Division wise survival rate in Hazara Region (Territorial)

Photo 11: Block Plantation of Unhar Watershed

Photo 12: Block Plantation Lower Dir

6.1.3.3 Plant to plant spacing and pit size

On average the plant to plant spacing was found as 10.22 ft (3.16 m), which is slightly higher than the recommended spacing of 10.00 ft (3.05 m). In Southern region the plant to plant spacing is the widest that is 10.36 ft (3.12 m), followed by Hazara territorial 10.32 ft, (3.14 m) then Hazara watershed 10.14ft (3.09 m) and lastly by Malakand region 10.10 ft (3.08 m). The average pit size was found as 1.91ft by 1.18ft which is well within the recommended standard. All the regions have followed this standard (Table-8 and Appendix-G).

Table 8: Region wise plant to plant spacing and pit sizes

Region	Avg Spacing (ft)	Avg Spacing (m)	Avg. Pit Size and Vol			
			Width (ft)	Depth (ft)	Volume (cft)	Volume (m3)
South	10.36	3.16	1.84	1.26	3.17	0.09
Malakand	10.10	3.08	1.99	1.17	3.77	0.11
Hazara	10.32	3.14	1.83	1.12	3.53	0.10
Watershed	10.14	3.09	1.93	1.17	3.46	0.10
All regions	**10.22**	**3.12**	**1.91**	**1.18**	**3.65**	**0.10**

6.1.3.4 Protection and maintenance operations

Operations such as fencing, watering and watch and ward were also assessed. As a whole watering was confirmed in 13.16% sites, fencing (either brushwood or barbed wire) in 22.37% and watch and ward in 90.79% sites. As watering was allowed for plantation sites in southern region only that's why its percentage is low in the overall picture (Figure-22 and Appendix-G). Despite of the fact that there was no provision for hand watering for Malakand region in more than 11% sites hand watering had been applied.

6.1.4 Planting along roads, canals and railway tracts including motorway

Under this activity a total of 300 ha area was targeted for Phase-1. Instead of traditional linear planting, a landscape approach was recommended for these plantations. Moreover provision for fencing was also provided for protecting these plantations.

A total of 19 sites measuring 257 ha area were monitored under this category. The average survival rate was found to be 79% which was quite high in southern region followed by Hazara and then Malakand (Figure-23). Most of the plantations were along roadsides and canal sides (Appendix-H).

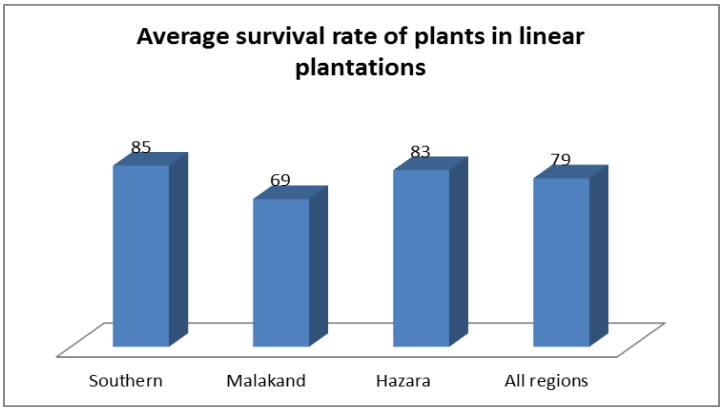


Figure 23: Average survival rate of plants in roadside and canal plantations

According to our findings a total of 0.26 million plants were planted at an average spacing of 10.15 ft by 10.15 ft. Due to this spacing a total of 22844 plants (8.13%) were recorded to be short against the total number of plants claimed to be planted (Figure-24). More than 21 species have planted with Deodar, Eucalyptus, Robinia, Poplar and Kikar as the major ones (Figure-25 and Appendix-H).

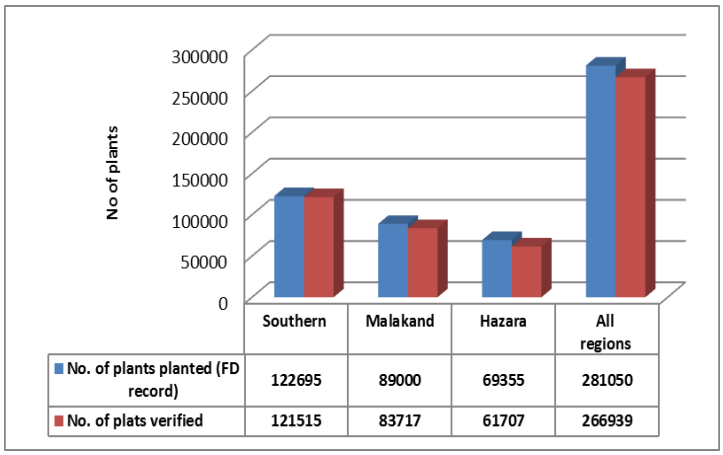


Figure 24: Comparison of plants claimed to be planted by the FD and verified by the

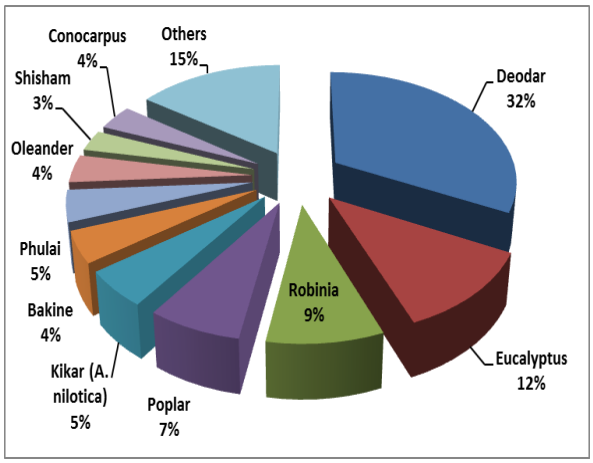


Figure 25: Species composition in roadside, canal-side and railway track plantations

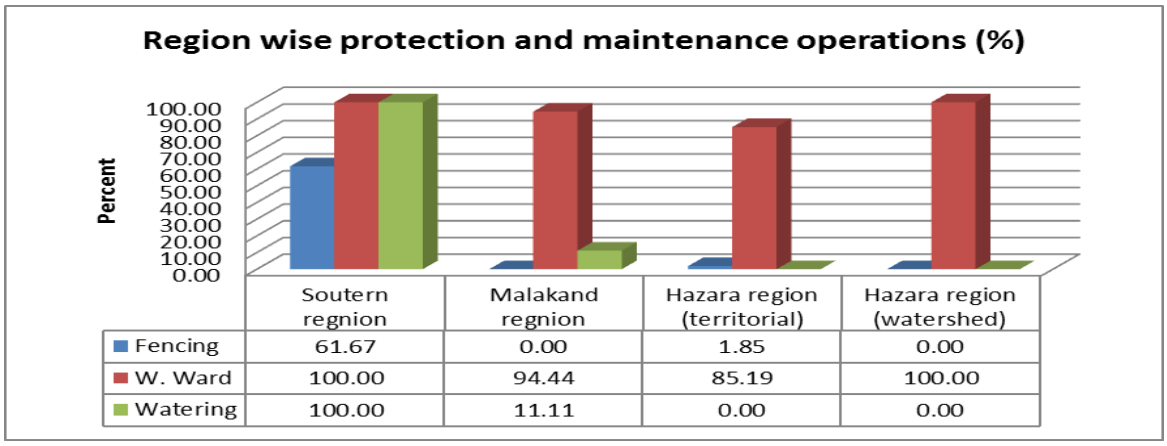


Figure 22: Region wise status of protection and maintenance operations in block plantations

6.1.5 Establishment of enclosures in designated forests

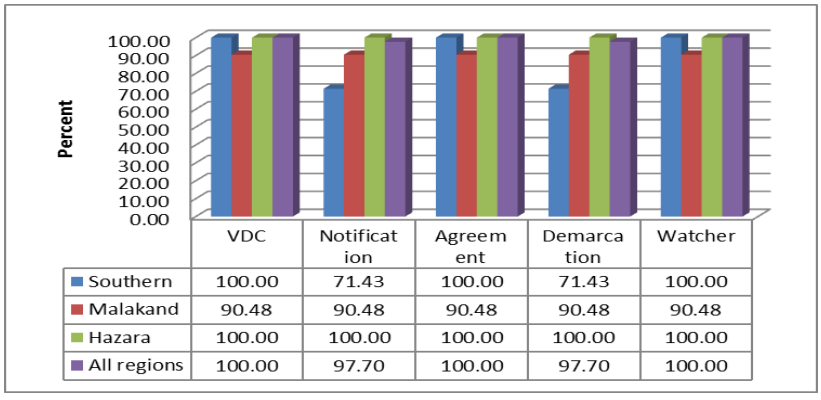
To encourage natural regeneration the project under its phase-1 has set the target of establishing 650 enclosures within the degraded patches of designated forests through community based organizations called as Village Development Committees (VDCs) and Joint Forest Management Committees (JFMCs). The enclosures were to be established to control grazing, forest fires and other anthropogenic causes that damage the natural regeneration. Following process was agreed in the PC-1:

- Selection of the forest compartments where enclosures are to be established;
- Identification of the community which has rights, dependence and de-facto or de-jure use rights over the forest;
- Organization of the community into formal organizations;
- Joint identification of the area to be closed;
- Finalization of Terms of Partnership with the VDC or JFMC etc.

Photo 13: Canal Side Plantation, Bunir

Photo 14: Road Side Plantation, Lakki Marwat

By August 2015 a total of 411 enclosures had been established by the respective DFOs against the total target of 650. Out of the 411 established enclosures 210 were physically verified having a total area of 12578 ha out of which 8132 ha area was traversed for plot sampling. Of the total 210 enclosures 50 were in Southern, 82 in Malakand and 78 in Hazara Region. Parameters like process adopted for the establishment and management of enclosures, notification by the concerned DFOs, existence of management plans, on-site demarcation of blank spaces and engagement of watchers (Community Negahban) were verified. While for assessing the regeneration status selected number of enclosures was investigated in detailed in each ecological zone in each forest division.



	VDC	Notification	Agreement	Demarcation	Watcher
Southern	100.00	71.43	100.00	71.43	100.00
Malakand	90.48	90.48	90.48	90.48	90.48
Hazara	100.00	100.00	100.00	100.00	100.00
All regions	100.00	97.70	100.00	97.70	100.00

Figure 26: Region wise status of management operations in enclosures

Generally it was observed that most of the field managers (DFOs,

SDFOs, Forest Rangers and Community Development Officers had limited understanding about the concept and process of establishing enclosures. Except in Kohat, Buner, Swat, Lower Dir, Upper Dir, Shangla, Haripur, Gallies and Hazara Tribal Forest Divisions there was little clarity about the concept and process of establishing enclosures. In the aforementioned nine forest divisions a suitable process of community mobilization, identification of sites and initiation of activities had been undertaken. While in the rest of the forest divisions the process had been partially adopted. According to the field officers limited explanation about the concept of enclosures was provided in the PC-1.

Properly notified VDCs existed for all the enclosures with 98% notified and agreements signed by the concerned DFOs. Similarly in 98% enclosures blank spaces had been demarcated. Community watchers (Negahbans) had been employed for all of the enclosures. Though there was no provision in the PC-1 in some of the enclosures in Hazara and Malakand regions blank spaces had been fenced at key points using either barbed wire or brushwood (Figure-26 and Appendix-I).

The overall results of enclosures are very encouraging. The activity is cost effective and produces multiple impacts. According to the transect survey conducted in selected enclosures on average 2316 seedlings were recorded per hectare with Chir pine, Blue pine (Kail), Deodar, Sanatha, Phulai, Quercus (Oak) and Kikar (*A. nilotica*) as the major species (Figure-27). The largest number of seedlings was recorded in the Sub-tropical Chir pine zone followed by the Sub-tropical broad leaved, Moist temperate, Tropical and lastly by the Dry temperate zone (Figure-28).

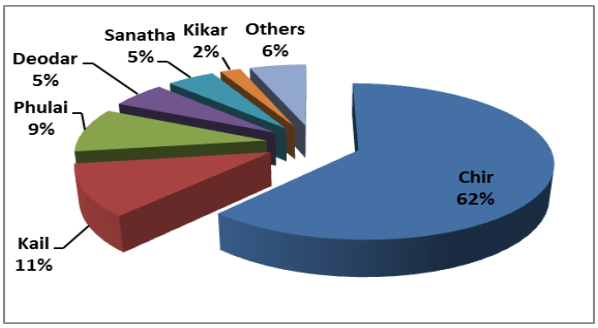


Figure 27: Overall species composition in enclosures

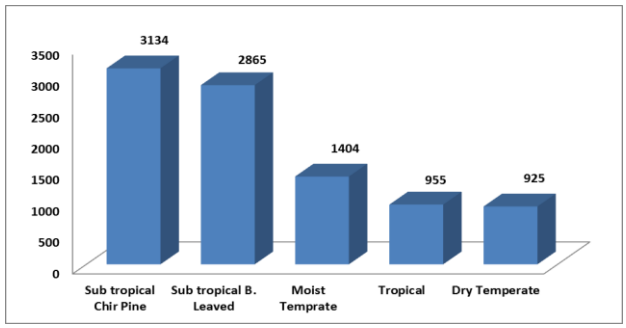


Figure 28: Ecological zones wise average number of seedlings per hectare in enclosures

Photo 15: Enclosure in Gallies

Photo 16: Enclosure in Agror Tanawal

Photo 17: Enclosure in D I Khan

Photo 18: Enclosure in Haripur

6.1.6 Rehabilitation of bad sites through soil and water conservation measures, bioengineering structures and planting of drought resistant species

Highly degraded and eroded lands including landslides, landslips and river bank cutting have been termed as bad sites in the BTTAP PC-1. In order to recover their products, services and functions a target of 300 ha was set to be rehabilitated through climate smart interventions such as engineering, bio-engineering and biological measures.

Out of the 300 hectares target 178.4 hectares were achieved mostly in Upper Dir, Swat, Kohat, Gallies, Kaghan and Siran Forest and Kunhar Watershed Divisions. A total of 135.40 ha (75.90%) were monitored by the WWF-Pakistan team.

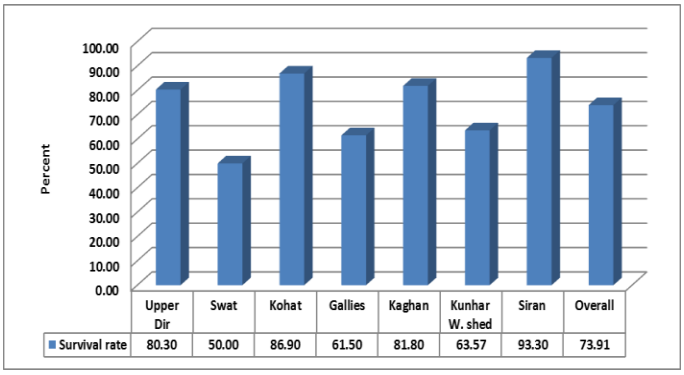


Figure 29: Survival rate of plant material in badlands rehabilitation measures

Parameters like suitability of measures applied, design, quantity and survival rate of the vegetation material like brushwood and seedlings etc. were assessed. A total of 11 different engineering, bio-engineering and biological measures had been applied for badlands treatment (Table-9). The overall average survival rate of brushwood and seedlings is about 74% (Figure-29). Regarding relevance and suitability of the measures used for the rehabilitation of the selected sites 57% were well according to the troubled sites, 26% were fair and only 17% were poor (Figure-30, Table-10). Similarly designs and layout of 86% structures was good while that of 14% was fair (Figure-31, Table-10). Division wise details of bad sites rehabilitation are given as under (Appendix-J).

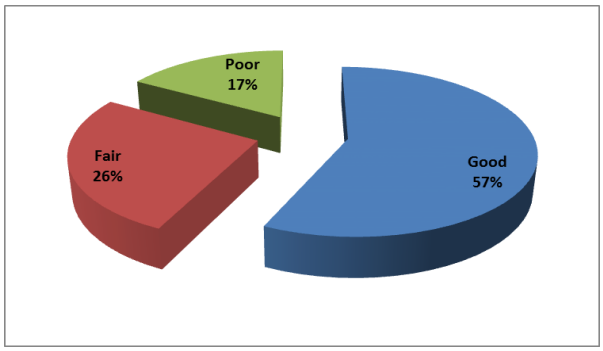


Figure 30: Suitability of measures for the selected sites

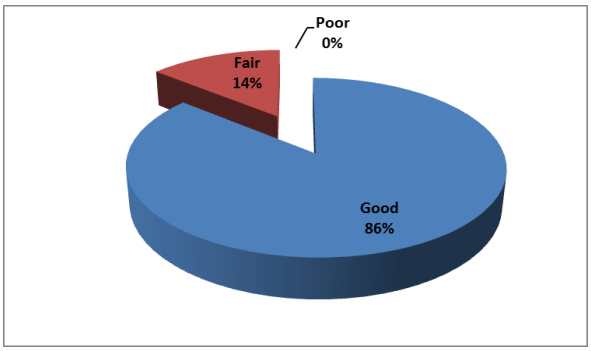


Figure 31: Quality of design and layout of the structures used

Table 9: Target for badlands reclamation achieved by the FD and target monitored

Name Division	Achieved by FD (ha)	Monitored (ha)	Monitored (%)
Upper Dir	40.00	40.00	100.00
Swat	20.00	20.00	100.00
Kohat	25.00	7.00	28.00
Gallies	34.00	24.00	70.59
Kaghan	12.00	12.00	100.00
Kunhar watershed	17.40	17.40	100.00
Siran	30.00	15.00	50.00
Total	**178.40**	**135.40**	**75.90**

Table 10: Division wise suitability of soil conservation measures, design and success rate

Forest/ Watershed Division	Suitability of intervention			Design and layout		
	Good	Fair	Poor	Good	Fair	Poor
Upper Dir	75.00	25.00	0.00	50.00	50.00	0.00
Swat	66.67	33.33	0.00	33.33	66.67	0.00
Kohat	0.00	0.00	100.00	100.00	0.00	0.00
Gallies	100.00	0.00	0.00	100.00	0.00	0.00
Kaghan	100.00	0.00	0.00	100.00	0.00	0.00
Kunhar w.shed	0.00	100.00	0.00	100.00	0.00	0.00
Siran	66.67	33.33	0.00	66.67	33.33	0.00
Overall	56.94	26.39	16.67	86.11	13.89	0.00

6.1.6.1 Upper Dir Forest Division

In Upper Dir Forest Division 40 ha area had been treated with rehabilitation works loose stone check dams, vegetated soft gabion check dams, gabion spurs, live brushwood check dams and planting of seedlings at Kasro Khan Khwar.

According to the monitoring results per hectare quantities of loose stone check dams, soft gabion check dams, gabion spurs and live brushwood check dams were found to be 565 cubic feet, 100.62 cubic feet, 27.30 cubic feet and 23.25 square feet respectively (Table-11).

All of the measures and structures were as per required specifications and standards. Survival and sprouting rate of plant material used in bio-engineering and planting was well over 80%. Major species planted in plantations and bio-engineering structures were Robinia, Deodar and Willow. Robinia and Willow are suitable for bio-engineering measures.

Table 11: Details of engineering and bio-engineering works carried out at Kasro Khan Khwar, Upper Dir Forest Division

Measures adopted	Unit	Achieved	Unit	Avg. qty/ structure	Total qty	Avg. qty / ha
Loose stone check dam	No	200	Cft	113	22600	565.00
Vegetated soft Gabion check dams	No	50	Cft	80.5	4025	100.63
Gabion spur	No	2	Cft	546	1092	27.30
Live brushwood check dams	No	50	Sft	18.6	930	23.25

6.1.6.2 Swat Forest Division

In Swat Forest Division 10 ha area had been treated with planting of seedlings and 100 loose stone check dams and 10 vegetated soft gabions at Ashari in Kabal sub-division. The overall average survival rate of plant material was 50% with 70% in plantation and 30% bio-engineering structures. Regarding suitability of the measures applied 67% were good while 33% were fair. Similarly layout and design of 33% of the measures were good while 67% were fair.

The total quantities of loose stone check dams and vegetated soft gabion check dams were found to be 6700 and 2656 cubic feet with per hectare averages of 335 and 133 cubic feet respectively (Table-12).

It was generally observed that the RFO, Foresters and Forest Guards did not have proper knowledge of soil conservation and badlands reclamation works. They needed proper guidance and training.

Table 12: Details of works carried out at Ashari, Kabal Sub Division, and Swat Forest Division

Measures adopted	Unit	Achieved	Unit	Avg qty/ structure	Total quantity	Avg. qty/ ha
Loose stone check dams	No	100	Cft	67	6700.00	335.00
Vegetated soft gabion	No	10	Cft	265.63	2656.30	132.82

Photo 19 and 20: Bio-engineering Structures at Ashari, Swat Forest Division

6.1.6.3 Kohat Forest Division

In Kohat Forest Division a normal site with very little problem of landslides or erosion had been treated with block plantations on 15 ha Bado Ziarat. The overall survival rate of plants was almost 87% with normal spacing and pit sizes.

6.1.6.4 Gallies Forest Division

Twenty four hectares of badlands with problem of landslides and erosion were monitored. The area had been treated with loose stone check dams, gabion check dam, brushwood check dams and brushwood layering. The measures adopted and structures constructed were well according to the requirement of the sites. Similarly layout and design of all of the interventions and structures were also good.

The overall survival rate of plants and plant material was over 61% with 71% in brushwood layering and 52% in brushwood check dams. The low survival rate of brushwood was mainly due to carrying out the bio-engineering works during off season (Table-13). According to the DFO and other field staff the badlands rehabilitation target was allotted to them very late.

Table 13: Engineering and bio-engineering structures in Gallies Forest Division

Measures adopted	Unit	Achieved	Unit	Avg qty/ structure	Total qty	Avg. qty/ ha
Loose stone check dam	No	4	Cft	326	1304.00	54.33
Gabion Check Dam	No	2	Cft	1302	2604.00	108.50
Brushwood layering	No	453	Rft	27.8	12593.40	524.73
Brushwood check dam	No	6	Cft	64.6	387.60	16.15

6.1.6.5 Kaghan Forest Division

In Kaghan Forest Division 12 hectare area treated with loose stone check dams, gabion check dams, brushwood layering, gabion spurs and vegetated loose stone check dams were monitored at Manur Valley (Table-9). Overall survival rate of the plants and plant material used in the badlands rehabilitation measures was above 81% with 87% in brushwood layering and 76% in vegetated loose stone check dams. Suitability, layout and designs of all of the measures and structures used at this site were found to be according to the recommended standards (Table-14).

It was observed that the field staff had good knowledge of the bioengineering works. Most of them had been trained during the "Environmental Recovery Project" jointly implemented by UNDP and KPK FD during 2007-2010.

Table 14: Engineering and bio-engineering structures at Manur valley in Kaghan Forest Division

Measures adopted	Unit	Achieved	Unit	Avg. qty/ structure	Total qty	Avg. ty/ ha
Loose stone check dam	**No**	**80**	**Cft**	**104**	**8320.00**	**693.33**
Gabion Check Dam	**No**	**30**	**Cft**	**215**	**6450.00**	**537.50**
Brushwood layering	**No**	**125**	**Rft**	**23**	**2875.00**	**239.58**
Gabion spurs	**No**	**6**	**Cft**	**2384**	**14304.00**	**1192.00**
Vegetated Loose Stone check dams	**No**	**9**	**Cft**	**56.5**	**508.50**	**42.38**

Photo 21: Gabion Check Dam, Gallies

Photo 22: Loose stone check dam, Kaghan

6.1.6.6 Kunhar Watershed Division

A total of 17.4 ha area had been treated with brush wood check dams, soft gabion check dams, vegetated loose stone check dams, loose stone check dams and brushwood layering (Table-15). Suitability of the measures and structures used according to the requirements of the selected site were fair while their design and layout were good. Major species planted were Willow, Poplar and Robinia. The overall survival rate of plants and plant material was over 63% with 76% in brushwood check dams, 53% in soft gabion check dams, 62% in vegetated loose stone check dams and 61% in brushwood layering and 61% of plants in plantation. This is a good survival rate due to the fact that most of the field staff had proper knowledge about the bioengineering techniques. They had also been trained under the UNDP project.

It was also observed that the selected site with a huge landside was extremely difficult to be stabilized through biological and bioengineering works. Due to reoccurring of landslides most of the structures were damaged and were under the debris.

Table 25: Engineering and bio-engineering structures at Malkandi in Kuhar Forest Division

Measures adopted	Unit	Achieved	Unit	Average quantity/ structure	Total quantity	Avg. quantity/ ha
Brush wood check dams	No	5	Sft	27.2	136.00	7.82
Soft Gabion check dam	No	6	Cft	232	1392.00	80.00
Vegetated Loose Stone Check Dam	No	36	Cft	138	4968.00	285.52
Loose stone check dam	No	172	Cft	135	23220.00	1334.48
Brushwood layering	No	92.31	Rft	92	8492.52	488.08

6.1.6.7 Siran Forest Division

A total of 15 ha area had been treated with planting of seedlings, loose stone check dams and cutoff drains (Table-16). Suitability, layout and design of 67% measures and structures were good while 33% were fair. Survival rate of the plants planted in the area was about 93%.

Table 16: Engineering and bio-engineering structures at Siran Forest Division

Measures adopted	Unit	Achieved	Unit	Average quantity/ structure	Total quantity	Avg. quantity/ ha
Loose stone check dam	No	36	Cft	170.2	6127.20	408.48
Cutoff drains	Cft	1148	Cft	3.00	3444.00	229.6

6.1.6.8 General observations regarding badlands rehabilitation works

Badlands rehabilitation works are very technical and expensive requiring sound skills and proper planning. It is recommended that proper surveys should be conducted and plans comprising of type of treatment, their layout and designs and cost estimation be prepared well before initiation of any works.

Sites with huge landslides and cutting, like in the case Malkandi in Kunhar Watershed Division, should be avoided as bioengineering techniques have their own limitations and cannot be applied everywhere. The Malkandi landslide was so difficult that even NHA with a lot of resources could not fix it. They rather avoided this site.

Bio-engineering and biological measures are season bound and should be done in winter and spring season. In most of the above sites bio-engineering works had been carried out during off season when all the plants had sprouted reducing survival rate.

Fencing through barbed wire or brushwood is extremely important for bio-engineering and biological measures. As most of these works are along the roads and paths frequently used by migratory herders, it is important to provide fencing in the PC-1.

It was also observed that the field staff especially in Swat, Kalam and Kohat Forest Divisions had limited knowledge about the bio-engineering and engineering structures. In some cases like Balakot village in Kalam Forest Division although good efforts had been made to construct the badlands rehabilitation structures however unnecessarily large size structures like loose stone check dams and retaining walls had been constructed at wrong sites.

In Kohat simple block plantations at normal sites had been declared as badlands reclamation measures. All these issues are actually due to limited knowledge and skills on the part of the field staff.

6.1.7 Reclamation of saline and water logged areas

To rehabilitate areas affected by salinity and water logging and bring them back to their productive potential various measures were planned for a total area of 150 ha during the first phase. Rehabilitation measures such as deep ploughing, drainages and planting of water and salinity resistant species with special planting techniques were prescribed in the PC-1. These interventions were planned for the southern region only.

By August 2015 135 ha had been achieved. A total of five sites having 81 ha area were monitored. All of the five sites were suitable for the reclamation measures. There were no management plans available to deal with such sites. Planting of suitable species in trenches and on mounds had been carried out. Major species planted were eucalyptus, Kikar, Frash, Phulai and Conocarpus. The overall survival rate of plants in the treated sites was 72% ranging from 54% at Nisata in Peshawar Division to 93% at Wand Sherdil in Bannu Division (Figure-32). Average spacing of plants and pits size were well within the recommended limit (Table-17 and 18).

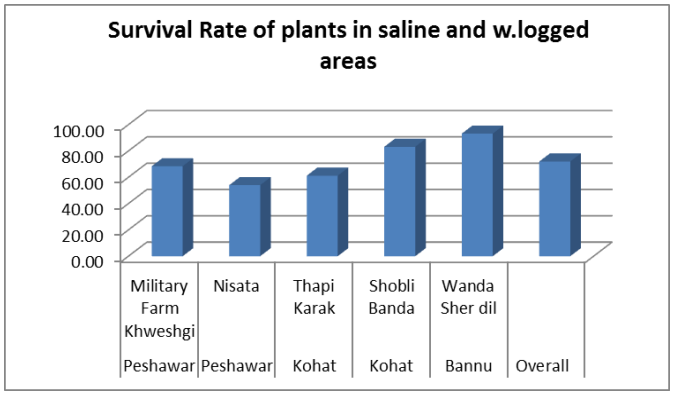


Figure 32: Survival rate of plants in treated saline and waterlogged areas in Southern region

Photo 23: Saline and Water Logged area, Wanda Sherdil, Bannu

In Khweshgi site planting had been done mainly in trenches and some along the ridges. Success rate was higher along the ridges. In Nisata area planting had been done on mounds. In either case techniques like drains or treatment with Gypsum or any other chemical had not been applied. Sites at Thapi, Shobi Banda and Wanda Sherdil were the best treated ones with good survival rates (Appendix-J). Areas claimed and measured varied by 7% i.e. the area actually measured was more than what the FD had claimed.

It is recommended that before initiation of treatment of these sites proper plans needs to be prepared by the concerned DFOs and SDFOs for guidance of the field staff. It is also recommended that the field managers should use modern mechanical ways. For saline and waterlogged sites tractor mounted augers can be used for excavating and refilling the pits with mixture of soil with gypsum and farm yard manure. Moreover tractor mounted ridgers can also be used.

Table 37: Species percentage in saline and waterlogged areas reclamation

Forest division	Location/ Site	Species and their percentage (%)									Survival Rate %
		Eucalyptus	Phulai	Bakine	Kikar	Conocarpus	Shisham	Frash	Jand	Others	
Peshawar	Military Farm Khweshgi	66.67	0.00	0.00	0.00	25.00	0.00	0.00	8.33	0.00	68.38
Peshawar	Nisata	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	54.00
Kohat	Thapi Karak	0.00	41.67	0.00	33.33	0.00	25.00	0.00	0.00	0.00	61.19
Kohat	Shobli Banda	59.52	0.00	0.00	14.29	0.00	0.00	26.19	0.00	0.00	83.15
Bannu	Wanda Sher dil	64.39	0.00	0.00	14.15	0.00	0.00	18.05	0.00	3.41	93.16
Overall		**58.12**	**8.33**	**0.00**	**12.35**	**5.00**	**5.00**	**8.85**	**1.67**	**0.68**	**71.98**

Table 184: Average spacing and pit size in treated saline and waterlogged areas

Location/ Site	Avg. Spacing ft)	Avg. Pit/ trench size and volume	
		Width (ft)	Depth (ft)
Military Farm Khweshgi	9.52	1.72	1.25
Nisata	10.23	1.77	1.36
Thapi Karak	9.88	1.74	1.31
Shobli Banda	10.75	1.82	1.12
Wanda Sher dil	9.80	1.94	1.39
Overall	**10.03**	**1.80**	**1.28**

6.1.8 Planting of seedlings under farm forestry and agro-forestry

Under the farm forestry a total of 3.400 million seedlings were target to be distributed among the farmers identified by the Community Development Officer and local community organizations. By August a total of 6.978 million seedlings were distributed by the respective forest and watershed divisions with an over achievement of target by 49%. Out of this a total 0.804 million seedlings were monitored and verified. The overall survival rate was 65% which is quite acceptable keeping in view different priorities and practices of the farmers. In southern region the survival rate is above 79% which is a good indicator (Figure-33and 34).

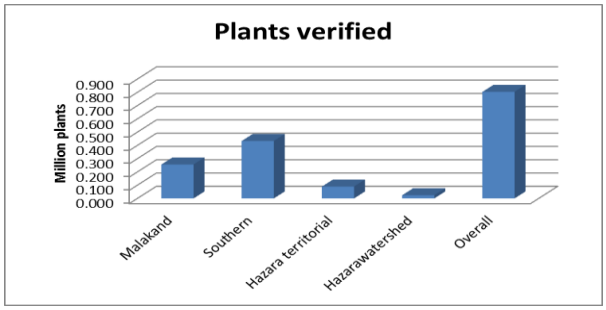


Figure 33: Number of plants physically verified

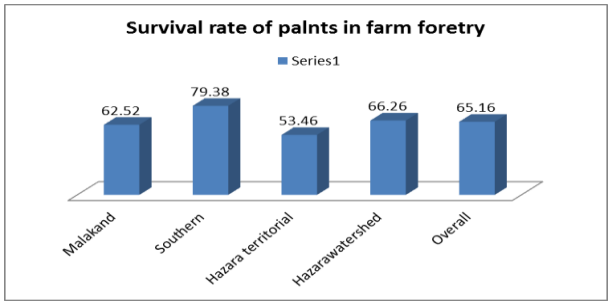


Figure 34: Survival rate of plants provided under farm

Photo 24: Farm Forestry, Mardan

Photo 25: Farm Forestry, Gallies

Photo 26: Farm Forestry, Bannu

Photo 27: Farm Forestry, Siran

6.1.9 Promotion of forest based cottage industries (Planting of Mazri and Kana)

A total of 50 ha of Mazri and Kana plantations were planned during, which has been achieved. A total of 15 ha Kana plantation and 15 ha Mazri plantation has been carried out in Kohat Forest Division while 20 ha Kana plantation in Lakki Marwat are of (Bannu Forest Division). Survival rates are excellent both in Kana and Mazri plantations (Table-19). Plant to plant spacing is also according to the standard 10ft by 10ft.

Table 59: Status of Mazri and Kana Plantations

Division	Location	Species	No. of Plants (FD Record)	No. of Plants by Monitoring Team	Area claimed (ha)	Area measured (ha)	Variance	Survival Rate
Bannu	Tor Talla	Kana	21560	24338	20	22.64	2.64	98
Kohat	Duaba	Mazri	16125	15882	15	14.1	-0.9	96.2
Kohat	Sadadin Banda	Kana	16125	13305	15	13.7	-1.3	71.2

Photo 28: Mazri Plantation in Hangu

Photo 29: Kana Plantation in Lakki Marwat

6.1.10 Rehabilitation of degraded Watersheds

Under this category a total of three watersheds were planned for the Phase-1 out of which some selected activities mostly engineering and bioengineering structures were carried out in Manur valley in Kaghan and Balakot village in Kalam forest division.

6.1.10.1 Manur Valley sub-watershed (Kaghan Forest Division):

For Manur valley a tentative Integrated Watershed Management Plan was written by the SDFO Jarid. A copy of Kanshian IWM plan prepared under UNDP supported project "Environmental Recovery Programme for the Earthquake Areas" was provided to be used as a standard template. Three types of activities were carried out in Manur Valley on conservation measures;

i. Plantations: The data on reforestation was collected by the monitoring teams has been reported under the plantations.

ii. Landslide stabilization with soil bioengineering: For stabilization of landslides two types of activities were carried in the valley construction of vegetated soft gabion walls and brush layering treatment of critical slopes

   a. Vegetated soft gabion check walls: According to the data collected by the monitoring team 30 soft gabion walls were constructed. Out of which measurements of 13 walls were taken. The volume of the vegetated soft gabion walls ranged from 78 to 477 cft. Sprouting of brush wood was good.

   b. Brush layering treatment: According to the data recorded by the monitoring team seven slopes treated with brush layering were monitored. The number of layers ranged from 10 to 22 layers. The sprouting percentage of the brush wood ranged from 81 to 92 which show successful result. The brushwood of willow and poplar were used in brush layering. The treatments were carried out at the proper season therefore the sprouting percentage was high.

iii. Gully erosion control: A total of 80 loose stone check dams were constructed out of which of 22 check dams were measured. The volume of the check dams ranged from 72 to 189 cft. During the visit of the consultant the field staff of the Jared subdivision was instructed to provide spillway in the center of all the loose stone check dams.

iv. Channel Bank Erosion control: For channel bank erosion control six gabion spurs were constructed along the bank of channel draining the valley. Out of six measurements of four spurs was taken by the monitoring team. The volume of the spurs ranged from 1458.5 To 3457 Cft. According to the data provided by the team all the four spurs are single layered.

6.1.10.2 Integrated Watershed Management Balakot Village Kalam Forest Division:

In Kalam Forest Division a catchment had been selected at Balakot village on the right side of the Swat River along the Kalam road. A debris slide has been treated with different engineering and soil bioengineering treatments. Kalam Forest Division has made a lot of efforts to install different soil bioengineering and engineering structures although they did not have any experience of slope stabilization with soil bioengineering which is highly appreciated.

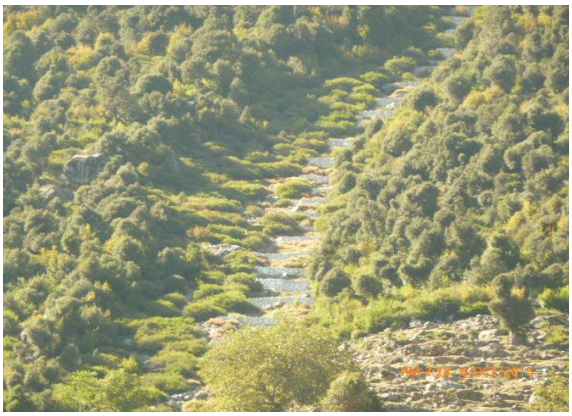


Photo 30: Loose stone check dams at Balakot village, Kalam Forest Division

The engineering structures are stone dry masonry retaining walls, loose stone contour bunds, and loose stone check dams. Check dams were constructed in the area of debris slide and streams above the Balakot village.

The soil bioengineering interventions were vegetated soft gabion walls, timber crib walls, brush wood check dams and brush layering. The staff supplemented all the intervention with sowing of Ailanthus altisima seed as there was no sprouting of brush wood used in different interventions.

An orchard has also been established at Balakot village by the Forest department.

The loose stone retaining walls are properly constructed at the base of the debris slide along the Balakot village link road. The check dams did not have proper spillways. The forest officers were briefed about the proper design of the check dams and it was suggested they should improve the check dams by providing proper spillway and anchor the check dam walls into the banks.

For constructing the soft gabion walls the cement empty bags were filled with imported forest soil and used for the construction of the walls and cuttings were planted into the filled bags directly. This is an extra effort of using fertile forest for filling the bags. In fact the fertile soil should have been used for layering the brushwood in between the debris filled bags. The forest officers were briefed about the procedure for the construction of vegetated soft gabion walls.

Timber crib walls were constructed with proper procedure but brush layering carried out in crib wall did not sprout and same was the fate of brush layering and brush wood check dams because these were constructed in the active season (May- August 2105). The season for soil bioengineering treatment is winter and spring season (December- March). The Forest Officers were briefed how to improve the existing bioengineering structures and follow the proper procedure for their construction in future.

They were also briefed about the concept of integrated Watershed Management. The Integrated Watershed Management Plan of Kanshian Watershed was also provided for guidance in preparing the Integrated Watershed Management Plan for Balakot sub-watershed.

They were also briefed for treating the debris slide on the main Kalam Road below the Balakot village link road. The techniques for debris slide stabilization are different than those of landslide stabilization.

6.1.11 Improvement of rangelands and pastures

A total of three pastures were planned for phase-1 out of which work was initiated only in one site at Golain valley in Chitral. As snow fall had occurred detailed survey of vegetation could not be conducted. However a general assessment of the area treated was conducted. Only Alpha alpha seed had been sown in trenches a 10 feet spacing on 25ha area. Sprouting rate was assessed as 90%. The area is also fenced and a watcher engaged to protect it against free grazing.

Proper management plan and grazing plan was missing. Like watershed management and slope stabilization techniques this is highly technical and needs proper planning.

6.1.12 Promotion of NTFPs

This activity was planned to be carried out by the NTFP directorate of the KP Forest Department in Malakand Region. Following activities were planed during the first phase;

- Establish Base line of NTFPs for each eco-region and to assess present status of NTFPs, their conservation and marketing problems, future potential for marketing inland and abroad.
- Identify marketable NTFPs of each zone and assess their demand & supply potential.
- Promote collection, storage, processing and labeling of preferred species.
- Package the mechanism of conservation and sustainable utilization of high value medicinal plants of upland forests.
- Provide community with market information and enable it to fetch fair and competitive price.
- Package and impart necessary skills to collectors with regard to identification, collection, processing and storage of important NTFPs.

Against the above mentioned activities only a three days training was conducted on “MAPs, Honey & Mushroom Production in Gurnai Valley, Bahrain Swat. A total of 32 farmers were trained.

6.1.13 Capacity building of farmers communities and entrepreneurs

The HRD directorate of the KP FD has conducted a series of trainings on nursery raising for the private nursery growers. These trainings were conducted at Forest Division level.

6.1.14 Research and development

Under the phase-1 following research areas and themes were identified to be undertaken by the R&D directorate:

i. Comprehensive survey on fuel wood production and consumption and other sources of rural energy;
ii. Grazing pressure assessment survey;
iii. Establishment of baseline for detection of species status in various eco-systems;
iv. Research on selection of tree species for fuelwood, timber and multi-purposes;

Till August 2016 the R&D had conducted a study on the fuel wood production and consumption. A report has been published on this study.

7 EMPLOYMENT GENERATION AND LIVELIHOOD IMPACTS OF THE PROJECT

Besides serving the purpose of eco-system restoration and enhancement, the BTTAP also aims at generation employment opportunities at the local level, especially to youth and women. There are a number of modes of employment generation:

- Enclosures: A 20ha closure is protected against illicit activities through a watcher. For 375,000 ha area under closure will have 18,750 persons gainfully employed as watchers for four years.

- Planting of multi-purpose Fast-growing Tree Species: For this purpose, one watcher is appointed to watch 20 ha. Based on our calculations, one ha of block plantation generates 55 man-days of gainful employment. For planting 5,500 ha MPFGTS, the BTTAP generated 320,500 man-days of employment to local people.

- Private Nurseries: Employment to those who have been allotted nursery growing assignments, are also contributing to a number of additional activities and with that, a number of employment opportunities. It includes, person engaged in various operations, provision of services etc. A 25,000-plant nursery generates 52 man-days of labour. This includes filling of polythene bags with soil, sowing of seeds in p-bags, maintenance of plants and shifting of plants. For the entire KPK, it is planned to grow 1,504 units of potted nurseries. This in terms of employment generation would sum up to 78,208 man-days. It is worth mentioning here that the private potted nurseries have proved to be a good opportunity for women in rural areas. During the first phase about 13% of the private potted nursery growers were women. In general women showed more interest in raising private nurseries.

- Regarding Mazri and Kana plantations labour and watchers were employed during the plantation as well as afterwards. Once successful these activities would generate an employment chain in terms of labour engaged in harvesting, processing and marketing. This activity is very important for women employment as they are usually involved in harvesting and processing of these NTFPs. On average 3000 headloads of Kana is produced per hectare, which would generate a sum of Rs.360,000/- @ of Rs. 120/ headload. A total of 35 ha of Kana plantation had been carried out, which could generate a sum of Rs. 1.26 million in on annual basis. Regarding Mazri per hectare production is 10000 kg, which is able to generate an amount Rs.27500 per hectare. Under the BTTAP a total of 15h area had been planted with a production potential of 150,000 kg generating a total amount of Rs.412500/- annually. Here also women, especially poor ones, are involved in harvesting and processing of Mazri products. During the monitoring it was revealed that no training regarding harvesting, processing and marketing either of Kana or Mazri had been conducted.

8 UNMITIGATED ENVIRONMENTAL ISSUES OBSERVED

As explained under the "Findings of the field monitoring" the project has worked on all the identified environmental issues and implemented most of the activities planned during Phase-1 however progress on some interventions such as integrated watersehd management and rangelands and pasture management was a bit slow.

9 ASSESSMENT OF CONTRACTS/PROJECT VIS-À-VIS GOVERNMENT OF KHYBER PAKHTUNKHWA SAFEGUARD POLICIES AND NATIONAL ENVIRONMENTAL LEGISLATION/REGULATIONS

The BTTAP Project is about improvement of forest cover through afforestation and natural regeneration in all the cological zones of the province and is planned according to the Pakistan Environmental Protection Act 1997 and the Khyber Pakhtunkhwa Environmental Protection Act 2014. With some minor exception of exotic species on private and community lands and use of pesticitides in plantations the rest of the project interventions were found well in accordance with these acts and regulations. The project contributes to the objectives of these acts and regulations through;

- Increasing forest cover through plantations and natural regentation;
- Promting natural vegetation and biodiversity through establishment of enclosures in natural forests;
- Promoting biological and bioengineering measures to stabilize and rehabilitate degraded slopes and watersehds thereby encouraging environment friendly ways;
- Enhancing carbon sink through afforestation and protection of forests.
- Involving local communities and stakeholders in nursery raising, plantations and protection of forests;

10 CAPACITY BUILDING NEEDS

During review of the project documents and field monitoring following capacity building needs were identified;

- The FD field staff i.e. DFOs, SDFOs, RFOs need elaborate training on keeping and maintaining records of their activities and proper reporting. The KPK FD has an established system of these records and needs revival through a series of trainings.

- There is need to train and sensitize the field staff about the importance of biodiversity and its conservation as well as the ecological functions. This should also include trainings and sensitization sessions for field staff and communities on selection and planting ecologically suitable species.
- The private nursery growers need further trainings on nursery raising techniques. These trainings should be conducted well before initiation of nurseries operations;
- There is need for trainings on monitoring and protection of natural regeneration for Community Negahbans. These trainings may include sessions on protection measures including forest fires, reporting the damage etc. to concerned community representatives and then to the forest staff for action etc. Moreover these may also include sessions on how to monitor the number of seedlings, their species, size etc. in a closure and report to concerned FD officials and community members;
- The social mobilization and awareness raising needs further strengthening. There should be training on social mobilization and awareness raising for the CDGAD directorate as well as field staff of in both watershed and territorial forest divisions.
- Training on integrated watershed management, soil bio-engineering techniques and pastures management for field staff i.e. DFOs, SDFOs, RFOs and Foresters. This training may include sessions on conducting surveys, identifying issues and problems, identification, planning and designing of suitable measures and techniques, community involvement, writing of management plans as well on site implementation of various measures and techniques.
- There is also need for trainings on dry afforestation techniques including rehabilitation of saline and water logged sites especially for field staff in Southern Region.
- In addition to training there is need for strengthening the field staff through provision of proper tools and equipment. There is need for mechanized dithcers and ridgers for dry afforestation techniques and rehabilitation of saline and water logged areas.
- Field staff especially foresters and forest guards need facilities regarding mobility to easily access their project sites.
- For monitoring the status of natural regeneration enclosures it is recommended to conduct a detailed baseline study along with fixed point photography before establishing the enclosures.
- The Pakistan Forest Institute being mandated for the forestry eduction and research can also play a mjor role in capacity building of the field staff. The PFI should join hands with the HRD unit of the KP FEWD.

11 SUCCESS STORIES

As an additional input the WWF-Pakistan team collected information on 10 best performing individuals and developed their success stories. A brief summary of these stories is given as under.

Photo 31: Haji Amir Nowshad, VDC president Osakai Lower Dir

1. Haji Amir Nowshad established an active VDC in his village Osakai Lower Dir. His innovative thinking for providing alternative solutions to the problems of the local communities and protecting the forest resources are worth mentioning. Under his leadership the VDC distributed 200 LPG cylinders among the poor community members at the first phase of his commitment. This has motivated the community to protect the forests and also do carry out afforestation. While interviewing him he said, "It was a first step and I believe that forest conservation through community involvement is a step-by-step approach. We will also provide the same facility to all the community members to conserve forest".

Photo 32: Tube nursery raised by Hazrat Isma, in Khairabad Lower Dir

2. Hazrat Isma, a brave lady, belonging to a poor family and having four children (one boy, three girls), hails from Khyrabad, Chakdara in Lower Dir Forest Division. Her husband, Zubair Khan, was an unskilled labourer working on daily wage basis and earning about Rs.12,000/- a month, an amount that hardly covered their household expenses. After enrolling their children in school, it became impossible for them to bear the additional expenses of school fees, uniforms, books, and transport. With her neighbour's efforts, the Forest officials allotted her one unit (of 25,000 plants) of tube nursery. Before initiation of the activity, the Forest Department also organized training for her on nursery establishment in February 2015. She belongs to a very conservative family and initially, her husband opposed her but with some efforts she convinced him. Now, she has established a tube nursery and the Forest Department has already paid her two of the three installments amounting to Rs.75000/. She has worked hard and has successfully achieved the target allotted to her. Now she is very satisfied with her income and skills she has gained. While talking to her she said "I am much happy with Forest Department and with this intervention. They gave us skills of nursery establishment and I can use this skill for the better future of my children"

3. Iqra, a girl in a remote village called 'Lora' in the precincts of Makhanial Forest Division, is doing MS in Computer Science besides teaching at her own school. Being ambitious and entrepreneurial in nature, she has also raised a forest nursery - courtesy BTTAP - that is doing awfully well. She has raised nursery by herself in her own school and thus optimized the space utilization - something rarely done in our wasteful society. Till now, she has already been paid two of the three-installment package and handed over 6,000 plants to the Forest Department under the BTTAP. Success rate of her nursery is 96% which is excellent. Her nursery in the school has a number of advantages: one, that it provides her experience in how to raise plants; two, that the nursery is safe within the school confines; three, it serves the purpose of demonstration to students and the hundreds of visitors; four, that it is a source of income to her school; five, it will raise the students' and visitors' level of awareness about the importance of plants; six that it provides a soothing sensation to the onlookers; seven, that it inspires others to emulate; and eight, that it ultimately supports the BTTAP to meets its core objective - greening the Khyber Pakhtunkhwa.

Photo 33: Tube nursery raised by Iqra in Lora village, Hripur Forest Division

4. A 50-year-old Forester, Khanzada has played a vital role in restoring the nurseries. He trains private nursery growers of Karak Sub-Division in basic nursery techniques. Previously he has been working as a Master Trainer in different project. "I love plants. I love social forestry I do this for my pleasure. I spend much of my time to visit private nurseries and teach different nursery techniques to growers. I believe the future of this area rests on these nurseries. These people have no education and no jobs. Who knows, maybe these nurseries can improve their lives," Khanzada explained. He is a hardworking man and all his efforts can be seen by visiting all the private nurseries of Karak that are in excellent condition. They have proper layout, best management practices and 100% survival rate. When asked how nurseries will benefit the local people and the village landscape, he said that with amounts provided to grower, they buy seeds and polybags from the market. I try to transfer to them all the basic techniques of nursery-raising to them and this practice is developing skills in the people. They are now trained enough to continue with this entrepreneurship. In future, irrespective of the BTTAP, they will be able to grow their own plants, sell them in the local market, generating sustainable income to them, besides making the countryside greener; the basic objective of BTTAP.

Photo 34: Khanzada, Forester, Karak Forest Sub-Division

5. When the news of murder of Muhammad Akram - the gem of a volunteer – was broken by Maqbool Forester, it was a tragedy of immense proportion. Nothing else could be done except to meet his near and dear ones, to condole with them, and to speak to them to know more about that great man who sacrificed his life at the altar of duty as a good forest lover. Muhammad Akhram belonged to Kohistan but migrated to Hawa Gali (AT) long ago. He worked as a volunteer informer with the Forest Department for the last 10 years for the protection and conservation of forests. Appreciating his selfless services, the BTTAP selected him as Forest Nigehbaan for a Closure covering Compartments 6 and 7 at Shamdhara, Hawa Gali, to protect the natural regeneration and control illegal harvesting of trees. He was performing his duty in an honest and passionate manner. One late evening, he was informed through phone call by a villager that a person along with his sons is cutting poles from his Closure. It was already night time but he left alone to protect his Closure. After traveling for one and a half hour, he reached the location of crime where one pole was already cut down. Muhammad Akram challenged the criminals and asked them to accompany them to the Range Office. They refused and tried to bribe him that he refused to accept. Meanwhile hot words were exchanged that converted into a fight and ultimately ended up in the murder of Muhammad Akram. Not only that, they severed his head by an axe and took it along. Muhammad Akram performed his duties for seven months with dedication and honesty. In recognition of his services, his son Anwar Khan has been appointed as Negahbaan of the Closure and is performing the duties of his father with the same spirit he did. May Allah Almighty bless him with a place in Paradise. Amin!

6. The son of a very respectable late Chieftain of Alakhel Kandae [clan], Malik Namoos Khan and his clansmen of 200 households, along with other owners of Chandan Garhi 209 ha of communal land, handed it over to the Forest Department for tree planting. He played a key role in convincing his clan and agreeing them to carry out plantation at Chandan Gahri setting the scene for others to follow. He is now actively playing his role in plantation as well as well its protection along with the forest guards. He enjoys his work and hopes that this would benefit his coming generation.

Photo 35: Namoos Khan, communal leader on the left and Iqbal Muhammad member monitoring team on the right

7. Belonging to village Julian in Khanpur, Robina had the courage to try something different and just doing it cannot be underestimated. Many people do not ever develop their ideas because they never get started. This may be due to lack of drive, lack of confidence or just not knowing how to and where to start from. WWF-Pakistan has been tasked with monitoring the planting activities under the BTTAP. The Community Development Officer of the area advised the monitoring team to visit a female nursery. The road to her house was narrow and steep. A courageous woman, Robina boldly stepped in the business, hitherto unknown to her, and started raising a tube-nursery. Although she didn't have open space to raise the nursery, yet she decided to do it in her courtyard.

This way, the entire compound of her house is now occupied by plants. Being a novice, she faced the problem that the seed that she has sown, did not germinate well. She however, didn't give up and rather decided to collect all the seed herself for sowing. She collected multiple varieties of fruits, ornamental plants and forest trees seeds, sow it and voila; the plants sprouted. Seeds personally collected by her germinated well giving a survival rate of 80% which is very good. Now, she has an excellent nursery stock flourishing right before her eyes, in her courtyard. She has raised fourteen tree species and fruit plants (Chir, Kachnar, Siris, Iple Iple, Eucalyptus, Phulai, Shisham, Saroo, Jamman, Sukh Chain, Bottle Brush, Retha, Guava, and Mango). This shows her interest and her resolve in going for a wide variety of plants. Though the space is limited but she has effectively utilized it. This is substantiated by the fact that there was no space available even to install a signboard there. She found a novel way to do it: she installed the signboard on the roof of her house.

Photo 36: Nursery raised by Robina Gul

Photo 37: Robina Gul at the back

8. Belonging to Tarnab, near Peshawar, Shaukat has extensive experience in nursery-raising that he opted for at the age 9 when he started extending a helping hand to his father at his nursery. Being a keen observer, Shaukat remained actively involved in different nurseries operations. After a few years, he learned a lot, done every job at least once and developed linkages with other people in the business. His interest took him to more nurseries and greenhouses from where he brings different varieties of plants. He is now a private nursery grower of two units (50,000 plants) under the BTTAP. His nursery is well maintained from all aspects that can be gauged from the fact that the survival rate of his planting stock is 92%, an excellent performance. He has introduced a unique grading system of plants, within the same bed; by arranging smaller plants in the front to have greater exposure to light and nutrients. This way, he provides better growth opportunity to the smaller plants to grow faster and catch-up with the taller plants.

Photo 38: Shaukat a progressive nursery grower at Tarnab

9. A retired Forest Guard, a resident of Shinkiari Town in the jurisdiction of Siran Forest Division, Zakir Hussain found an opportunity to get his highly educated sons involved in raising Youth Nurseries. This innovative opportunity has been conceived by the well-meaning proponents of BTTAP that

provides not only gainful employment to educated youth but as a synergy, contributes to the betterment of natural environment, so crucial in these difficult times of climate change and the resultant global warming. With extremely meagre resources as a retired Forest Guard, Zakir Hussain grabbed the prospect of nursery-growing and encouraged and technically facilitated his jobless educated sons for raising youth nurseries. Some brief introduction of his sons would make interesting reading. His eldest son, the 33-year-old Qaiser Naeem holds diploma in Agriculture Extension; Atif Zakir is 31-year-old and hold MPhil in Education; Farrukh Naeem is 27 and to his credit, has MS in Management Sciences; while his youngest son, Ansab Zakir is 24 and has BS (Economics). After investing a fortune in their education, the four highly educated sons, have yet to get some gainful employment. Like a bounty bestowed by Nature, the nursery-raising activity, under the BTTAP proved a ray of hope for Zakir, who convinced his sons to go for it. For this, he suggested to use his agricultural land, traditionally used to grow maize and wheat, to raise youth nurseries. To his delight, all of his sons accepted the suggestion and started growing a nursery for the Project.

Photo 39: Zakir Hussain, a successful nursery grower in Shinkiari

10. Zulaikha From Bissian near Balakot a 60 year old mother to seven children; four daughters and three sons two of whom are intellectually disabled. Her husband is long dead and she has to look after the family of eight against all odds. After the death of her husband and the only bread-winner of the family and with no idea what to do, even to minimally sustain, she somehow managed a buffalo and started selling milk in her native. Fortunately she has the greatest of all the weapons in her arsenal – faith – that generates its creative energy that leads to its capacity of renewal and for adapting to changing environment and to sustain her commitments accordingly. When the BTTAP started finding suitable persons as private nursery growers, Ms. Shahzia, the Forest Extension Worker at Kaghan Forest Division, identified and proposed her name as one of the deserving candidates for growing private nursery. After review and recommendation by the VDC, Bissian, her application was sent to and subsequently approved by the DFO, Kaghan Forest Division in March, 2015. And so, Zulaikha Bibi started raising a Tube Nursery in April, 2015 in her compound and maintained it efficiently. Though she can raise a 25,000 plant nursey but due to lack of space, she has at the moment, grown 11,400 Chir plants and 3,100 Ipel Ipel plants. All of her Chir plants are of plantable size while Ipel Ipel would be ready for the spring planting next year. Her plantable stock is 86% which is an excellent achievement, given her being a total novice in the business. Till now, she has received her first installments from the BTTAP.

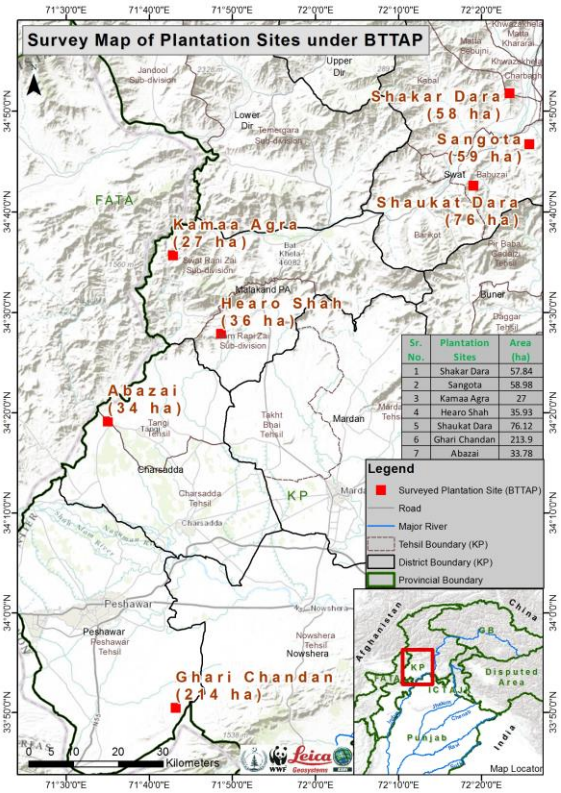
Photo 40: Tube nursery raised by Zulaikha Bibi in Bissian village Balakot

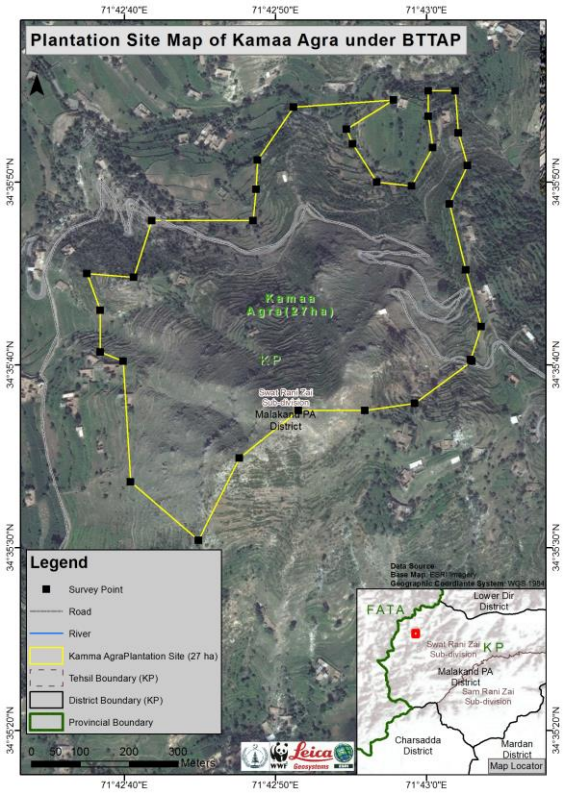
12 OTHER DELIVERABLES (CAPACITY BUILDING IN GIS BASED MONITORING)

Photo 41: Training on GIS and RS based monitoring for FD staff

WWF-Pakistan's GIS team developed and conducted trainings for the PMU and BTTAP staff to design and develop a GIS/ RS based monitoring system for BTTAP interventions. The GIS based monitoring system was to be designed using the satellite imageries and maps to be provided by the BTTAP and Forestry Planning and Monitoring Unit and the field data collected by the WWF-Pakistan's monitoring team as a baseline. Due to some reason the BTTAP could not provide the GIS data, however the WW-Pakistan GIS team used the data provided by the monitoring team. The trainings comprised of two levels. User level-1 included a brief introduction to GIS/GPS data handling and processing, basic level ground truth data collection techniques and methods. User level 2 consisted of satellite image classification techniques, standardization of forest/ vegetation cover maps, using of the most advanced approach of Object Based Image Analysis (OBIA) on trial version of e-Cognition software.

The training was conducted at FPMU office, Peshawar from 11-15 January, 2016. The one week training focused on the fundamentals of GIS, GPS and satellite image classification through use of ARC-GIS and e-Cognition software. Training format consisted of formal lectures followed by practical exercises. The practical exercises were organized to consolidate the concepts taught during lecture and help the trainees apply their knowledge. A total of ten participants attended the training. Moreover training handouts and resource material were shared with participants to help them collect the geospatial data of plantation sites and other activities with more precisions using geospatial technologies.





13 CONCLUSION AND RECOMMENDATIONS

The VDCs' role has been mainly confined to the enclosures with no other roles in development and natural resource management. This has resulted in low interest on the part of the VDCs' members. It is recommended that along with establishing new community based organizations the recently elected local government representatives should also be given an effective role.

In general the KPK Forest Department has made tremendous progress in limited time and resources. The field staff needs appreciation for their excellent efforts.

The block and linear plantations are well according to the set standards and requirements. The areas of the plantations are a bit more than what were claimed. A total of 6758 ha of block plantations have been carried out till August 2015 with an average survival rate of 86%. Moreover 494 ha of roadsides, canal side plantations with 79% survival rate have been carried out. This is a highly challenging task as it requires a lot of efforts for protection.

More than 27 species have been planted. Eucalyptus and Chir Pine are the major species in these plantations. This is partly due to the reason that Eucalyptus is highly preferred by farmers and partly due to its high chances of survival. Chir pine is a good option and has been followed in Hazara and Malakand regions.

We therefore recommend that the percentage of eucalyptus may gradually be reduced and suitable local species be promoted in order to promote and conserve the biodiversity as well. Moreover there is need to train and sensitize the field staff about the importance of biodiversity and its conservation as well as the ecological functions.

The monitoring team observed use of pesticides and insecticides in plantation areas in Kohat and Dera Ismield Khan for control of termites and other insects and pests. This practice is actually against the PEPA 1997 and KPK EP Act 2014 polluting water and other ecological functions of the forests as well as plantation areas. Some of the main objectives of this project are improvement of biodiversity and promotion of ecological functions of the forests, which could be disturbed by adopting environment unfriendly measures. We therefore recommend resorting to ecologically friendly and safe measures like biological control of pests. Local and indegious species are more adopted to pests and disesase and should be promoted.

Quality and quantity of seedlings in departmental nurseries was excellent with survival rate of 73% in bare rooted and 83% in tube nurseries. A total of 2756 units of private nurseries have been established by August 2015. Success rate in private nurseries is also very encouraging with 78% in bare rooted and 73% in tube nurseries. With the above survival rates and quality efforts a total of 143 million plants are estimated to have been produced; 92 million plants produced in departmental nurseries and 51 million plants produced in private nurseries.

These nurseries have provided good job opportunities to farmers especially to both progressive and poor farmers including women. Success rate in nurseries with total number of seedlings ranging from 50,000 to 100,000 is comparatively higher than the nurseries with number of seedlings above 100,000. It is therefore recommended that the number of seedlings in a private nursery should be kept around 100,000 for men and 25000 to 50,000 for women.

The project has made successful efforts of improving natural forests through establishment of enclosures. On average 2316 plants were recorded per hectare of closures, which is a good indicator for improvement of natural forests and biodiversity. According to our estimates a total of 62 million seedlings have regenerated in 25311 ha of closures at 411 sites. Over 13 different indigenous species have been regenerated which also include endangered species like *Taxus wallichiana* (Burmi).

The PC-1 did not include details about the design and specifications. For each intervention proper guidelines should be provided to the field staff;

The feedback and coordination mechanism among the decision makers and the field staff needs to be developed to have input from the field team in the refinement of interventions, process and approaches. A comprehensive training program should be initiated for the field staff on the new technologies including integrated watershed management, soil bio-engineering techniques and pastures management etc.

Concepts and interventions of watershed management and reclamation of badlands, saline and waterlogged areas have been mixed up by the field staff. There is need to have some clarity among the

field staff. Therefore the Forest department staff of Malakand region needs capacity building in IWM, Slope Stabilization and Soil Conservation before they start such activities during 2016. Although most of the staff members of the Hazara region are familiar with new techniques of slope stabilization but the newly inducted staff do need capacity building in the subject.

The BTTAP is an ambitious program. Partnerships with the Non-Governmental Organizations, Education Institutions etc. should be developed. The BTTAP needs to devise sustainability plans focusing the scientific management after the completion of the BTTAP.

Social mobilization process needs further strengthening and should be given priority. In the past very useful mobilization approach had been developed under the social forestry project in Malakand/ Dir, which need to be used for the BTTAP project.

Forestry is a long term business and needs careful planning. Though there should be deadlines to meet the targets but at the same time we need systematic and process oriented approach. Here comes a strong role of the CD&GAD directorate of the FD. More human resources should be provided to this directorate.

The roles of R&D, HRD and NTFP directorates are weak. A proactive approach is needed to ensure their effective involvement. Moreover PFI can play a major role in the capacity building and research components and should be engaged as well.

In southern region the Forest department should adopt rain water harvesting for reforestation which is much cheaper and successful as compared to planting with hand watering. Planting with water harvesting has been demonstrated under the Forestry Sector Project starting from Swabi up to D. I. Khan at different sites.

The rain water harvesting techniques can also be applied for reforestation in Chitral district as it has been demonstrated through Pakistan GLOF project during 2015.

In Southern region the Forest Department staff need capacity building for planting under dry zone conditions using water harvesting techniques as well as rehabilitation of saline and water logged sites. Forest department staff in Chitral also need capacity building in IWM as the monsoon rains are shifting towards west and the Province is experiencing floods for the last one decade.

Last but not the least the KPK Forest Department should launch an award and appreciation mechanism to encourage best performing field staff, farmers and community representatives. There are success stories of best performing officials and community members, which need to be explored further and their successes highlighted. The monitoring team has identified and developed a few success stories which have been described already.

14 APPENDICES

Appendix-A: Monitoring TORs

Terms of Reference

For Consultancy Services to Monitor the Billion Trees Tsunami Afforestation Project activities in Khyber Pakhtunkhwa"

1. Background of the project

Forestry, Environment and Wildlife Department, Government of Khyber Pakhtunkhwa is implementing "Billion Tree Tsunami Afforestation Project aims at planning, designing, commencing and implementing "Green Growth Initiative". The Project is operative throughout the Khyber Pakhtunkhwa. The overarching objective of the project is to conserve, improve and rehabilitate forest ecosystems as well as to help in transforming current economic growth model to Green Economy gradually. Besides, it will create job opportunities for the youth and also provide means for social uplift and poverty eradication in the Province.

1. Stakeholders and Beneficiaries:

The stakeholders are all Regional and Divisional Forest Officers, Village Development Organizations (VDCs)/Women Organizations (WOs), outsource contractors and nursery growers. It will also include rural people of the project area in particular while the people of Khyber Pakhtunkhwa at large.
The scheme of Monitoring will include 50% external/third party monitoring.

2. Scope of Work:

Regular Monitoring of the Project activities will be carried out to ensure transparency, quality, effective and judicious utilization of development funds. The major activities (**Annexure-IIIa)** to be monitored and evaluated include departmental nurseries, private nurseries, departmental plantations, outsourced plantations, rehabilitation of degraded watersheds, pasture/range management. The exercise will cover all Project areas of intervention and all kind of related services.

The responsibility of the selected firm/organization will be as under:-

- To identify gaps and build capacity of forestry planning and monitoring circle in GIS/RS based monitoring.
- Random and even distributed verification/validation of the 50% areas, works executed under each category of the project and independent report to PMU on all project activities. The monitoring will be carried out by using means like record of plantation

journals, nursery journals, case studies, photos and maps and additional means mutually agreed and approved by Project Steering Committee (PSC).

- Regular feedback on the progress being made towards achieving the set out objectives.
- The Monitoring team will provide information to the field formation and PMU that can help the management to take informed decision in order to improve performance and achieve the planned targets.
- The team will provide detail of effectiveness of the developmental activities in line with key/essential indicator mentioned in **Annexure-III (a).**

3. Deliverables

The firm will be required to provide the Monitoring report at the end of the assignment. The language of the reports will be English. Illustrations, if necessary, may be provided as part of the reports. The report shall have the following indicative Table of Contents:

- Introduction
- Study methodology
- Outcome of document review
- Outcome of the field investigations
- Unmitigated environmental issues observed during field investigations
- Assessment of contracts/project vis-à-vis Government of Khyber Pakhtunkhwa safeguard policies and national environmental legislation/regulations.
- Capacity building needs
- Conclusions and recommendations
- Appendices (photographs, and any other relevant supporting details).

4. Time Frame for completion:

The contract period will be from the signing date of the contract till June 30th, 2015 and all activities have to be 100 % completed during this period.

5. Reporting:

Printed and bind copies of the Monitoring report shall be submitted (20 hard & 1 soft copy) with all relevant appendices and enclosures to the procuring entity within the time frame given above. The Project will have proprietary rights over the deliverables of this assignment

Appendix-B: Monitoring indicators

S#	Interventions	Key/essential indicators
1	Closure of depleted designated forests for increasing natural regeneration	• Terms and conditions are followed. • Effects on the forest • Follow up of the activity • Physical verification
2	Planting of multi-purpose fast growing tree species on communal and private lands between the natural forests and farmlands	• Suitability of species • Number, spacing, size and specie planted • Survival percentage of plants • Protection mechanism • Irrigation/watering • Any other indicator • Physical verification
3	Rehabilitation of degraded watersheds	• Establishment of community based watershed management plan prepared. • Impact in terms of Environment, DRR and livelihoods, check damming and Bio-engineering activities • Physical verification
4	Reclamation / Rehabilitation of bad sites through soil water conservation measures, bio-engineering structures and planting of drought resistant species.	• Suitability of the activity carried out • Site identification and suitable species raised • Any adoptive Research & Development activities • Physical verification
5	Reclamation of saline and water logged areas	• Design and suitability of interventions • Effectiveness • Physical verification
6	Planting of road , canal and railway tracts	• Landscape approach followed and choice of species. • Suitability of species • Aesthetic plantation layout. • Physical verification
7	Improvement of Rangelands and Pastures	• Extent of management and rehabilitation of the selected sites • Range improvement techniques • Grazing & browsing control • Grazing systems • Trespassing • Physical verification
8	Farm Forestry & Agro – Forestry	• Process of distribution • Random verification of 10% planting stock distribution • Involvement of the community • Physical verification
9	Promotion of Forest based cottage industries related to Mazri and Kana	• Mechanism followed for value chain development and its impact on the local socio-economic conditions • Physical verification as per the approved work plan
10	Promotion of non-timber forest products like medicinal plants, mushrooms and honey	• Involvement of community in the NTFP activities and its contribution to the local economic uplift. • Value addition through awareness and capacity building • To monitor backward and forward linkages that impact local economy and establish entrepreneurship. • Management plan of NTFP • Physical verification
11	Establishment of Central Model Nurseries a. Tube nursery	• Location, area, layout, suitability, size of plantable suitable plants.

	b. Bare-rooted nursery	• Health of plants, general maintenance of the nursery • Weeding effects • Physical verification
12	Establishment of private forest nurseries	• Identification and nomination of local community organization of target communities through resolution. • Ensure well designed bare-root lifting, root-trimming, packaging, storage and transport system. Similarly for tube plants. • Followed Instructions issued by the PMU vide letter No300-02/BTP dated 6/1/2015. • Selection of suitable tree species • Physical verification.
	a. Tube nursery @ Rs. 6 per plant, Unit = 25000	
	b. Bare-rooted @ Rs. 9 per plant, Unit = 25000	
13	Capacity building of farmer communities and entrepreneurs	• Training material • Execution mechanism of capacity building • Effect and impact • Physical verification
14	Support Activities of Integrated Specialized Units (Directorates)	All ISUs activities will be monitored and evaluated as per their work plans, impacts and changes in environment

Appendix-C: Survey sheets

Performa for bare-rooted Nursery

Date: _____

Name of interviewer: _____

A. General Information:

1) Name of nursery grower/ incharge: _____
2) Gender: Male □ Female □
3) Age: _____years
4) CNIC #: | | | | | | - | | | | | | | | - | |
5) Date of nursery establishment: _____
6) Division_____, Range _____, Block _____
7) Location: _____
8) Area Coordinates: N_____, E_____
9) Aspect : _____
10) Elevation: _____m

11) Ecological zone: _____

12) Soil quality: Good □ Fair □ Poor □

13) Ownership:

□ Departmental □ Community □ Individual

14) Agreement exists: □ Yes □ No, if yes, please provide a copy of agreement.

15) Objective of nursery :

a) Income generation □

b) Grow planting stock for his/her own use □

c) Both a & b □

d) Other (please specify):_____

Performa for bare-rooted Nursery

B. Technical Information

1) Area of nursery: _____ m^2

2) Layout and site suitability:

Particulars	**Status (Y/N)**	**Comments**
Inspection paths		
Signboards		
Fencing		
Packing and seed storage sheds		
Parking area for vehicles (for loading/ unloading)		
Access from main road		
Irrigation system (Please tick, pipe, water channel, tube well)		
Any other please specify		

3) Management:

a) Nursery journal available: □ Yes □ No

b) Nursery journal maintained : □ Yes □ No

4) Cultural Practices

Practice	Yes/ No	Duration/ Frequency	Tools/ method used	Comments
Irrigation/ watering				
Weeding				
Hoeing				
Transplanting				
Fertilizers				
Pesticides				
Watch-n-ward				
Any other (please specify)				

Performa for bare-rooted Nursery

5) Planting stock:

a) Species and their number: (10% sampling in each plot)

Plot No	Area (m^2)	Species	Bed Number	Stage 1 (Preparatory)		Stage 2 (Establishment)			Remarks
				Leveling & layout (Y/N/ partial)	Beds prepared (Raised/ Flat) Y/N	Sowing/ planting (Y/N) and germination (%)	No. of Seedlings (up to 3 feet)	No. of seedlings (3 feet and above)	

Performa for Tube Nursery

Date: _____

Name of interviewer: _____

A. General Information:

1) Name of nursery grower/ incharge : _____

2) Gender: Male □ Female □

3) Age: _____years

4) CNIC #:

					-								-	

5) Date of establishment: _____

6) Division _____, Range _____, Block _____

7) Location: _____

8) Area coordinates: N_____, E_____

9) Aspect : _____

10) Elevation: _____m

11) Ecological zone: _____

12) Soil Quality: Good □ Fair □ Poor □

13) Ownership:

Departmental □ Community □ Individual □

14) Agreement exists: □ Yes □ No, if yes, please provide a copy of agreement.

15) Objective for which grown:

e) Income generation □

f) Grow planting stock for his/her own use □

g) Other (please specify):_____

B. Technical Information

1) Area of nursery: _____ m^2

2) Layout and site suitability:

Particulars	**Status (Y/N)**	**Comments**
Inspection paths		
Signboards		
Fencing		
Packing and seed storage sheds		
Parking area for vehicles		
Access from main road		
Green house shed		

Any other please specify		

3) Management Practices:

a) Total No. of poly: _____ No.

b) Filled poly bags: _____ No.

c) Poly bags sown _____ No.

d) Seed source _____

e) Seed treatment □ Yes □ No, if yes, please specify _____

f) Germinated: _____ No.

g) Established seedlings: _____ No.

4) Cultural Practices (pictorial verification):

a) Nursery journal available: □ Yes □ No

b) Nursery journal maintained : □ Yes □ No

Practice	**Yes/No**	**Duration/ Frequency**	**Tools/ method used**	**Comments**
Irrigation/ watering				
Weeding				
Transplanting				
Root trimming				
Shifting				
Fertilizers				
Pesticides				
Watch and ward				
Any other (please specify)				

a) Specie wise status of plants (Plantable / un-plantable):

Species	**Poly bags sown (No.)**	**Germination rate (%)**	**No. of plantable seedlings**	**No. of un-plantable seedlings**	**Survival rate (%)**	**Remarks**

Performa for Closure of depleted designated forests for increasing natural regeneration

Date: _____

Name of interviewer: _____

A. General Information:

1) Name of VDC/CBO: _____
2) Name and designation of respondent: _____
3) CNIC #:

					-								-	

4) Date of closure: _____
5) Location: _____
6) coordinates: N _____, E_____
7) Aspect: _____
8) Elevation: _____ m
9) Ecological zone: _____
10) Area: _____ ha
11) Area demarcated: Yes □ No □
12) If yes, specify signs of demarcation_____
13) Ownership status of forest:
    a) Government: □
    b) Community owned □
    c) Individual □
    d) Other (Please specify) _____
14) Agreement with FD: Yes □ No □
15) If yes, please provide copy of evidence: _____
16) Protection mechanism:
    a) Barbed wire: □
    b) Live fence (vegetation) □
    c) Brushwood: □
    d) Watcher: □
    e) Other (Please specify) _____

17) Status of agreed terms and conditions:
    a) Fully followed: □
    b) Partially followed: □
    c) If partially followed, please mention terms and conditions not yet followed:
        - _____
        - _____
        - _____
    d) Not followed: □
18) Are there any follow up activities? Yes □ No □
19) If yes, pl explain below:
    - _____
    - _____
    - _____
20) If no, explain the reason/s below:
    - _____
    - _____
    - _____

Performa for Closure

B. Transect Data (impact on forest):

Transect No.	P. No.	Veg. cover	Regeneration status (seedling/sapling)		Signs of damage; type and frequency (E,F,G,T,C,L)
			Species	No.	

Key: (E: erosion; F: fire; G: grazing; T: trampling; C: cutting; L: lopping)

Performa for linear plantation and landscaping (roads, canals, and railway tracts)

Date: _____

Name of interviewer: _____

A. General Information

1) Location of plantation: _____
2) Coordinates: N_____ E_____
3) Aspect : _____
4) Elevation: _____m
5) Access to site:
   a) Asphalt road: □
   b) Earth road: □
   c) Bridle path: □
   d) None: □
6) Layout plan exists: Yes □ No □
7) If yes, please provide a copy
8) General/aesthetic layout:
   a) Spacing well maintained: □
   b) Spacing fairly maintained: □
   c) Spacing poorly maintained: □
   a) Species suitability (are species selected according to the requirements of linear plantation?)
      - All: □, Some □, None: □, Remarks if any: _____
9) Irrigation/watering: Yes □ No □
10) If yes, frequency: _____
11) Protection mechanism: Yes □ No □
12) If yes, type of mechanism_____

B. Transect Data (sampling)

Transect No.	Plot No.	No. of plants	Species	Spacing	Plant size	Pit size	Survival rate (%)	Damage (F,G,C)

Key: Damages (F fire; G grazing; C cutting)

Performa for Rangeland and Pastures

Date: _____

Name of interviewer: _____

A. General Information

1) Location: _____
2) Coordinates: _____
3) Aspect : _____
4) Elevation: _____ m
5) Area (According to records): _____ha
6) Actual area (GPS recorded): _____ ha
7) Ownership:
   a) Community: □
   b) Individual: □
   c) State: □
   d) Other (please explain) _____
8) Type and number of livestock:

Type	Buffalo	Cow	Goat	Sheep	Camel	Donkey	
Number							

9) Management system applied: _____
10) Suitability of management system: Yes □ No □
11) If No, please give reason/s _____
12) Re-seeding/planting done: Yes □ No □
13) If Yes, please name the species and area covered

Species							
Area (ha)							

14) Is there Range Management Committee established: Yes □ No □
15) Agreement concluded for Range Management: Yes □ No □

16) If Yes, who are the party/ies to the agreement:

a) _____

b) _____

17) Protection system adopted:

a) Herder: □

b) Fencing (live/barbed wire): □

c) Other please explain _____

18) Trespassing: Yes □ No □

19) If No, whether any alternate route provided: Yes □ No □

B. Management Interventions.

S. No.	Intervention	Yes / No	Approved specifications	Actual dimension
1				
2				

C- Transect Data

Transect No.	**Q. No**	**Veg. cover (%)**	**Species**	**Frequency**	**Biomass**	**Signs of damage; type and frequency (E,F,G,T,C)**

Key: (E erosion; F fire; G grazing; T trampling; C cutting)

Performa for Agroforestry and Farm forestry

Date: _____

Name of interviewer: _____

A. General information

1) Location: _____

2) Name: _____

3) GPS Coordinates: _____N _____E Elevation: _____ m

4) Aspect: _____

5) Ownership: Community □ Individual □

a) Purpose of AF/FF: Fuel wood □, Fodder □ , Timber □

Other (please specify) _____

6) Date of planting: _____

7) Number and species of plants provided: Kamran:

Species	No. of plants	
	According to records	According to grower

8) Plant to plant spacing: _____

9) Survival rate: _____ %

10) Are you satisfied with the activity? Yes □ No □

11) Reason/s for being:

a) Satisfied: _____

b) Unsatisfied: _____

12) Suggestion/s for improvement:

a) _____

b) _____

B. Physical verification of plants

Site/farmer	Species	Plants sown	Plants survived	Spacing (m)	Pit size(cm)		Plant size (cm)	Damage (F,G,C)
					W	D		

Performa for Watershed Managements

Date: _____

Name of interviewer: _____

A. General Information

1) GPS coordinates:
2) Lowest point: _____ Highest point _____
3) General Aspect: _____
4) Elevation (m): _____min, _____max
5) Total area: _____ha
6) Ownership:
   a) Communal land □
   b) State land □
   c) Other (please specify) _____
7) Watershed Management Committee: Yes □ No □
8) If Yes, date of establishment: _____
9) If no, please explain the reason/s: _____
10) Management Plan prepared: Yes □ No □
11) If yes, who prepared it? _____
12) Was it prepared in consultation with stakeholders? Yes □ No □
13) If not prepared, please explain the reason/s: _____

B. **Watershed Management Interventions**

S. No	Interventions	Yes / No	Approved specifications/dimensions	Actual specification/dimensions
1				
2				

C. Impact of Interventions on Environment and DRR

Intervention	Transect	Plot	Veg Cover (%)	No. of species	S. depth (cm)	Erosion/land slide (m^2)	Remarks

D. **Impact of Interventions on DRR**

Activity	Impacts						
	Floods (R;I;N)			Landslides (R;I;N)			Remarks
	Freq.	Int.	Damage	Freq.	Int.	Damage	

Key: R=reduced, I=increased, N=No change

E. **Impact of Interventions on Livelihood**

Activity	Impacts						
	Quality and quantity of Fodder (R,I,N)	F. Wood (R,I,N)	Livestock health (Imp, Det, N)	Agriculture production (R,I,N)	Quantity of NTFPs (MPs, Honey, Mushrooms) (R,I,N)	Others (Pl Mention) (R,I,N)	Remarks

Key: R=reduced, I=increased, N=No change, Imp=improved, det=deteriorated.

Performa for Reclamation/Rehabilitation of badlands, Saline and water logged areas

Date: _____

Name of interviewer: _____

A. General Information

1) Location: _____
2) GPS coordinates: _____
3) Type of area treated:
   a) Land slide □
   b) Stream bank cutting □
   c) Saline □
   d) Water logged □
4) General Aspect: _____
5) Elevation: _____ m
6) Area:
   a) According to records: _____ ha
   b) Actual area (GPS recorded): _____ ha
7) Ownership:
   a) Communal land □
   b) State land □
   c) Private land □
   d) Other (please specify) _____
8) Species planted: _____
9) Irrigation/watering: Yes □ No □
10) If Yes, frequency of irrigation: _____
11) Protection mechanism: Yes □ No □
12) If Yes, type of protection: _____

B. Reclamation / Rehabilitation Interventions

S. No	Interventions	Yes / No	Approved specifications	Actual dimension
1				
2				

C. Transect data (sampling)

Transect No	Plot No.	No. of plants	Species	Spacing	Plant size	Pit size	S. rate	Damage (F,G,C)

Key: damage (fire F, grazing G, cutting C)

Data sheet for Planting of multi-purpose fast growing tree species (block plantation)

Date: _____

Name of Respondent & Cnt #: _____

A. General Information

1) Division _____, Range _____, Block _____
2) Location: _____
3) Coordinates (Fixed point photography): _____ N, _____ E , Elev _____m
4) Agreement: Yes □ No □, Date_____ If yes, Please provide copy _____
5) Name of VDC: _____
6) Date of plantation: _____, No. of plants: _____, Area: _____ha
7) Survival rate _____, Causes of failure _____

8) Number of tube plants _____, Number of bare rooted plants_____

9) Species :

Specie					
Number					

10) Beating up of failure : Yes □ No □, Date_____ If yes, how much_____

11) Aspect _____Slope: Gentle □ Moderate □ Steep □

12) Site accessibility: Metal road□ Mud road, Bridle path, other_____

13) Area demarcated: Yes □ No □

If yes, specify signs of demarcation_____

14) Land status: _____

15) Dispute if any _____

16) Area according to actual GPS measurement: _____ha

17) Source of planting stock

_____

18) Protection mechanism:_____

19) Future plan:

_____

20) Issues:

_____

B. **Plot data:**

Area_____ Date_____

Coordinates:_____Aspect:_____Sloop:_____

Transect No.	Plot No.	Total No. of plants	Pit size in Ft (D, W)	Spacing in Ft	Species	Tally bar	No. of plants	No. of plants survived	Signs & Frequency of Damage (F,G,C)

Performa for FGD of NTFP's

Date: _____

Name of interviewer: _____

- *Promotion of non-timber forest products like medicinal plants, mushrooms, and honey*
- *Involvement of community in the NTFP activities and its contribution to economic uplift*

1) Types of NTFPs

Type of NTFP	Intervention	Target group	No. of beneficiaries

2) Is there any mechanism adopted for identifying and involvement of communities and target groups?
Yes □ No

3) If Yes, please explain:

Particulars	Target group	Implementation status		
		Fully	Partially	Not yet

4) Value addition through awareness and capacity building

a) Is there any awareness and capacity building strategy/plan available? Yes □ No □

b) If Yes please explain:

Particular of activities and sub activities	Target group	Target of interventions planned/ implemented		
		Target planned	Target implemented	Remarks
Awareness raising				
Capacity building				
Linkages for entrepreneurship				

5) Is there any management plan developed for NTFP's? Yes □ No

6) If Yes please explain below/ provide a copy

Prescription of MP	Target	Progress	Remarks

7) Impact on annual household income from NTFPs:

Name and address of beneficiary	Type of NTFP	Before interventions			After interventions		
		Quantity collected per year (kg)	Price per unit (Rs)	Income (Rs)	Quantity collected per year (kg)	Price per unit (Rs)	Income (Rs)

Performa for FGD of Cottage

Date: _____

Name of interviewer: _____

Promotion of Forest based cottage industries related to Mazri and Kana

A. General Information

1) Name & location of site: _____
2) GPS Coordinates: _____
3) Total area of Mazri/ Kana: _____ ha
4) Type and quantity of raw material:
   a) Mazri: _____kg
   b) Kana: _____ kg
5) Has a value chain promotion plan been developed? Yes □ No □
6) Please explain:
   - _____
   - _____

7) Criteria for identification and selection of beneficiaries?
   - _____
   - _____

8) Is market potential and size assessed? Yes □ No □

9) please explain: _____

10) Impacts on skills before and after the interventions:

Name and address	**Type of skills:**	
	Before intervention	**After intervention**

11) Profit margin before and after the interventions:

Name and address of beneficiary	**Product & unit**	**Before interventions**			**After interventions**		
		Qty/day	**Cost/unit**	**Price/unit**	**Qty/day**	**Cost/ unit**	**Price/unit**

12) Physical verification as per the approved work plan

Planned activities			Actual status	
Activity/intervention	Specification/description	Target	Specification/description	Target

Appendix-D: Questionnaires and interviews checklist

1) Introduce the team and explain the objective of the meeting and visit
2) Inform them about the methodology and tentative plan
3) Collect following information and record:
    a. Sub division and block wise activities & their updated status (collect the filled in Performa already shared)
    b. Maps, sketches and drawings
    c. Management plans
    d. Fixed point photos
    e. Plantation and nursery journals
    f. Procedure and process adopted
    g. Copies of agreements
    h. Copies of guidelines and manuals
    i. Information about VDCs
    j. Other (if any)
4) Ecological zone wise
5) Discuss issues confronted during the implementation (in procedures, resources, timeline, natural and manmade hazards etc.)
6) Share and review the selected sites for detailed monitoring visits
7) Revise and finalize the plan and ask for field facilitation.

Appendix-E (i): Details of departmental nurseries-Tube

Regions	Division	Range/Sub-Division	Location	Area (ha)	Stock				
					Total P. Stock	Survival Rate	Net available P. Stock	Fit	Unfit
South	Peshawar	Risalpur	Nowshera DFO Office	0.41	752000	90	676800	541440	135360
South	Peshawar	Charsadda	Zyam	0.36	443000	90	398700	259155	139545
South	Peshawar	Charsadda	Khayali	0.86	845000	95	802750	481650	321100
South	Peshawar	Risalpur	Nodia	0.64	1032500	90	908100	635670	272430
South	Peshawar	Peshawar	Ghufran Abad	0.21	223000	95	211850	158887	52962
South	**Peshawar**	**Total**		**2.48**	**3295500**	**460**	**2998200**	**2076802**	**921397**
South	**Peshawar**	**Avg**				**92.00**			
South	**Peshawar**	**%**						**69.27**	**30.73**
South	Mardan	LSC	Said Azam Kali	0.64	675000	90	607500	486000	121500
South	Mardan	Rustam	Said Abad	0.69	694000	92	638480	510784	127696
South	Mardan	USC	Matha	0.96	911200	95	865640	649230	216410
South	Mardan	LSC	Aslam Abad	0.6	644000	90	579600	434700	144900
South	Mardan	Sawabi	Pange Pir	0.41	497000	95	472150	354112.5	118037.5
South	Mardan	Sawabi	Shikh Dara	0.39	537000	85	456450	228225	228225
South	**Mardan**	**Total**		**3.69**	**3958200**	**547**	**3619820**	**2663052**	**956768.5**
South	**Mardan**	**Avg**		**0.62**		**91.167**			
South	**Mardan**	**%**						**73.57**	**26.43**
South	Kohat	Karak	Ambiria	0.42	508000	80	406400	162560	243840
South	Kohat	Karak	Kanda Karak	1	1156000	88	1017280	661232	356048
South	Kohat	Kohat	Togh Mangara	0.35	974000	74	720760	598230.8	122529.2
South	Kohat	Kohat	Chikar Kot Bala	0.37	465300	80	369040	66427.2	302612.8
South	**Kohat**	**Total**		**2.14**	**3103300**		**2513480**	**1488450**	**1025030**
South	**Kohat**	**Avg**		**0.54**		**80.5**			
South	**Kohat**	**%**						**59.22**	**40.78**
South	**Bannu**	L.Marwat	Lukki Town	0.4	440000	**94**	**413600**	248160	**165440.00**
South	**Bannu**	L.Marwat	Sheen Bagh	0.76	846650	**95**	**804317.5**	144777	**659540.35**
South	**Bannu**	L.Marwat	Mujahid Town	0.38	435500	**86**	**374530**	322096	**52434.20**
South	**Bannu**	Bannu	Bannu Div Head Quarter	0.65	506600	**95**	**481270**	226197	**255073.10**
South	**Bannu**	**Total**		**2.19**	**2228750**		**2073717.5**	**941229.9**	**1132487.65**
South	**Bannu**	**Avg**		**0.60**		**92.5**			
South	**Bannu**	**%**						**45.39**	**54.61**
		D I Khan	**DFO Office**	**0.7**	510510	**89**	**454353.9**	368027	**86327.24**
		D I Khan	**Darya Khan Phul**	**0.4**	405500	**90**	**364950**	240867	**124083.00**
South	**DI Khan**	**Total**		**1.1**	**916010.00**		**819303.9**	**608893.7**	**210410.241**
South	**DI Khan**	**Avg**		**0.55**		**89.5**			
South	**DI Khan**	**%**						**74.32**	**25.68**
South	**All divisions**	**Total**		**11.6**	**13501760**	**1007**	**12024521.4**	**7778427**	**4246093.39**
South	**All divisions**	**Avg**		**0.57**		**89.13**			
South	**All divisions**	**%**			**100.00**	**0.01**	**79.45**	**64.69**	**35.31**
Malakand	Malakand	Bathkhela	Akhoon Baba	0.7	748000	85	635800	0	635800

Regions	Division	Range/Sub-Division	Location	Area (ha)	Stock				
					Total P. Stock	Survival Rate	Net available P. Stock	Fit	Unfit
Malakand	Malakand	Bathkhela	Dak Koto Khar	0.56	900000	70	630000	94500	535500
Malakand	Malakand	Dargai	Pattak Dargai	1	1456000	92	1339520	1004640	334880
Malakand	**Malakand**	**Total**		**2.26**	**3104000**		**2605320**	**1099140**	**1506180**
Malakand	**Malakand**	**Avg**		**0.75**		**82.33**			
Malakand	**Malakand**	**%**			**100.00**			**42.19**	**57.81**
Malakand	Swat	Mingora	Islampur	0.25	338460	85	287691	215768	71923
Malakand	Swat	Mingora	Badar seer	0.25	436385	92	401474.2	321179	80295
Malakand	Swat	Matta	Chuprial	0.50	719810	90	647829	550654	97175
Malakand	Swat	Kabal	Kanju township	0.25	643500	70	450450	270270	180180
Malakand	Swat	Fatihpur	Naway kalay Bagh darai	0.40	270100	85	229585	206626	22959
Malakand	Swat	Fatihpur	Ghar Shin	0.25	472600	78	368628	117960	250668
Malakand	Swat	Fatihpur	Jokhtai	0.35	260000	50	130000	0	130000
Malakand	**Swat**	**Total**		**2.254**	**3140855**		**2515657.2**	**1682457**	**833200.2**
Malakand	**Swat**	**Avg**		**0.322**		**78.571**			
Malakand	**Swat**	**%**			**100.00**			**66.88**	**33.12**
Malakand	Kalam	Behrain South	Benaorai	0.5	410590	90	369531	251281	118250
Malakand	**Kalam**	**Total**		**0.5**	**410590**		**369531**	**251281**	**118250**
Malakand	**Kalam**	**Avg**		**0.50**		**90**			
Malakand	**Kalam**	**%**			**100.00**			**68.00**	**32.00**
Malakand	Shangla	Alpuri	Sanailla	2	2150000	95	2042500	1266350	776150
Malakand	**Shangla**	**Total**		**2**	**2150000**		**2042500**	**1266350**	**776150**
Malakand	**Shangla**	**Avg**		**2.00**		**95.00**			
Malakand	**Shangla**	**%**			**100.00**			**62.00**	**38.00**
Malakand	Bunair	Chamla	Sura village	1.06	141500	94	133010	94437	38572.9
Malakand	**Bunair**	**Total**		**1.06**	**141500**		**133010**	**94437.1**	**38572.9**
Malakand	**Bunair**	**Avg**		**1.06**		**94.00**			
Malakand	**Bunair**	**%**			**100.00**			**71.00**	**29.00**
Malakand	**Dir kohistan**	Patrak	Khani belaa	0.25	70000	98	68600	0	68600
Malakand	**Dir kohistan**	**Total**		**0.25**	**70000**		**68600**	**0**	**68600**
Malakand	**Dir kohistan**	**Avg**		**0.25**		**98**			
Malakand	**Dir kohistan**	**%**			**100.00**			**0.00**	**100.00**
Malakand	**Upper Dir**	Dir	Dodba	1	1235500	98	1210790	1126035	84755
Malakand	**Upper Dir**	**Total**		**1**	**1235500**		**1210790**	**1126035**	**84755.3**
Malakand	**Upper Dir**	**Avg**		**1.00**		**98.00**			
Malakand	**Upper Dir**	**%**			**100.00**			**93.00**	**7.00**
	Chitral	**Chitral**	**Gahrait**	**0.404**	500000	**75**	**375000**	**0.00**	375000
	Chitral	**Drosh**	**Damik**	**0.81**	1000000	**80**	**800000**	**0.00**	800000

Regions	Division	Range/Sub-Division	Location	Area (ha)	Stock				
					Total P. Stock	Survival Rate	Net available P. Stock	Fit	Unfit
		north							
Malakand	**Chitral**	**Total**		**1.214**	**1500000**	**155**	**1175000**	**0**	**1175000**
Malakand	**Chitral**	**Avg**		**0.61**		**77.50**			
Malakand	**Chitral**	**%**			**100.00**			**0.00**	**100.00**
Malakand	lower Dir	Timargirah	Bandagai	0.5	617750	95	**586862.5**	539914	46949
Malakand	lower Dir	Timargirah	Guru Talash	0.5	650000	85	**552500**	469625	82875
Malakand	lower Dir	Chakdara	Shaheed abad	0.5	625000	95	**593750**	510625	83125
Malakand	**Lower Dir**	**Total**		**1.5**	**1892750**		**1733112.5**	**1520164**	**212949**
Malakand	**Lower Dir**	**Avg**		**0.50**		**91.67**			
Malakand	**Lower Dir**	**%**			**100.00**			**87.71**	**12.29**
Malakand	**All divisions**	**Total**		**12.038**	**13645195**	**155**	**11853520.7**	**7039863**	**4813657.4**
Malakand	**All divisions**	**Avg**		**0.78**		**89.45**			
Malakand	**All divisions**	**%**			**100.00**			**59.39**	**40.61**
Hazara Teritorial	Kaghan	Balakot	Malkndi	0.4	46069	21	9674	0	9674
Hazara Teritorial	Kaghan	Garhi Habibullah	Range office Garhi habibullah	0.2	266346	98	261019	226394	34625
Hazara Teritorial	Kaghan	Balakot	Pori	0.4	275373	74	203776	165224	38552
Hazara Teritorial	**Kaghan**	**Total**		**1**	**587788**		**474470**	**391618**	**82852**
Hazara Teritorial	**Kaghan**	**Avg**		**0.3**		**64.33**			
Hazara Teritorial	**Kaghan**	**%**			**100.00**			**82.54**	**17.46**
Hazara Teritorial	Siran	Mansehra	Bafa Dohrah	0.8	4633596	71	3289853	2204202	1085652
Hazara Teritorial	Siran	Lower siran	Daryal	0.6	294400	64	188416	0	188416
Hazara Teritorial	Siran	Lower siran	Shinkairi	0.19	227228	69	156787	0	156787
Hazara Teritorial	**Siran**	**Total**		**1.59**	**5155224**		**3635056**	**2204202**	**1430855**
Hazara Teritorial	**Siran**	**Avg**		**0.53**		**68**			
Hazara Teritorial	**Siran**	**%**			**100.00**			**60.64**	**39.36**
Hazara Teritorial	**Hazara Tribe**	Batagarm	Jehangir abad	1.3	924209	**69**	637704	452,862	184842
Hazara Teritorial	**Siran**	**Total**		**1.3**	**924209**		**637704**	**452862**	**184842**
Hazara Teritorial	**Siran**	**Avg**		**1.30**		**69**			
Hazara Teritorial	**Siran**	**%**			**100.00**			**71.01**	**28.99**
Hazara Teritorial	**Torghar**	Kandar	Ismail Band	1.6	1440172	65	936,112	281029	655083
Hazara Teritorial	**Torghar**	**Total**		**1.6**	**1440172**		**936112**	**281029**	**655083**

Regions	Division	Range/Sub-Division	Location	Area (ha)	Stock				
					Total P. Stock	Survival Rate	Net available P. Stock	Fit	Unfit
Hazara Teritorial	**Torghar**	**Avg**		**1.60**		**65**			
Hazara Teritorial	**Torghar**	**%**			**100.00**			**30.02**	**69.98**
Hazara Teritorial	**Agror tanawal**	Gidder pur	Chowki	0.4	629032	79	496,935	298161	198774
Hazara Teritorial	**Agror tanawal**	Agror	Arbora	0.5	441956	68	300,530	155497	145033
Hazara Teritorial	**Agror tanawal**	Sherghar	Paryina	0.6	384631	0	-	0	0
Hazara Teritorial	**Agror tanawal**	**Total**		**1.5**	**1455619.0**		**797465.4**	**453658.0**	**343807.4**
Hazara Teritorial	**Agror tanawal**	**Avg**		**0.50**		**49**			
Hazara Teritorial	**Agror tanawal**	**%**			**100.00**			**56.89**	**43.11**
Hazara Teritorial	**upper kohistan**	**Jal kot**	Dassu	0.20	141936	75	106,452	**84097**	22355
Hazara Teritorial	**upper kohistan**	**Total**		**0.20**	**141936**	**75**	**106452**	**84097**	**22355**
Hazara Teritorial	**upper kohistan**	**Avg**		**0.20**		**75**			
Hazara Teritorial	**upper kohistan**	**%**			**100.00**			**79.00**	**21.00**
Hazara Teritorial	**Gallies**	Gallies	Salhad	1.72	1752095	83	1,454,239	828916	625322.7055
Hazara Teritorial	**Gallies**	**Total**		**1.72**	**1752095.0**	**83.0**	**1454238.9**	**828916.1**	**625322.7**
Hazara Teritorial	**Gallies**	**Avg**		**1.72**		**83**			
Hazara Teritorial	**Gallies**	**%**			**100.00**			**57.00**	**43.00**
Hazara Teritorial	**Haripur**	Haripur	Nikkapur	0.43	658000	92	605,360	254251	351108.8000
Hazara Teritorial	**Haripur**	Khanpur	Kali Thara Gharbi	0.4	130500	90	117,450	77517	39933.0000
Hazara Teritorial	**Haripur**	Haripur	Sikandar Pur	0.6	731000	88	643,280	482460	160820.0000
Hazara Teritorial	**Haripur**	**Total**		**1.4**	**1519500.0**		**1366090.0**	**814228.2**	**551861.8**
Hazara Teritorial	**Haripur**	**Avg**		**0.48**		**90**			
Hazara Teritorial	**Haripur**	**%**			**100.00**			**59.60**	**40.40**
Hazara territorial		**Total**		**10.3**	**12976543.0**		**9407588.3**	**5510609.9**	**3896978.4**
Hazara territorial		**Avg**				**69.13**			
Hazara territorial		**%**			**100.00**			**58.58**	**41.42**
Hazara Watershed	Unhar Watershed	Sherghar	Jehangi	0.6	744066	78	580371	550609	29763
Hazara Watershed	Unhar Watershed	Batagarm	Pagori	0.2	244994	72	176396	135825	40571
Hazara Watershed	Unhar Watershed	Batagarm	Kandoli	0.5	547848	65	356101	301490	54611
Hazara Watershed	Unhar Watershed	Allia	Chota Banna	0.4	237818	89	211658	110062	101596
Hazara Watershed		**Total**		**1.7**	**1774726**		**1324526.38**	**1097986**	**226540**

Regions	Division	Range/Sub-Division	Location	Area (ha)	Stock				
					Total P. Stock	Survival Rate	Net available P. Stock	Fit	Unfit
Hazara Watershed		**Avg**		**0.425**		**76.00**			
Hazara Watershed		**%**			**100.00**			**82.90**	**17.10**
Hazara Watershed	Kunhar w.shed	Garhi Habibullah	Paksari	0.4	177773	83	147552	103286	44265
Hazara Watershed	Kunhar w.shed	Siran	Makraia	0.75	820327	70	574229	447899	126330
Hazara Watershed	Kunhar w.shed	Balakot	Hassa Shahotar	0.15	140634	64	90006	54003	36002
Hazara Watershed	Kunhar w.shed	Siran	Bela Mutrai	0.85	693048	70	485134	305634	179499
Hazara Watershed	**Kunhar w.shed**	**Total**		**2.15**	**1831782**		**1296919.85**	**910822.3**	**386097.571**
Hazara Watershed	**Kunhar w.shed**	**Avg**		**0.54**		**71.75**			
Hazara Watershed	**Kunhar w.shed**	**%**			**100.00**			**70.23**	**29.77**
Hazara Watershed	**Daur w.shed**	Havaleia	Narbagh	0.38	235380	84	197719	185856	11863
Hazara Watershed	**Daur w.shed**	Havaleia	Nikkahpa i	1	1000452	79	790357	790000	357
Hazara Watershed	**Daur w.shed**	Havaleia	Nikkahpa ii	1.13	1026457	95	975134	916626	58508
Hazara Watershed	**Daur w.shed**	**Qazian**		**0.20**	284000	**94.00**	266960	**192211**	74749
Hazara Watershed	**Daur w.shed**	**Total**		**2.71**	**2546289**		**2230170**	**2084693**	**145477**
Hazara Watershed	**Daur w.shed**	**Avg**		**0.68**		**88**			
Hazara Watershed	**Daur w.shed**	**%**			**100.00**			**93.48**	**6.52**
Hazara Watershed	**Besham w.shed**	Besham	Shang	0.4	500000	82	410000	246000	164000
Hazara Watershed	**Besham w.shed**	Besham	Shang	1	1235500	86	1062530	53127	1009404
Hazara Watershed	**Besham w.Shed**	**Total**		**1.4**	**1735500**		**1472530**	**299127**	**1173404**
Hazara Watershed	**Besham w.Shed**	**Avg**		**0.70**		**84**			
Hazara Watershed	**Besham w.Shed**	**%**			**100.00**			**20.31**	**79.69**
Hazara Watershed	Buner w.shed	Pacha	Daggar Talan	0.55	577200	96	554112	265974	288138
Hazara Watershed	Buner w.shed	Chamla	Kaoga	0.4	500000	98	490000	411600	78400
Hazara Watershed	Buner w.shed	Dagar	Gagra Kalapani	0.48	864000	88	760320	570240	190080
Hazara Watershed	**Buner w.shed**	**Total**		**1.43**	**1941200**		**1804432**	**1247814**	**556618**
Hazara Watershed	**Buner w.shed**	**Avg**		**0.48**		**94**			
Hazara	**Buner**	**%**			**100.00**			**69.15**	**30.85**

Regions	Division	Range/Sub-Division	Location	Area (ha)	Stock				
					Total P. Stock	Survival Rate	Net available P. Stock	Fit	Unfit
Watershed	w.shed								
Hazara Watershed watershed	All divisions	Total		9	9829497	0	8128579	5640442	2488137
Hazara Watershed watershed	All divisions	Avg		0.56		82.75			
Hazara Watershed watershed	All divisions	%			100.00			69.39	30.61
All regions	All regions	Total		43	49952995		41414209	25969342	15444866
All regions	All regions	Avg		0.72		82.51			
All regions	All regions	%			100.00			62.71	37.29

Appendix-E (ii): Details of departmental nurseries-Bare Rooted

Region	Division	Range/Sub-Division	Location	Area (ha)	Stock				
					Total	Survival Rate	Net Stock	Plantable	Unplantable
South	Peshawar	Charsadda	Zyam	0.53	65000	95	61750	58662.5	3087.5
South	Peshawar	Charsadda	Toheed Abad Jindi	0.73	81500	90	73350	66015	7335
South	**Peshawar**	**Total**		**1.26**	**146500**		**135100**	**124677.5**	**10422.5**
South	**Peshawar**	**Avg**		**0.63**					
South	**Peshawar**	**%**				**92.50**		**92.29**	**7.71**
South	Mardan	LSC	Azeem Kali	0.62	79500	92.50	73537.5	56643	16894.5
South	Mardan	USC	Serikh Kali	1.19	125000	90.00	112500	95625	16875
South	Mardan	Sawabi	Rahat abad	0.2	25000	92.50	23125	16875	6250
South	Mardan	Sawabi	Pange Pir	0.32	38000	92.50	35150	27455	7695
South	Mardan	USC	Gulli Bagh	1.00	122000	91.67	111833.333	98820	13013.333
South	**Mardan**	**Total**		**3.33**	**389500**		**356145.833**	**295418**	**60727.833**
South	**Mardan**	**Avg**		**0.67**					
South	**Mardan**	**%**				**91.83**		**82.95**	**17.05**
South	Kohat	Kohat	Kogh Maingal	0.7	100000	97	97000	97000	0
South	Kohat	Kohat	Chakar Kot Bala	0.4	50000	60	30000	13500	16500
South	Kohat	Karak	Kanda Karak	0.47	94000	70	65800	49350	16450
South	**Kohat**	**Total**		**1.57**	**244000**		**192800**	**159850**	**32950**
South	**Kohat**	**Avg**		**0.52**					
South	**Kohat**	**%**				**75.67**		**82.91**	**17.09**
South	**Bannu**	**Bannu**	**Said Abad**	**0.4**	65900.00	**88.00**	**57992**	57992	0
South	**Bannu**	**Total**		**0.4**	**65900.00**	**88.00**	**57992.00**	**57992.00**	**0.00**
South	**Bannu**	**Avg**		**0.40**					
South	**Bannu**	**%**				**81.83**		**100.00**	**0.00**
		I D Khan`	**Dhab Chappak**	**3.4**	380000.00	**94.00**	**357200**	353628	3572
South	**DI Khan**	**Total**		**3.4**	**380000**	**94**	**357200**	**353628**	**3572**
South	**DI Khan**	**Avg**		**3.40**					
South	**DI Khan**	**%**				**94.00**		**99.00**	**1.00**
South	**All divisions**	**Total**		**9.96**	**1225900.00**	**182.00**	**1099237.83**	**991565.50**	**107672.33**
South	**All divisions**	**Avg**		**1.12**					
South	**All divisions**	**%**				**87.70**		**90.20**	**9.80**
Malakand	Malakand	Dargai	Sakha Kot	0.53	65000	80	52000	36400	15600
Malakand	Malakand	Dargai	Sakha Kot	1.28	174000	98.00	170520	165300	5220
Malakand	Malakand	Batkhela	Akhoon Baba	1.24	155600	70	108920	87136	21784
Malakand	Malakand	Batkhela	Pir Kali	1.2	173500	90	156150	140535	15615
Malakand	**Malakand**	**Total**		**4.25**	**568100**		**487590**	**429371**	**58219**
Malakand	**Malakand**	**Avg**		**1.06**					
Malakand	**Malakand**	**%**				**84.50**		**88.06**	**11.94**
Malakand	Swat	Mingora	Islampur	0.25	35000	90	31500	23625	7875
Malakand	Swat	Mingora	Telegram	0.5	61500	85	52275	39206	13069
Malakand	Swat	Matta	Baidara	1	110895	90	99806	74854	24951
Malakand	Swat	Kabal	Kanju township	0.5	62500	79	49375	37031	12344
Malakand	Swat	Kabal	Shah darai langan	1	93900	70	65730	49298	16433
Malakand	Swat	Fatehpur	Naway kalay Bagh darai	2.27	256000	88	225280	168960	56320
Malakand	Swat	Fatehpur	Ghar shin	0.25	47850	81	38759	29069	9690
Malakand	Swat	Fatehpur	Chamtalai	0.7	80372	96	77157	57868	19289
Malakand	**Swat**	**Total**		**6.47**	**748017**	**679**	**639881**	**479911**	**159970**
Malakand	**Swat**	**Avg**		**0.808**					

Region	Division	Range/Sub-Division	Location	Area (ha)	Stock				
					Total	Survival Rate	Net Stock	Plantable	Unplantable
				75					
Malakand	**Swat**	**%**				**84.88**		**75.00**	**25.00**
Malakand	Kalam	Behrain South	Benaorai	1.5	183688	90	165319	120567	44752
Malakand	Kalam	Behrain South	Chikrai	1.5	181800	75	136350	109080	27270
Malakand	**Kalam**	**Total**		**3**	**365488**		**301669**	**229647**	**72022**
Malakand	**Kalam**	**Avg**		**1.50**					
Malakand	**Kalam**	**%**				**82.50**		**76.13**	**23.87**
Malakand	Alpuri	Karora	Shang	1	114122	95	108415	78059	30356
Malakand	Alpuri	Alpuri	Sanella	2.2	243500	92	224020	211845	12175
Malakand	**Alpuri**	**Total**		**3.2**	**357622**	**187**	**332435**	**289904**	**42531**
Malakand	**Alpuri**	**Avg**		**1.6**					
Malakand	**Alpuri**	**%**				**93.50**		**87.21**	**12.79**
Malakand	**Bunair**	Daggar	Daggar	2.8	256500	98	251370	196069	55301
Malakand	**Bunair**	**Total**		**2.8**	**256500**	**98**	**251370**	**196069**	**55301**
Malakand	**Bunair**	**Avg**		**2.8**					
Malakand	**Bunair**	**%**				**95.75**		**78.00**	**22.00**
Malakand	**Dir Kohistan**	Patrak	Deon Patrak	1.27	176000.00	82	144320	111126	33194
Malakand	**Dir Kohistan**	Shiringal	Khani bela	1	140000	83	116200	90636	25564
Malakand	**Dir Kohistan**	**Total**		**2.27**	**316000**		**260520**	**201762**	**58758**
Malakand	**Dir Kohistan**	**Avg**		**1.135**		**83**			
Malakand	**Dir Kohistan**	**%**						**77.45**	**22.55**
Malakand	**Upper Dir**	Dir	Makhay	0.81	121000	90	108900	100188	8712
Malakand	**Upper Dir**	Dir	Sundrawal	0.81	135000	88	118800	112860	5940
Malakand	**Upper Dir**	Darora	Gandigar	0.88	129000	90	116100	106812	9288
Malakand	**Upper Dir**	**Total**		**2.5**	**385000**		**343800**	**319860.00**	**23940**
Malakand	**Upper Dir**	**Avg**		**0.8333333**		**89**			
Malakand	**Upper Dir**	**%**						**93.04**	**6.96**
Malakand	**Chitral**	**Booni**	**Bumbagh**	**0.404**	65000	**88.00**	**57200.00**	**51480.00**	5720
Malakand	**Chitral**	**Booni**	**Koghuzi**	**0.8**	118000	**80.00**	**94400.00**	**80240.00**	14160
Malakand	**Chitral**	**Chitral**	**Chitur Broze**	**0.8**	125000	**85.00**	**106250.00**	**90312.50**	15938
Malakand	**Chitral**	**Chitral**	**Jutilasht**	**0.404**	72500	**87.00**	**63075.00**	**50460.00**	12615
Malakand	**Chitral**	**Chitral**	**Gahrait**	**0.404**	70000	**88.00**	**61600.00**	**48664.00**	12936
Malakand	**Chitral**	**Drosh North**	**Damik**	**0.51**	75000	**78.00**	**58500.00**	**45630.00**	12870
Malakand	**Chitral**	**Total**		**3.322**	**525500.00**	**506.00**	**441025.00**	**366786.50**	**74238.50**
Malakand	**Chitral**	**Avg**		**0.5536667**		**145**			
Malakand	**Chitral**	**%**						**83.17**	**16.83**
Malakand	**Lower dir**	Chakdara	Shaheed abad	1.5	214000	**90.00**	**192600.00**	173340	19260
Malakand	**Lower dir**	Timargirah	Bandagai	1.5	192000	**92.00**	**176640.00**	150144	**26496.00**
Malakand	**Lower dir**	**Total**		**3**	**406000.00**	**182.00**	**369240.00**	**323484.00**	**45756.00**
Malakand	**Lower dir**	**Avg**		**1.5**		**169**			
Malakand	**Lower dir**	**%**						**87.61**	**12.39**
Malakand	**All divisions**	**Total**		**30.812**	**3928227**	**1652**	**3427530.12**	**2836794.34**	**590735.78**
Malakand	**All divisions**	**Avg**		**1.31**					

Region	Division	Range/Sub-Division	Location	Area (ha)	Stock				
					Total	Survival Rate	Net Stock	Plantable	Unplantable
Malakand	**All divisions**	**%**				**88.75**		**82.76497188**	**17.235028**
Hazara	**Kaghan**	Garhi habibullah	Paksari	0.6	58390	**92.00**	**53718.80**	48537.36	**5181.44**
Hazara	**Kaghan**	Balakot	Khawas	3.3	266043	**30.00**	**79812.90**	62876.1	**16936.80**
Hazara	**Kaghan**	Balakot	Hadyan	1	196000	**93.00**	**182280.00**	154008	**28272.00**
Hazara	**Kaghan**	Total		4.9	520433		**315811.70**	265421.46	**50390.24**
Hazara	**Kaghan**	Avg		1.633333		**71.67**			
Hazara	**Kaghan**	%						84.04421369	**15.96**
Hazara	**Siran**	Shinkiari	Shani bala	0.5	20613	**50.00**	**10306.50**	4740.99	**5565.51**
Hazara	**Siran**	Mansehra	Bafa Dohra	0.95	263825	**88.00**	**232166.00**	224251.25	**7914.75**
Hazara	**Siran**	Lower Siran	Daryal	1.21	128101	**70.00**	**89670.70**	64050.5	**25620.20**
Hazara	**Siran**	Upper Siran	Bhogharmang	1	112012	**71.00**	**79528.52**	72807.8	**6720.72**
Hazara	**Siran**	Total		3.66	524551		**411671.72**	365850.54	**45821.18**
Hazara	**Siran**	Avg		0.915		**69.75**			
Hazara	**Siran**	%						88.86948562	**11.13**
Hazara	**Torghar**	Judba	Gijbori	1.52	178283	**70.00**	**124798.10**	111070.309	**13727.79**
Hazara	**Torghar**	Judba	Gojar bandi	1.42	131248	**72.00**	**94498.56**	80323.776	**14174.78**
Hazara	**Torghar**	Total		2.94	309531	**142.00**	**219296.66**	191394.085	**27902.58**
Hazara	**Torghar**	Avg		1.47		**71.00**			
Hazara	**Torghar**	%						87.2763338	**12.72**
Hazara	**Agror tanawal**	Gidder pur	Chowki	1.2	117946	**80.00**	**94356.80**	82090.416	**12266.38**
Hazara	**Agror tanawal**	Agror	Arbora	2.7	233480	**71.00**	**165770.80**	144220.596	**21550.20**
Hazara	**Agror tanawal**	Total		3.9	351426	**151.00**	**260127.60**	226311.012	**33816.59**
Hazara	**Agror tanawal**	Avg		1.95		**75.50**			
Hazara	**Agror tanawal**	%						87	**13.00**
Hazara	**upper kohistan**	Harban	Shinodar	0.6	34040	**63.00**	**21445.20**	15869.448	**5575.75**
Hazara	**upper kohistan**	Komila	Shang	0.5	40500	**88.00**	**35640.00**	32076	**3564.00**
Hazara	**upper kohistan**	Total		1.1	74540	**151.00**	**57085.20**	47945.448	**9139.75**
Hazara	**upper kohistan**	Avg		0.55		**75.50**			
Hazara	**upper kohistan**	%						83.98927918	**16.01**
Hazara	**Gallies**	Abbottabad	Danga pul	7	950837	**80.00**	**760669.60**	661782.552	**98887.05**
Hazara	**Gallies**	Total		7	950837	**80.00**	**760669.60**	661782.552	**98887.05**
Hazara	**Gallies**	Avg		7		**80.00**			
Hazara	**Gallies**	%						87	**13.00**
Hazara	**Haripur**	Haripur	Sikandar Pur	0.4	50800	**95.00**	**48260.00**	47294.8	**965.20**
Hazara	**Haripur**	Khanpur	Kali Thara Gharbi	0.64	82200	**93.00**	**76446.00**	64979.1	**11466.90**
Hazara	**Haripur**	Haripur	Dheri Sikandapur	1.6	247200	**98.00**	**242256.00**	169579.2	**72676.80**

Region	Division	Range/Sub-Division	Location	Area (ha)	Stock				
					Total	Survival Rate	Net Stock	Plantable	Unplantable
Hazara	**Haripur**	Haripur	Qazia	0.8	100500	**89.00**	**89445.00**	82289.4	**7155.60**
Hazara	**Haripur**	Khanpur	Bhara	0.5	68000	**90.00**	**61200.00**	56304	**4896.00**
Hazara	**Haripur**	Total		3.94	548700		**517607.00**	420446.5	**97160.50**
Hazara	**Haripur**	Avg		0.788		**93.00**			
Hazara	**Haripur**	%						81.22890533	**18.77**
Hazara	**Lower Kohistan**		Nawa kally shahpur	1.6	72814	**40.00**	**29125.60**	17766.616	**11358.98**
Hazara	**Lower Kohistan**	Total		1.6	72814	**40.00**	**29125.60**	17766.616	**11358.98**
Hazara	**Lower Kohistan**	Avg		1.6		**40.00**			
Hazara	**Lower Kohistan**	%						61	**39.00**
Hazara	**All divisions**	Total		29.04	3352832	**564.00**	**2571395.08**	2196918.213	**374476.87**
Hazara	**All divisions**	Avg		**1.99**		**72.05**			
Hazara	**All divisions**	%							
Hazara Watershed	Unhar watershed	Batagram	Pagora	1.01	151157	94	142088	137825	4263
Hazara Watershed	Unhar watershed	Sherghar	Parihna	2.39	300731	87	261636	222391	39245
Hazara Watershed	**Unhar watershed**	**Total**		**3.4**	**451888**		**403724**	**360216**	**43508**
Hazara Watershed	**Unhar watershed**	**Avg**		**1.70**		**90.5**			
Hazara Watershed	**Unhar watershed**	**%**						**89.22**	**10.78**
Hazara Watershed	Kunhar W.shed	Siran/Kunhar W.s	Makraia	1.7	101046	71	71743	64568	7174
Hazara Watershed	Kunhar W.shed	Siran/Kunhar W.s	Murad Pur	1	124950	88	109956	102259	7697
Hazara Watershed	Kunhar W.shed	Balakot	Hassa Shahotar	0.54	101046	80	80837	64568	16268
Hazara Watershed	Kunhar W.shed	Garhi Habibullah	Paksari	0.65	83554	84	70185	58956	11230
Hazara Watershed	**Kunhar W.shed**	**Total**		**3.89**	**410596**		**332721**	**290352**	**42369**
Hazara Watershed	**Kunhar W.shed**	**Avg**		**0.97**		**80.75**			
Hazara Watershed	**Kunhar W.shed**	**%**						**87.27**	**12.73**
Hazara Watershed	**Daur w.shed**	**Haripur**	Qazia	0.8	137700.00	**96.00**	132192	**107602.56**	24589
Hazara Watershed	**Daur w.shed**	Haripur	Nakkapa	2.4	353205.00	80	282564	274087.08	8477
Hazara Watershed	**Daur w.shed**	**Total**		**3.2**	**490905.00**	**176.00**	**414756.00**	**381689.64**	**33066.36**
Hazara Watershed	**Daur w.shed**	**Avg**		**1.60**		**88.00**			
Hazara Watershed	**Daur w.shed**	**%**						**92.03**	**7.97**
Hazara Watershed	**Besham w.shed**	**Besham**	Damana, Shahpur	**2.6**	327200.00	**83.00**	**271576**	211829.28	59746.72

Region	Division	Range/Sub-Division	Location	Area (ha)	Stock				
					Total	Survival Rate	Net Stock	Plantable	Unplantable
Hazara Watershed	**Besham w.shed**	**Besham**	Shang	**1.4**	193500.00	**91.00**	**176085**	132063.75	44021.25
Hazara Watershed	**Besham w.shed**	**Total**		**4**	**520700**	**174**	**447661**	**343893.03**	**103767.97**
Hazara Watershed	**Besham w.shed**	**Avg**		**2.00**		**87.00**			
Hazara Watershed	**Besham w.shed**	**%**						**76.82**	**23.18**
Hazara Watershed	**Bunair w.shed**	Dagar	KulpiKass	**0.97**	120100.00	**97.00**	**116497**	116497	**0.00**
Hazara Watershed	**Bunair w.shed**	Dagar	Gagra Kalpary	**1.58**	188000.00	**96.00**	**180480**	178675	**1804.80**
Hazara Watershed	**Bunair w.shed**	Pacha	Bahi Kali	**0.7**	89700.00	**90.00**	**80730**	62162	**18567.90**
Hazara Watershed	**Bunair w.shed**	Pacha	Shiri Pay	**1.35**	164000.00	**94.00**	**154160**	120245	**33915.20**
Hazara Watershed	**Bunair w.shed**	**Total**		**4.6**	**561800.00**	**377**	**531867**	**477579.1**	**54287.9**
Hazara Watershed	**Bunair w.shed**	**Avg**		**1.15**		**94.25**			
Hazara Watershed	**Bunair w.shed**	**%**						**89.79**	**10.21**
Hazara	**All divisions**	**Total**		**19.09**	**2435889.00**	**727.00**	**2130728.37**	**1853728.87**	**276999.50**
Hazara	**All divisions**	**Avg**		**1.48**		**73.24**			
Hazara	**All divisions**	**%**					**87.47**	**87.00**	**13.00**
Hazara	**All divisions**	**Total**		**88.90**	**10942848**		**9228891**	**7879007**	**1349884**
Hazara	**All divisions**	**Avg**		**1.48**		**72.65**			
Hazara	**All divisions**	**%**					**84.34**	**85.37**	**14.63**

Appendix-F (i): Details of private nurseries-Tube

Region	Division	Range/Sub-Division	Location	Units	Stock				
					Total	Net Stock	Fit	Unfit	Survival Rate
South	Peshawar	Charsadda	Shikh abad	1	25000	18750	16875	1875	75
South	Peshawar	Charsadda	Kot	3	75000	63750	57375	6375	85
South	Peshawar	Charsadda	Jindi Pul	1	25000	22500	20250	2250	90
South	Peshawar	Charsadda	Haki1 Abad	1	25000	23750	23750	0	95
South	Peshawar	Risalpur	Jahengri	1	25000	21500	20425	1075	86
South	Peshawar	Risalpur	Kharabad	1	21000	12600	6300	6300	60
South	Peshawar	Risalpur	Kharabad	1	24000	20400	17340	3060	85
South	Peshawar	Risalpur	Kharabad	1	25000	21250	19125	2125	85
South	Peshawar	Peshawar	Karva	1	25000	18750	16875	1875	75
South	Peshawar	Peshawar	Titara	1	24500	17150	11147.5	6002.5	70
South	Peshawar	Peshawar	Fazal Kurna	1	25000	20000	14000	6000	80
South	Peshawar	Peshawar	Fazal Kurna	1	25000	20000	14800	5200	80
South	Peshawar	Peshawar	Tarnab	12	325000	299000	284050	14950	92
South	Peshawar	Peshawar	Tarnab	9	180000		0	0	95
South	Peshawar	Peshawar	Karva	2	55000	44000	37400	6600	80
South	Peshawar	Peshawar	Tarnab	20	500000	460000	276000	184000	92
South	Peshawar	Peshawar	Titara	2	50000	37500	28125	9375	75
South	Peshawar	Peshawar	Akbar Pura	4	100000	90000	55800	34200	90
South	Peshawar	Peshawar	Akbar Pura	4	100000	85000	51000	34000	85
South	Peshawar	Charsadda	Hanaabad	1	25500	17850	8925	8925	70
South	Peshawar	Charsadda	Shikh abad	1	27000	21600	18360	3240	80
South	Peshawar	Charsadda	Shikh abad	1	24000	19200	17280	1920	80
South	**Peshawar**	**Total**		**70**	**1731000**	**1354550**	**1015202.5**	**339347.5**	
South	**Peshawar**	**Average**		**3.181818**					**82.05**
South	**Peshawar**	**%**					**74.95**	**25.05**	
South	Mardan	Rustam	Miralai	2	52500	48300	38640	9660	92
South	Mardan	Rustam	Miralai	1	22500	21375	18168.75	3206.25	95
South	Mardan	Rustam	Char Gulla	3	74000	70300	66785	3515	95
South	Mardan	Rustam	Rustam	2	46000	36800	25760	11040	80
South	Mardan	USC	Jangae Koruna	20	435000	413250	268612.5	144637.5	95
South	Mardan	USC	Sawalderi	7	175000	157500	126000	31500	90
South	Mardan	Rustam	Sher Dara	1	20000	15000	9000	6000	75
South	Mardan	Rustam	Sher Dara	2	52000	50960	43316	7644	98
South	Mardan	USC	Dubai Adda	1	25000	23750	22562.5	1187.5	95
South	Mardan	USC	Musa Khat	8	200000	180000	153000	27000	90
South	Mardan	USC	Dubai Adda	1	25000	18750	15000	3750	75
South	Mardan	Rustam	Rustam	5	126000	103320	72324	30996	82
South	Mardan	Marghuz	Sawabi	1	25000	23750	23750	0	95
South	Mardan	Marghuz	Sawabi	1	25000	24000	24000	0	96
South	Mardan	Marghuz	Sawabi	4	104000	78000	31200	46800	75
South	**Mardan**	**Total**		**59**	**1407000**	**1265055**	**938118.**	**326936.**	

Region	Division	Range/Sub-Division	Location	Units	Stock				
					Total	Net Stock	Fit	Unfit	Survival Rate
							75	25	
South	**Mardan**	**Average**		**7.38**					**88.53**
South	**Mardan**	**%**					**74.16**	**25.84**	
South	Kohat	Karak	Tamgazai	2	48000	38400	19200	19200	80
South	Kohat	Karak	Bharam Khel	1	25000	21250	18700	2550	85
South	Kohat	Karak	Payala Banda	1	27300	26754	22740.9	4013.1	98
South	Kohat	Karak	Gandari Khattak	1	27500	26400	25080	1320	96
South	Kohat	Karak	Gandari Khattak	1	27500	26125	24296.25	1828.75	95
South	Kohat	Karak	Takht-e-Nusrati	1	24000	23520	20462.4	3057.6	98
South	Kohat	Karak	Lakarki Banda	1	22100	21437	18435.82	3001.18	97
South	Kohat	Karak	Uchobi Banda	2	55500	41070	30802.5	10267.5	74
South	Kohat	Karak	Lura Banda	80	1992000	1294800	310752	984048	65
South	Kohat	Karak	Algadi	3	79000	69520	52140	17380	88
South	Kohat	Kohat	Shaheeda Banda	4	100000	80000	52000	28000	80
South	Kohat	Kohat	Shaheeda Banda	4	99000	84150	71527.5	12622.5	85
South	Kohat	Kohat	Shaheeda Banda	4	95000	71250	28500	42750	75
South	Kohat	Kohat	Shaheeda Banda	3	75000	63750	44625	19125	85
South	Kohat	Kohat	Shaheeda Banda	4	90000	67500	43875	23625	75
South	Kohat	Kohat	Shaheeda Banda	4	100000	75000	33750	41250	75
South	Kohat	Kohat	Shaheeda Banda	4	100000	80000	36000	44000	80
South	Kohat	Kohat	Suleiman Talab	1	23000	20700	20700	0	90
South	Kohat	Hangu	Dhoaba (Toheed Abad)	1	24000	19200	17664	1536	80
South	Kohat	Hangu	Dhoaba	2	48000	42240	19008	23232	88
South	**Kohat**	**Total**		**124**	**3081900**	**2193066**	**910259.37**	**1282806.6**	
South	**Kohat**	**Average**		**11.80952**					**83.13**
South	**Kohat**	**%**					**41.51**	**58.49**	
South	Bannu	L.Marwat	Taja Zai	1	24300	23328	22161.6	1166.4	96
South	Bannu	L.Marwat	Taja Zai	1	25000	24250	22553	1697.5	97
South	Bannu	Bannu	Gambila	1	26000	21060	17901	3159	81
South	Bannu	Bannu	Kinger Pull	2	50200	39156	38373	783.12	78
South	Bannu	L.Marwat	Kinger Pull	12	299500	269550	118602	150948	90
South	Bannu	L.Marwat	Nar Sahibzada khosth	20	461000	373410	145630	227780.1	81
South	Bannu	L.Marwat	Nar Sahibzada khosth	20	459000	371790	144998	226791.9	81
South	Bannu	L.Marwat	Dabak Mandra Khel	1	25000	21250	9563	11687.5	85
South	Bannu	L.Marwat	Machan Khel	1	24800	20584	17496.4	3087.6	83
South	Bannu	Bannu	Aladad Mamarkhel	20	500000	465000	144150	320850	93
South	Bannu	Bannu	Aladad Mamarkhel	2	57000	47880	35910	11970	84
South	Bannu	Bannu	New Ghari mamash Khel	8	195000	146250	65812.5	80437.5	75

Region	Division	Range/Sub-Division	Location	Units	Stock				
					Total	Net Stock	Fit	Unfit	Survival Rate
South	**Bannu**	**Total**		**89**	**2146800**	**1823508**	**783149.38**	**1040358.6**	
South	**Bannu**	**Average**		**7.42**					**85.33**
South	**Bannu**	**%**					**42.95**	**57.05**	
South	**DI Khan**	**D I Khan**	**Dhapo Wala Band**	**9**	230000	195500	121210	74290	**85**
South	**DI Khan**	**D I Khan**	**Baloch Abad**	**11**	276000	240120	148874.4	91245.6	**87**
South	**DI Khan**	**D I Khan**	**Lachra**	**20**	510000	382500	237150	145350	**75**
South	**DI Khan**	**D I Khan**	**Multan Road**	**2**	50700	42081	26090.22	15990.78	**83**
South	**DI Khan**	**D I Khan**	**Multan Road**	**1**	25200	23184	14374.08	8809.92	**92**
South	**DI Khan**	**D I Khan**	**Multan Road**	**2**	50000	46500	28830	17670	**93**
South	**DI Khan**	**D I Khan**	**Multan Road**	**8**	170000	85000	52700	32300	**50**
South	**DI Khan**	**D I Khan**	**Rahman Abad**	**20**	505000	202000	125240	76760	**40**
South	**DI Khan**	**D I Khan**	**Wala DIK**	**2**	50200	35140	21786.8	13353.2	**70**
South	**DI Khan**	**D I Khan**	**Dappo Wala Band**	**2**	50200	36144	22409.28	13734.72	**72**
South	**DI Khan**	**Shikh Badin**	**Khani Wanda**	**4**	100000	84000	52080	31920	**84**
South	**DI Khan**	**Shikh Badin**	**Khani Wanda**	**15**	375000	318750	197625	121125	**85**
South	**DI Khan**	**Total**	**0**	**96**	**2392300**	**1690919**	**1048369.8**	**642549.22**	
South	**DI Khan**	**Average**		**8.00**					**76.33**
South	**DI Khan**	**%**					**62.00**	**38.00**	
South		**Total**		**438**	**10759000**	**8327098**	**4695100**	**3631998**	
South		**Average**		**7.46**					**69.23**
South		**%**							
Malakand	Swat	Mangora	Islampur	1	12000	7800	5070	2730	65
Malakand	Swat	Matta	Madina colony	1	20800	16640	10816	5824	80
Malakand	Swat	Matta	Koza doresh khela	1	23450	21105	13718.25	7386.75	90
Malakand	Swat	Matta	Duresh khela (Kas)	1	23900	22705	14758.25	7946.75	95
Malakand	Swat	Kabal	Kabal sugai	2	23500	14100	9165	4935	60
Malakand	Swat	Kabal	Argot qala new deolai	4	45500	20475	13308.75	7166.25	45
Malakand	Swat	Kabal	Deolai	1	21700	14105	9168.25	4936.75	65
Malakand	Swat	Fatehpur	Sam Shin	4	70000	48300	31395	16905	69
Malakand	Swat	Fatehpur	Chaliyar	6	70000	31500	20475	11025	45
Malakand	Swat	Total		21	**310850**	**196730**	**127874.5**	**68855.5**	
Malaka	Swat	Average		4.2	**34538.8**	**21858.88**	**14208.2**	**7650.61**	**68.222**

Region	Division	Range/Sub-Division	Location	Units	Stock				
					Total	Net Stock	Fit	Unfit	Survival Rate
nd					**89**	**89**	**78**	**11**	**22222**
Malakand	Swat	%	0	233.3333			**65.00**	**35.00**	
Malakand	Alpuri	Alpuri	Nasapai	1	25000	21750	18705	3045	87
Malakand	Alpuri	Alpuri	Nasapai	1	25000	17500	10500	7000	70
Malakand	Alpuri	Alpuri	Machar	1	25000	20000	16000	4000	80
Malakand	Alpuri	Alpuri	Machar	1	25000	19750	12837.5	6912.5	79
Malakand	Alpuri	Karora	Jaba	1	25000	21250	0	21250	85
Malakand	Alpuri	Karora	Bura Jaba	1	25000	16500	12375	4125	66
Malakand	Alpuri	Karora	Kuz kana, Baghcha	2	50000	40000	24000	16000	80
Malakand	Alpuri	Karora	Kuz kana, Baghcha	2	50000	37500	22500	15000	75
Malakand	Alpuri	Karora	Kuz kana, Baghcha	2	50000	35000	19250	15750	70
Malakand	Alpuri	Karora	Kuz kana, Baghcha	2	50000	30000	16500	13500	60
Malakand	Alpuri	Karora	Karshat	2	50000	35000	19250	15750	70
Malakand	Alpuri	Karora	Karshat	2	50000	40000	28000	12000	80
Malakand	Alpuri	Total		18	**450000**	**334250**	**199917.5**	**134332.5**	
Malakand	Alpuri	Average		2.769231	**37500**	**27854.1667**	**16659.792**	**11194.375**	**75.16666667**
Malakand	Alpuri	%	0	150	**100**	**74**	**60**	**40**	
Malakand	Malakand	Batkhela	Mrizar	1	25000	17500	10500	7000	70
Malakand	Malakand	Batkhela	Khar	4	100000	92000	73600	18400	92
Malakand	Malakand	Batkhela	Khar	4	100000	95000	74100	20900	95
Malakand	Malakand	Batkhela	Khar	4	100000	85000	80750	4250	85
Malakand	Malakand	Batkhela	Khar	2	50000	42500	29750	12750	85
Malakand	Malakand	Batkhela	Khar	2	50000	42500	27625	14875	85
Malakand	Malakand	Batkhela	Allah Dand	20	500000	350000	0	350000	70
Malakand	Malakand	Batkhela	Gul-e-Nargas	2	50000	42500	29750	12750	85
Malakand	Malakand	Batkhela	Gul-e-Nargas	4	100000	95000	47500	47500	95
Malaka	Malakand	Batkhela	Gul-e-Nargas	4	100000	90000	9000	81000	90

Region	Division	Range/Sub-Division	Location	Units	Stock				
					Total	Net Stock	Fit	Unfit	Survival Rate
nd									
Malakand	Malakand	Batkhela	Gul-e-Nargas	4	100000	85000	42500	42500	85
Malakand	Malakand	Batkhela	Gul-e-Nargas	4	100000	90000	0	90000	90
Malakand	Malakand	Batkhela	Gul-e-Nargas	4	100000	80000	4000	76000	80
Malakand	Malakand	Batkhela	Gul-e-Nargas	4	100000	80000	68000	12000	80
Malakand	Malakand	Batkhela	Allah Dand	4	100000	90000	31500	58500	90
Malakand	Malakand	Dargai	Hero Shah	12	300000	285000	0	285000	95
Malakand	Malakand	Batkhela	Tothakhan	1	25000	21250	16150	5100	85
Malakand	Malakand	Batkhela	Tothakhan	1	25000	23750	20900	2850	95
Malakand	Malakand	Batkhela	Allah Dand	8	200000	150000	0	150000	75
Malakand	Malakand	Total		89	**2225000**	**1857000**	**565625**	**1291375**	
Malakand	Malakand	Average		10.28571					**85.63**
Malakand	Malakand	%	0	468.4211			**30.46**	**69.54**	
Malakand	Kalam	Behrain North	Darolai	1	25000	22500	15750	6750	90
Malakand	Kalam	Behrain North	Ramait hawai	1	25000	17500	12250	5250	70
Malakand	Kalam	Behrain North	Ramait hawai	1	25000	19000	13300	5700	76
Malakand	Kalam	Behrain North	Rahimabad Kaidam	1	25000	20000	14000	6000	80
Malakand	Kalam	Behrain South	Kas Qandil	1	25000	20000	14000	6000	80
Malakand	Kalam	Behrain South	Kas Qandil	1	25000	17500	12250	5250	70
Malakand	Kalam	Behrain South	Jaro Piya	1	25000	16250	11375	4875	65
Malakand	Kalam	Behrain South	Jaro Piya	1	25000	16250	11375	4875	65
Malakand	Kalam	Behrain South	Damana	2	75000	63750	44625	19125	85
Malakand	Kalam	Total	0	10	**275000**	**212750**	**148925**	**63825**	
Malakand	Kalam	Average		2.753247					**75.67**
Malakand	Kalam	%	0	111.1111			**70.00**	**30.00**	
Malakand	Chitral	Karak	Tamgazai	2	48000	38400	19200	19200	80
Malaka	Chitral	Karak	Bharam Khel	1	12000	10200	8976	1224	85

Region	Division	Range/Sub-Division	Location	Units	Stock				
					Total	Net Stock	Fit	Unfit	Survival Rate
nd									
Malakand	Chitral	Chitral	Broze Birbolok	40	152000	121600	0	121600	80
Malakand	Chitral	Total	0	43	**212000**	**170200**	**28176**	**142024**	
Malakand	Chitral	Average		21.5					**82**
Malakand	Chitral	%	0	1433.333			**16.55**	**83.444358**	
Malakand	Bunir	Chamla	Khanano Dera	1	25300	19734	6907	12827	78
Malakand	Bunir	Chamla	Khanano Dera	1	24800	22816	10724	12092	92
Malakand	Bunir	Chamla	Khanano Dera	1	26000	23140	2777	20363	89
Malakand	Bunir	Chamla	Khanano Dera	1	25000	22750	5688	17063	91
Malakand	Bunir	Chamla	Koria	1	25000	18750	0	18750	75
Malakand	Bunir	Chamla	Koria	1	25000	18750	0	18750	75
Malakand	Bunir	Chamla	Koria	1	13100	10480	8384	2096	80
Malakand	Bunir	Chamla	Koria	1	16400	11808	9446	2362	72
Malakand	Bunir	Chamla	Kuz Kali	1	25000	20000	9600	10400	80
Malakand	Bunir	Chamla	Kuz Kali	1	25000	20000	9600	10400	80
Malakand	Bunir	Chamla	Kuz Kali	1	25000	20000	9600	10400	80
Malakand	Bunir	Chamla	Maskipur	6	153500	125870	54124	71746	82
Malakand	Bunir	Chamla	Maskipur	2	50000	48500	26675	21825	97
Malakand	Bunir	Dagar	Pacha Kali	4	110000	99000	0	99000	90
Malakand	Bunir	Dagar	Ghani Bagh	1	25000	19250	0	19250	77
Malakand	Bunir	Dagar	Nauseer	8	208000	164320	88733	75587	79
Malakand	Bunir	Dagar	Bashonai	2	50300	40743	18334	22409	81
Malakand	Bunir	Dagar	Bashonai	4	102200	87892	61524	26368	86
Malakand	Bunir	Dagar	Matnawari	16	402800	342380	171190	171190	85
Malakand	Bunir	Total	0	54	**1357400**	**1136183**	**493306**	**642877**	
Malakand	Bunir	Average		5.888889					**82.58**
Malaka	Bunir	%	0	284.21			**43.42**	**56.58**	

Region	Division	Range/Sub-Division	Location	Units	Stock				
					Total	Net Stock	Fit	Unfit	Survival Rate
nd				05					
Malakand	upper Dir	Darora	Usharai	1	25000	15000	7950	7050	60
Malakand	upper Dir	Darora	Samkot	1	25000	21250	14875	6375	85
Malakand	upper Dir	Darora	Batal	1	25000	22500	18000	4500	90
Malakand	upper Dir	Darora	Katan bala	1	25000	16250	9750	6500	65
Malakand	upper Dir	Darora	Katan bala	1	25000	15000	1500	13500	60
Malakand	upper Dir	Dir	makhay	1	30000	24000	16000	8000	80
Malakand	upper Dir	Total	0	6	**155000**	**114000**	**68075**	**45925**	
Malakand	upper Dir	Average		1.714286					**73.33**
Malakand	upper Dir	%	0	100			**59.71**	**40.29**	
Malakand	lower Dir	Chikdara	Khyrabad	1	35000	33950	32252.50	1698	**97**
Malakand	lower Dir	Chikdara	Mian Baangola	1	30000	27000	26190.00	810	**90**
Malakand	lower Dir	Chikdara	Mian Baangola	1	25000	25000	25000.00	0	**100**
Malakand	lower Dir	Chikdara	Warsak	2	60000	58800	34104.00	24696	**98**
Malakand	lower Dir	Chikdara	Warsak	8	200000	180000	102600.00	77400	**90**
Malakand	lower Dir	Chikdara	Ouch Sharqi	8	210000	205800	199626.00	6174	**98**
Malakand	lower Dir	Chikdara	Ouch Sharqi	8	200000	200000	200000.00	0	**100**
Malakand	lower Dir	Chikdara	Tiknibala	2	52000	50960	49940.80	1019	**98**
Malakand	lower Dir	Chikdara	Tiknibala	1	26000	26000	26000.00	0	**100**
Malakand	lower Dir	Chikdara	Ouch Sharqi	4	105000	99750	99750.00	0	**95**
Malakand	lower Dir	Chikdara	Tharnao	2	63000	60480	54432.00	6048	**96**
Malakand	lower Dir	Chikdara	Sisada	4	100000	97000	61110.00	35890	**97**
Malakand	lower Dir	Chikdara	Shaheed Abad	1	30000	29400	27930.00	1470	**98**
Malakand	lower Dir	Chikdara	asband	2	57000	54150	53067.00	1083	**95**
Malakand	lower Dir	Chikdara	Gulabad	1	25000	21750	19140.00	2610	**87**
Malakand	lower Dir	Chikdara	Gulabad	1	25000	23750	23750.00	0	**95**
Malaka	lower Dir	Chikdara	Gulabad	2	50000	40000	36000.0	4000	**80**

Region	Division	Range/Sub-Division	Location	Units	Stock				
					Total	Net Stock	Fit	Unfit	Survival Rate
nd							0		
Malakand	lower Dir	Chikdara	Asband	1	35000	33250	32585.00	665	**95**
Malakand	lower Dir	Chikdara	Chekho Ouch	2	60000	58200	55290.00	2910	**97**
Malakand	lower Dir	Chikdara	Asband	1	25000	23750	23275.00	475	**95**
Malakand	lower Dir	Chikdara	Amlok dara	1	25000	23750	23750.00	0	**95**
Malakand	lower Dir	Chikdara	asband	2	50000	42500	0.00	42500	**85**
Malakand	lower Dir	Chikdara	Shaheed Abad	1	25000	25000	25000.00	0	**100**
Malakand	lower Dir	Timargirah	Shobaba	1	25000	24500	23275.00	1225	**98**
Malakand	lower Dir	Timargirah	Amlok dara	2	51000	45900	40392.00	5508	**90**
Malakand	lower Dir	Timargirah	Ghoro Kalai	1	25000	23500	21150.00	2350	**94**
Malakand	lower Dir	Timargirah	Bajaoro Kalai	2	70000	60900	47502.00	13398	**87**
Malakand	lower Dir	Timargirah	Chamanabad	1	26000	26000	26000.00	0	**100**
Malakand	lower Dir	Timargirah	Chamanabad	1	26000	26000	26000.00	0	**100**
Malakand	lower Dir	Total	0	65	**1736000**	**1647040**	**1415111.3**	**231928.7**	
Malakand	lower Dir	Average		4.333333					**95**
Malakand	lower Dir	%	0	224.1379			**#DIV/0!**	**#DIV/0!**	
Malakand		Total	0	306	6721250	5668153	3047010.1	2621142.9	
Malakand		Average		3.484615					**79.64**
Malakand		%	0	288.6792			**53.756666**	**46.243334**	**5352582.271**
Hazara	Kaghan	Balakot	Chuntian	1	15710	8169	0	8169	52
Hazara	Kaghan	Bissia	lower Bisssia	1	13976	10901	0	10901	78
Hazara	Kaghan	Bissia	Bissia	1	14464	12439	11400	1039	86
Hazara	Kaghan	Bissia	Bissia	1	15300	11628	9328	2300	76
Hazara	Kaghan	Bissia	Bissia	1	17134	11651	6517	5134	68
Hazara	Kaghan	Bissia	Bissia	1	18975	15370	15000	370	81
Hazara	Kaghan	Bissia	Bissia	1	10764	7212	3400	3812	67
Hazara	Kaghan	Bissia	Bissia	1	19829	16260	9500	6760	82
Hazara	Kaghan	Garhi Habibullah	Bissia	2	32496	28921	14700	14221	89
Hazara	Kaghan	Garhi Habibullah	Bissia Chok	1	9530	7672	1500	6172	81
Hazara	Kaghan	Garhi Habibullah	Jabbri	1	52000	35360	33800	1560	68
Hazara	Kaghan	Garhi Habibullah	Jabbri	1	0	0	0	0	0
Hazara	Kaghan	Garhi Habibullah	Jabbri	3	44820	27788	19452	8337	62

Region	Division	Range/Sub-Division	Location	Units	Stock				
					Total	Net Stock	Fit	Unfit	Survival Rate
Hazara	Kaghan	Balakot	Mangli	1	9818	8051	7854.4	196	82
Hazara	Kaghan	Garhi Habibullah	Batora	1	23718	15891	11859	4032	67
Hazara	**Kaghan**	**Total**	**0**	**18**	**298534**	**217313.36**	**144310.4**	**73002.96**	
Hazara	**Kaghan**	**Average**		**18.00**					**69.23**
Hazara	**Kaghan**	**%**	**0**				**66.41**	**33.59**	
Hazara	Siran	Lower Siran	Shinkiria	2	39287	28286.64	24892.243	3394	72
Hazara	Siran	Upper Siran	Andrasi	1	16128	10967.04	0	10967	68
Hazara	Siran	Upper Siran	Shinkiria	2	60726	54653.4	48094.992	6558	90
Hazara	Siran	Upper Siran	Andrasi	1	20046	15234.96	13406.765	1828	76
Hazara	Siran	Upper Siran	Andrasi	1	19876	14310.72	12593.434	1717.2864	72
Hazara	Siran	Upper Siran	Panjool	1	14010	8966.4	7890.432	1076	64
Hazara	Siran	Upper Siran	Panjool	1	22802	18013.58	15851.95	2162	79
Hazara	Siran	Upper Siran	Panjool	1	23717	16127.56	14192.253	1935	68
Hazara	Siran	Upper Siran	Andrasi	1	11000	7040	6195.2	845	64
Hazara	Siran	Lower Siran	Kottli Bala	4	87040	42649.6	37531.648	5118	49
Hazara	Siran	Upper Siran	Andrasi	1	25200	9324	8205.12	1119	37
Hazara	Siran	Upper Siran	Andrasi	1	26841	22278.03	19604.666	2673.3636	83
Hazara	Siran	Upper Siran	Panjool	1			19800	2700	90
Hazara	Siran	Upper Siran	Andrasi	1			0	0	0
Hazara	Siran	Upper Siran	Kottli Bala	1	25000	22500	0	0	0
Hazara	Siran	Upper Siran	Andrasi	1	13365	9088.2	9088.2	0	68
Hazara	Siran	Upper Siran	Karmang Bala	4	93444	72886.32	0	72886	78
Hazara	**Siran**	**Total**		**25**	**498482**	**352326.45**	**237347**	**114979.55**	
Hazara	**Siran**	**Average**		**2.78**	**0**				**62.24**
Hazara	**Siran**	**%**			**100.00**		**67.37**	**32.63**	
Hazara	Gallies	Abbottabad	Deri maira	2	6360	1462.8	175.536	1287.264	23
Hazara	Gallies	Birangali	Chattri	4	100000	54000	0	54000	54
Hazara	Gallies	Bagnotar	Sajjan gali	1	16528	12396	8305	4090.68	75
Hazara	**Gallies**	**Total**		**7**	**122888**	**67858.8**	**8480.856**	**59378**	
Hazara	**Gallies**	**Average**		**3.50**					**50.67**
Hazara	**Gallies**	**%**					**12.50**	**87.50**	
Hazara	Haripur	Makanial	Kohmal Bala	2	49000	41160	32928	8232	84
Hazara	Haripur	Makanial	Kohmal Bala	1	24800	18104	0	18104	73
Hazara	Haripur	Makanial	Khas Gambir	1	25200	24192	21531	2661.12	96
Hazara	Haripur	Makanial	Kohmal Bala	2	52600	36820	16569	20251	70

Region	Division	Range/Sub-Division	Location	Units	Stock				
					Total	Net Stock	Fit	Unfit	Survival Rate
Hazara	Haripur	Satora	Khush Khayala Dook	2	18900	17010	16160	850.5	90
Hazara	Haripur	Satora	Khush Khayala Dook	1	9700	7275	3274	4001.25	75
Hazara	Haripur	Ghazi	Sirikot	2	48500	38800	6208	32592	80
Hazara	Haripur	Ghazi	Boti Gram	2	48000	36000	23400	12600	75
Hazara	Haripur	Ghazi	Boti Gram	1	24000	3600	0	3600	15
Hazara	Haripur	Khanpur	Najaf Pur	1	25100	20080	15662	4417.6	80
Hazara	Haripur	Haripur	Jamia	1	24500	19600	18620	980	80
Hazara	Haripur	Haripur	Gujar Mura	2	50500	45955	44576	1378.65	91
Hazara	Haripur	**Total**	**0**	**18**	**400800**	**308596**	**198927.88**	**109668.12**	
Hazara	Haripur	**Average**		**2.77**					**75.75**
Hazara	Haripur	**%**					**64.46**	**35.54**	
Hazara	Hazara tribe	Batagaram	Maidan	2	49154	41780.9	20890.45	20890.45	85
Hazara	Hazara tribe	Allai	Ghuzano Banda	1	6768	3654.72	0	3654.72	54
Hazara	Hazara tribe	Allai	Biari	1					
Hazara	Hazara tribe	Allai	Biari	1		38485.92	27709.862	10776	74
Hazara	Hazara tribe	Allai	Biari	1	52008				
Hazara	Hazara tribe	Hiaalan	Malkal Gali	2	49675	44707.5	0	44707.5	90
Hazara	Hazara tribe	Hillan	Shamli	1					
Hazara	Hazara tribe	Pashto	Bandi khanimullah	2					
Hazara	Hazara tribe	Batagarm	Gijbore	1	18300	15189	0	15189	83
Hazara	Hazara tribe	Pashto	Dotial kelay banna	1	19833	12494.79	249.8958	12244.894	63
Hazara	Batagaram	**Total**	**0**	**13**	**195738**	**156312.83**	**48850.21**	**107462.62**	
Hazara	Batagaram	**Average**		**2.36**					**74.83**
Hazara	Batagaram	**%**					**31.25**	**68.75**	
Hazara	Agror tanawal	Gidder pur	Mallo	1	11156	7920.76	6098.9852	1821.7748	71
Hazara	Agror tanawal	Gidder pur	Mallo	1	5673	2723.04	0	2723.04	48
Hazara	Agror tanawal	Gidder pur	Chowki	1	23760	17820	15859.8	1960.2	75
Hazara	Agror tanawal	Gidder pur	Kulhari garbi	1	8740	4544.8	0	4544.8	52
Hazara	Agror tanawal	Gidder pur	Kulhari garbi	1	28792	23321.52	17024.71	6296.8104	81
Hazara	Agror tanawal	Agror	Chatan gada	1	21944	15580.24	11840.982	3739.2576	71
Hazara	Agror tanawal	Agror	Chatan gada	1	21393	14975.1	10632.321	4342.779	70
Hazara	Agror tanawal	Agror	Mainwule	4	88318	64472.14	25788.856	38683.284	73
Hazara	Agror tanawal	Agror	Mainwule	1	4269	1536.84	614.736	922.104	36
Hazara	Agror tanawal	Sherghar	Bela gali badral	2	48311	36716.36	30474.579	6241.7812	76
Hazara	**Agror tanawal**	**Total**	**0**	**14**	**262356**	**189610.8**	**118335**	**71276**	

Region	Division	Range/Sub-Division	Location	Units	Stock				
					Total	Net Stock	Fit	Unfit	Survival Rate
Hazara	**Agror tanawal**	**Average**		**2.55**					**65.30**
Hazara	**Agror tanawal**	**%**					**62.41**	**37.59**	
Hazara	Upper kohistan	Jal kot	Goshali	1	27500	26125	22467.5	3657.5	95
Hazara	**Upper kohistan**	**Total**		**1**	**27500**	**26125**	**22467.5**	**3657.5**	**95**
Hazara	**Upper kohistan**	**Average**		**1.00**					**95.00**
Hazara	**Upper kohistan**	**%**					**86.00**	**14.00**	
Hazara	Torghar	Judba	Bab sar	1	24987	23487.78	22548.269	939.5112	94
Hazara	Torghar	Judba	Darra	1	24514	24023.72	22822.534	1201.186	98
Hazara	Torghar	Judba	Darra	1	25432	24669.04	23188.898	1480.1424	97
Hazara	Torghar	Judba	Hotal	1	27516	22287.96	16938.85	5349.1104	81
Hazara	Torghar	Judba	Hotal	1	23852	22659.4	19260.49	3398.91	95
Hazara	Torghar	Judba	Hotal	1	23852	22659.4	19260.49	3398.91	95
Hazara	Torghar	Judba	Hotal	1	23852	22659.4	19260.49	3398.91	95
Hazara	Torghar	Juba	Hotal	1	22495	20920.35	15062.652	5857.698	93
Hazara	Torghar	Judba	Daur bala	1	25101	20080.8	14056.56	6024.24	80
Hazara	Torghar	Judba	Khataki	1	23542	21187.8	18857.142	2330.658	90
Hazara	Torghar	Judba	Kandar	1	25214	0	0	0	0
Hazara	**Torghar**	**Total**	**0**	**11**	**270357**	**224635.65**	**191256.37**	**33379.28**	
Hazara	**Torghar**	**Average**		**1.83**					**83.45**
Hazara	**Torghar**	**%**					**85.14**	**14.86**	
Hazara		Total	0	107	2076655	1542778.89	969975.09	572803.8	
Hazara		Average		3.484615					64.05
Hazara		%	0	137.1795			53.756666	46.243334	
Watershed	Unhar Watershed	Sherghar	Malookra	4	77510	69759	41855.4	27903.6	90
Watershed	Unhar Watershed	Sherghar	Dogi	5	80860	69539.6	0	69539.6	86
Watershed	Unhar Watershed	Sherghar	Bazargai	2	39567	36401.64	24389.099	12012.541	92
Watershed	Unhar Watershed	Sherghar	Tanawa	2	49709	39767.2	28632.384	11134.816	80
Watershed	Unhar Watershed	Batagarm	Ajmira	1	25712	18255.52	13691.64	4563.88	71
Watershed	Unhar Watershed	Batagarm	Maidan	2	50634	35950.14	34152.633	1797.507	71
Waters	Unhar Watershed	Batagarm	lundi Dara	1	18733	13487.76	0	13487.7	72

Region	Division	Range/Sub-Division	Location	Units	Stock				
					Total	Net Stock	Fit	Unfit	Survival Rate
hed								6	
Watershed	Unhar Watershed	Batagarm	lundi Dara	1	24120	16642.8	13647.096	2995.704	69
Watershed	Unhar Watershed	Allai	Hotel batkool	8	98944	88060.16	57239.104	30821.056	89
Watershed	Unhar Watershed	Allai	Biari	4	25218	20174.4	0	20174.4	80
Watershed	Unhar Watershed	Allai	Rop kanai	2	37252	32409.24	0	32409.24	87
Watershed	**Unhar Watershed**	**Total**	**0**	**32**	**528259**	**440447.46**	**213607.36**	**226840.1**	
Watershed	**Unhar Watershed**	**Average**		**5.33**					**80.64**
Watershed	**Unhar Watershed**	**%**	**0**	**290.9091**			**48.50**	**51.50**	
Watershed	Daur Watershed	Havaleia	Dhoka	1	18522	13891.5	12502	1389	75
Watershed	Daur Watershed	Havaleia	Basti sheer sha	1	18974	14989.46	14240	749	79
Watershed	Daur Watershed	Havaleia	Basti sheer sha	1	19118	14338.5	13764.96	574	75
Watershed	Daur Watershed	Havaleia	Basti sheer sha	2	23708	14224.8	9246.12	4979	60
Watershed	Daur Watershed	Havaleia	Basti sheer sha	1	21406	18623.22	17692.059	931	87
Watershed	Daur Watershed	Havaleia	Basti sheer sha	1	15151	10151.17	3045	7106	67
Watershed	Daur Watershed	Havaleia	Basti sheer sha	2	25938	15562.8	11049.588	4513	60
Watershed	Daur Watershed	Havaleia	Nikkapha	1	17757	14560.74	12085.414	2475	82
Watershed	Daur Watershed	Havaleia	Dhoka	1	18945	15913.8	11139.66	4774	84
Watershed	Daur Watershed	Havaleia	Akhoon bandi	4	0	0	0	0	0
Watershed	Daur Watershed	Havaleia	Akhoon bandi	2	32839	22658.91	15861.237	6798	69
Watershed	Daur Watershed	Havaleia	Band shoib khan	1	17286	12445.92	8089.848	4356	72
Watershed	Daur Watershed	Havaleia	Kokal	1	18987	13480.77	11997.885	1483	71
Watershed	Daur Watershed	Haripur	Qazia	1	25100	22088	20320.96	1767	88
Watershed	Daur Watershed	**Total**		**20**	**273731**	**202929.59**	**161035.42**	**41894.171**	
Watershed	Daur Watershed	**Average**		**2.67**					**69.21**
Watershed	Daur Watershed	**%**	**0**	**142.8571**			**79.36**	**20.64**	
Watershed	Kunhar Watershed	Kunhar W.S	Makriya	1	280000	224000	28000	196000	80
Waters	Kunhar	Siran	Shinkiria	2	51500	46350	41715	4635	90

Region	Division	Range/Sub-Division	Location	Units	Stock				
					Total	Net Stock	Fit	Unfit	Survival Rate
hed	Watershed								
Waters hed	Kunhar Watershed	Siran	Murad Pur	3	71856	55329.12	52454.88	2874.24	77
Waters hed	Kunhar Watershed	Siran	Makriha	4	56301	36032.64	25222.848	10809.792	64
Waters hed	Kunhar Watershed	Siran	Karmang Bala	2	41863	37676.7	31397.25	6279.45	90
Waters hed	Kunhar Watershed	Siran	Karmang Bala	2	57081	53656.14	51372.9	2283.24	94
Waters hed	Kunhar Watershed	Balakot Kunhar W.s	Hassa	2	11750	2350	1198.5	1151.5	20
Waters hed	Kunhar Watershed	Balakot Kunhar W.s	Hassa	2	12650	4680.5	3795	885.5	37
Waters hed	Kunhar Watershed	Balakot Kunhar W.s	Hassa	1	16252	13489.16	12189	1300.16	83
Waters hed	Kunhar Watershed	Ghari Habibullah	Boi	1	11376	7508.16	6006.528	1501.632	66
Waters hed	Kunhar Watershed	Siran	Tambah	2	39502	31601.6	25281.28	6320.32	80
Waters hed	Kunhar Watershed	Siran	Lassa Tarkal	2	36204	21722.4	0	21722.4	60
Waters hed	Kunhar Watershed	Siran	Ber Khund	2	48604	35480.92	30158.782	5322.138	73
Waters hed	**Kunhar Watershed**	**Total**		**26**	**734939**	**569877.34**	**308791.97**	**261085.37**	
Waters hed	**Kunhar Watershed**	**Average**		**3.71**					**70.31**
Waters hed	**Kunhar Watershed**	**%**	**0**	**200**			**54.19**	**45.81**	
Waters hed	Besham w.shed	Besham	Shang	1	30000	27300	24570	2730	91
Waters hed	Besham w.shed	Besham	Shang	1	25000	20000	12000	8000	80
Waters hed	Besham w.shed	Besham	Barkana, Shahpur	1	30000	26400	24024	2376	88
Waters hed	Besham w.shed	Besham	Barkana, Shahpur	1	25000	17250	14145	3105	69
Waters hed	Besham w.shed	Besham	Barkana, Shahpur	2	50000	43000	3440	39560	86
Waters hed	Besham w.shed	Besham	Barkana, Shahpur	2	50000	37500	24375	13125	75
Waters hed	Besham w.shed	Besham	Barkana, Shahpur	2	50000	40000	22000	18000	80
Waters hed	Besham w.shed	Besham	Barkana, Shahpur	2	50000	37500	30000	7500	75
Waters hed	Besham w.shed	Besham	Jaba, Shang	1	25500	19635	11388.3	8246.7	77
Waters hed	Besham w.shed	Besham	Buda, Shang	1	40000	34400	12040	22360	86
Waters hed	Besham w.shed	Besham	Buda, Shang	1	25000	19500	11700	7800	78
Waters	Besham w.shed	Besham	Shang	2	60000	57000	51300	5700	95

Region	Division	Range/Sub-Division	Location	Units	Stock				
					Total	Net Stock	Fit	Unfit	Survival Rate
hed									
Waters hed	Besham w.shed	Besham	Shang	2	50000	42500	34850	7650	85
Waters hed	Besham w.shed	Besham	Shang	1	35000	33250	29925	3325	95
Waters hed	Besham w.shed	Besham	Karshal Shah Pur	1	30000	26400	20592	5808	88
Waters hed	Besham w.shed	Besham	Kandhar, Gulibat	1	25000	23250	20925	2325	93
Waters hed	Besham w.shed	Besham	Kandhar, Gulibat	2	80000	68000	54400	13600	85
Waters hed	Besham w.shed	Besham	Chakat, Karora	1	26000	24180	22245.6	1934.4	93
Waters hed	Besham Watershed	**Total**		**25**	**706500**	**597065**	**423919.9**	**173145.1**	
Waters hed	Besham Watershed	**Average**		**2.63**					**84.39**
Waters hed	Besham Watershed	**%**	**0**	**138.889**			**71.00**	**29.00**	
Waters hed	Bunair w.shed	Pacha	Bhai Kali	12	302000	286900	215175	71725	95
Waters hed	Bunair w.shed	Pacha	Suktan Wass	2	51000	49980	46981.2	2998.8	98
Waters hed	Bunair w.shed	Pacha	Dagar Talan	2	50000	22500	22500	0	45
Waters hed	Bunair w.shed	Pacha	Pacha Kali	2	58000	49880	35913.6	13966.4	86
Waters hed	Bunair w.shed	Dagar	Gagra	2	49800	44322	39889.8	4432.2	89
Waters hed	Bunair w.shed	Dagar	China Wara	1	25000	22000	19580	2420	88
Waters hed	Bunair w.shed	Dagar	Mattaq	4	100000	65000	0	65000	65
Waters hed	Bunair w.shed	Chamla	Aggarai	1	26000	22360	0	22360	86
Waters hed	Bunair w.shed	Chamla	Kaoga	1	25000	23250	18600	4650	93
Waters hed	Bunair w.shed	Chamla	Kaoga	2	50000	45500	22750	22750	91
Waters hed	**bunair Watershed**	**Total**	**0**	**29**	**736800**	**631692**	**421389.6**	**210302.4**	
Waters hed	**bunair Watershed**	**Average**		**5.27**					**83.60**
Waters hed	**bunair Watershed**	**%**	**0**	**290**			**66.71**	**33.29**	

Waters hed		Total	0	132	2980229	2442011.39	1528744.2	913267.15	
Waters hed		Average		3.484615					77.63
Waters hed		%	0	200			53.756666	46.243334	

Region	Division	Range/Sub-Division	Location	Units	Stock				
					Total	Net Stock	Fit	Unfit	Survival Rate
All Division		Total	0	983	22537134	17980041.3	10240829	7739212.1	
All Division		Average		3.484615					72.64
All Division		%	0	320.1954			53.756666	46.243334	

Appendix-F (ii): Details of private nurseries - Bare Rooted

Range/Sub-Division	Location	Units allocated	Total	Net Stock	Plantable	Unplantable	Survival Rate
Charsadda	Zyam	1	25000.00	23750.00	20187.5	3562.50	95
Peshawar	Karva	1	25000.00	23750.00	23275	475.00	95
Peshawar	Fazal Kurona	1	26000.00	23400.00	23400	0.00	90
Peshawar	Fazal Kurona	1	26000.00	23400.00	23400	0.00	90
Peshawar	Fazal Kurona	1	26000.00	23400.00	22932	468.00	90
Peshawar	Haider Khan Ghari	1	25000.00	22500.00	22500	0.00	90
Peshawar	Haider Khan Ghari	1	25000.00	22500.00	21375	1125.00	90
Peshawar	Haider Khan Ghari	1	25000.00	23750.00	23750	0.00	95
Peshawar	Tarnab	1	25000.00	23750.00	23750	0.00	95
Peshawar	Tarnab	1	25000.00	23750.00	23750	0.00	95
Peshawar	Tarnab	1	25000.00	23750.00	20187.5	3562.50	95
Peshawar	Tarnab	1	25000.00	23750.00	20187.5	3562.50	95
Peshawar	Tarnab	1	25000.00	23750.00	23750	0.00	95
Peshawar	Tarnab	1	25000.00	23750.00	23750	0.00	95
Peshawar	Tarnab	1	25000.00	23750.00	23750	0.00	95
Peshawar	Tarnab	1	25000.00	23750.00	23750	0.00	95
Peshawar	Tarnab	1	25000.00	23750.00	23750	0.00	95
Peshawar	Tarnab	1	25000.00	23750.00	23750	0.00	95
Peshawar	Tarnab	1	25000.00	23750.00	23750	0.00	95
Peshawar	Tarnab	1	25000.00	23750.00	23750	0.00	95
Peshawar	Tarnab	1	25000.00	23750.00	23750	0.00	95
Peshawar	Tarnab	1	25000.00	23750.00	23750	0.00	95
Peshawar	Tarnab	1	25000.00	23750.00	23750	0.00	95
Peshawar	Tarnab	1	25000.00	23750.00	23750	0.00	95
Peshawar	Tarnab	1	25000.00	23750.00	23750	0.00	95
Peshawar	Tarnab	1	25000.00	23750.00	23750	0.00	95
Peshawar	Tarnab	1	25000.00	23750.00	23750	0.00	95
Peshawar	Tarnab	1	25000.00	23750.00	23750	0.00	95
Peshawar	Tarnab	1	40000.00	39200.00	33320	5880.00	98
Peshawar	Titara	1	70000.00	63000.00	59850	3150.00	90
Total		**30**	**813000**	**763650**	**741864.5**	**21785.5**	
Average							**94.10**
%					**97.15**	**2.85**	
USC	Musa Khat	2	50000.00	47500.00	45125	2375	95
Rustam	Luwuran	4	100000.00	90000.00	85500	4500	90
Total		**6**	**150000**	**137500**	**130625**	**6875**	
Average							**92.50**
%					**95.00**	**5.00**	
Kohat	Sur Gul Chowk	1	25000.00	25000.00	25000	0	100

Range/Sub-Division	Location	Units allocated	Total	Net Stock	Plantable	Unplantable	Survival Rate
Kohat	Shikhan	1	22000.00	17600.00	17600	0	80
Kohat	Suleiman Talab	1	23000.00	23000.00	19550	3450	100
Total		**3**	**70000**	**65600**	**62150**	**3450**	
Average							**93.33**
%					**94.74**	**5.26**	
L.Marwat	Nathrang	**1**	25000.00	22500.00	19575	2925	90.00
L.Marwat	Tajazai moor	**1**	24500.00	22785.00	22785	0	93.00
L.Marwat	Tajazai moor	**1**	26000.00	23140.00	19669	3471	89.00
Bannu	aladad	**1**	26400.00	22440.00	16381	6059	85.00
Bannu	Now Ghari	**1**	25000.00	20000.00	14000	6000	80.00
Bannu	aladad	**1**	25000.00	24500.00	24500	0	98.00
Total		**6**	**151900.00**	**135365**	**116910.2**	**18454.8**	
Average							**89.17**
%					**86.37**	**13.63**	
Total	**0**	**45**	**1184900**	**1102115**	**1051549.7**	**50565.3**	
Average		**2.42**					**92.28**
%					**95.411976**	**4.5880239**	

Matta	koza doresh khela	1	13500	6750	5940	810	50
Kabal	deolai	1	15000	9750	8580	1170	65
Fatihpur	Jokhtai	3	63250	53762.5	47311	6451.5	85
Total		**5**	**91750**	**70262.5**	**61831**	**8431.5**	
Average							**66.67**
%					**88.00**	**12.00**	
Alpuri	Nasapai	1					
Alpuri	Nasapai	1	50000	46000	41400	4600.00	92
Alpuri	Lilowni	1	25000	20750	15770	4980.00	83
Alpuri	Kuz Alpuri	1	25000	19250	11550	7700.00	77
Karora	Shang	1	25000	22500	20250	2250.00	90
Karora	Jaba	1	25000	16750	12562.5	4187.50	67
Karora	Dival galai	1	25000	19500	14040	5460.00	78
Karora	Serai chakesar	1	25000	17500	14000	3500.00	70
Karora	Salmanoo	1	25000	19500	17160	2340.00	78
Karora	Dival galai	1	25000	17500	15750	1750.00	70
Karora	Shang	1	25000	21250	18700	2550.00	85
Karora	Serai chakesar	1	25000	20000	17000	3000.00	80
Alpuri	LiLowni	1	25000	21000	17220	3780.00	84
Total		**13**	**325000.00**	**261500.00**	**215402.50**	**46097.50**	
Average							**79.50**
%					**82.37**	**17.63**	
Batkhela	Thara Bypass	2	52000	49400	45448	3952.00	95
Batkhela	Pir Kali	1	26000	23400	18720	4680.00	90
Dargai	Maizara	1	25000	22500	20250	2250.00	90
Dargai	Hero Shah	1	25000	25000	25000	0.00	100
Total		**5**	**128000.00**	**120300.00**	**109418.00**	**10882.00**	
Average							**90.90**
%					**90.95**	**9.05**	

Range/Sub-Division	Location	Units allocated	Total	Net Stock	Plantable	Unplantable	Survival Rate
Behrain North	Darolai	1	25000	21250	17000	4250	85
Behrain North	Darolai	1	25000	22500	18000	4500	90
Behrain North	Kaidam	1	25000	19500	15600	3900	78
Behrain North	Ramaite Hawai	1	25000	18750	15000	3750	75
Behrain North	Ramaite Hawai	1	25000	21250	17000	4250	85
Behrain North	Ramaite Hawai	1	25000	20500	16400	4100	82
Behrain South	Dabargai	1	25000	22500	18000	4500	90
Behrain South	Dabargai	1	25000	22500	18000	4500	90
Behrain South	Kuz Dabargai	1	25000	21250	17000	4250	85
Behrain south	Kuz Dabargai	2	50000	42500	34000	8500	85
Behrain South	Dabargai	1	25000	22500	18000	4500	90
Behrain South	Dabargai	1	25000	18750	15000	3750	75
Total		**13**	**325000.00**	**273750.00**	**219000.00**	**54750.00**	
Average							**84.17**
%					**80.00**	**20.00**	
Booni	bumbagh	**2**	13000	11050	7735	3315	85
Booni	Reshun	**1**	25000	20500	2050	18450	82
Booni	Junali koch	**1**	25000	17500	9625	7875	70
Booni	Koghozi	**2**	60000	51000	40800	10200	85
Booni	Junali koch	**1**	25000	11250	1125	10125	45
Booni	Kuragh	**1**	25000	17750	7988	9763	71
Booni	Reshun	**1**	25000	17500	5250	12250	70
Booni	Koghozi	**1**	25000	20000	12000	8000	80
Booni	Koghozi	**1**	25000	21250	18063	3188	85
Chitral	Wadus Bomborait	**1**	12300	8610	2153	6458	70
Chitral	Tewish Bomborait	**1**	25000	18750	15938	2813	75
Chitral	Kuru Ayun	**1**	25000	18750	12188	6563	75
Chitral	Gahirait	**2**	50000	40000	28800	11200	80
Chitral	Broze	**4**	100000	80000	60000	20000	80
Chitral	Broze Birbolok	**1**	25000	20000	15000	5000	80
Chitral	Broze Birbolok	**2**	50000	40000	26000	14000	80
Chitral	Joghor	**1**	25000	15000	7800	7200	60
Chitral	Jutilasht	**1**	25000	18750	14625	4125	75
Chitral	Gahirait	**1**	25000	20500	16400	4100	82
Drosh North	Osiak	**1**	25000	20000	14000	6000	80
Drosh North	Damik	**2**	50000	42000	23100	18900	84
Drosh North	Jinjrait	**1**	50000	40000	28000	12000	80
Drosh North	Shahnigar	**1**	25000	21750	18923	2828	87
Drosh North	Kaldam Gol	**1**	25000	18750	11250	7500	75
Drosh North	Kaldam Gol	**1**	25000	17000	8500	8500	68
Drosh North	Shishi	**1**	25000	21500	18060	3440	86
Drosh North	Kesu	**1**	25000	20000	10000	10000	80
Drosh North	Kesu	**1**	25000	23750	20900	2850	95
Drosh North	Kesu	**1**	25000	17500	11550	5950	70
Drosh North	kesu	**1**	25000	22750	19793	2958	91
Drosh North	Shahnigar	**1**	25000	21750	18923	2828	87

Range/Sub-Division	Location	Units allocated	Total	Net Stock	Plantable	Unplantable	Survival Rate
Drosh North	Shahnigar	**1**	25000	21750	18923	2828	87
Drosh North	Shishi	**1**	25000	22250	18913	3338	89
Drosh North	Shishi	1	25000	22500	20250	2250	90
Drosh North	Shishi	1	25000	21250	17638	3613	85
Drosh North	Kesu	1	25000	13000	3900	9100	52
Drosh North	Kesu	1	25000	13750	7563	6188	55
Drosh South	Badol gol	1	25000	19500	15600	3900	78
Drosh South	Badol gol	1	25000	19250	13860	5390	77
Drosh South	Sweer	1	25000	16750	10888	5863	67
Drosh South	Sweer	1	25000	17500	11725	5775	70
Drosh South	Sweer	1	25000	15750	10238	5513	63
Drosh South	Sweer	1	25000	18750	10313	8438	75
Total		**51**	**1260300**	**976910**	**666342.5**	**310567.5**	
Average							**76.77**
%					**68.21**	**31.79**	
Chamla	Koria	1	51500	46350	42642	3708	90
Chamla	Koria	1	26500	21200	20352	848	80
Chamla	Kuz Kali	1	29500	28320	25488	2832	96
Dagar	Kat Kala	1	27500	26675	26675	0	97
Total		**4**	**135000**	**122545**	**115157**	**7388**	
Average							**79.18**
%					**93.97**	**6.03**	
Patrak	Deon patrak	1	33000	29700	25245	4455	90
Patrak	Deon patrak	1	25000	23750	21850	1900	95
Patrak	Deon patrak	1	25000	23750	21850	1900	95
Patrak	Dogh payeen	1	25000	22500	20250	2250	90
Patrak	Dogh payeen	1	27000	21600	2160	19440	80
Patrak	Dogh payeen	1	25000	22500	19800	2700	90
Patrak	Dogh payeen	1	25000	22500	20250	2250	90
Patrak	Dogh payeen	1	25000	22000	20680	1320	88
Shiringal	Tangisir	1	25000	22500	20250	2250	90
Shiringal	Samang	1	25000	20000	18000	2000	80
Shiringal	Samang	1	25000	20000	18000	2000	80
Shiringal	Samang	1	25000	20500	18450	2050	82
Total		**12**	**310000**	**271300**	**226785**	**44515**	
Average							**87.50**
%					**83.59**	**16.41**	
Darora	katan bala	1	28000	25760	23699	2061	92
Darora	Katan bala	1	25000	17500	13125	4375	70
Darora	Baatal	1	25000	20000	14800	5200	80
Darora	Baatal	1	25000	12500	5000	7500	50
Dir	Makhay	1	25000	11250	5625	5625	45
Dir	Makhay	1	25000	16250	11375	4875	65
Dir	makhay	1	25000	15000	10500	4500	60
Dir	Makhay	1	25000	20000	15000	5000	80
Dir	Makhay	1	25000	18750	11813	6938	75
Dir	Makhay	1	25000	17500	14875	2625	70
Total		**10**	**253000**	**174510**	**125811.7**	**48698.3**	

Range/Sub-Division	Location	Units allocated	Total	Net Stock	Plantable	Unplantable	Survival Rate
Average							**68.70**
%					**72.09**	**27.91**	
Chakdara	Ghonano Banda	**1**	35000	29750	25288	4463	**85**
Chakdara	Sehrada	**1**	25000	24500	22050	2450	**98**
Chakdara	Bar Badawan	**1**	30000	27000	25110	1890	**90**
Chakdara	Sahlai	**1**	30000	28500	28500	0	**95**
Chakdara	Bar Badawan	**1**	30000	27000	25650	1350	**90**
Chakdara	Khair abad	**1**	25000	18750	16875	1875	**75**
Chakdara	Kar Kanai	**1**	33000	28050	24684	3366	**85**
Timargirah	banda gai	**1**	28000	26600	22610	3990	**95**
Timargirah	Talash	**1**	30000	28500	27075	1425	**95**
Timargirah	Chaman Abad	**1**	27000	25380	23603	1777	**94**
Total		**10**	**293000**	**264030**	**241444.9**	**22585.1**	
Average							**90.20**
%					**91.45**	**8.55**	
Total	**0**	**123**	**3121050.00**	**2535107.50**	**1981192.60**	**553914.90**	
Average							**80.40**
%					**78.15024**	**21.84976**	
Lower siran	Shinkiari	12	348313	330897.35	306515.44	41797.56	95
Lower siran	Shanai Bala	1	40443	33972.12	29118.96	11324.04	84
Lower siran	Kotli bala	1	6382	1467.86	1595.5	4786.5	23
Lower siran	Kotli bala	1	17315	0	11254.75	6060.25	
Lower siran	Andrasi	2	29359	0	14679.5	14679.5	
Upper siran	Sacha Band	4	35232	22196.16	24662.4	10569.6	63
Upper siran	Kalas Nawazabad	3	16411	8205.5	7549.06	8861.94	50
Upper siran	Kalas Nawazabad	1	12969	7651.71	7581.6	5054.4	59
	Kar mang Bala	7	97645	71280.85	57610.55	40034.45	73
Total		**32**	**604069**	**475671.55**	**460567.76**	**143168.24**	
Average							**63.86**
%					**96.82**	**30.10**	
Balakot	Paras Bazar	1	26694.00	25893.18	21000.00	5694.00	97
Balakot	Pori	5	116562	110733.9	99077.7	17484.3	95
Balakot	Mangali	1	19734	13616.46	14800.5	4933.5	69
Total		**7**	**162990**	**150244**	**134878**	**28112**	
Average							**87.00**
%					**89.77**	**18.71**	
ABBT	Khanitatra	**1**	5556	1445	1011	433	26
Dongali	Sukakas	**1**	2763	470	0	470	17
Dongali	Sukakas	**1**	2406	313	0	313	13
Bagnotar	Sajan Nagri bala	**1**	8567	5397	1889	3508	63
Bagnotar	Sajan Nagri bala	**1**	10009	7006	2943	4064	70
Bagnotar	Sajan Nagri bala	**1**	15756	12290	6268	6022	78
Barangali	Chatri	**6**	18876	5097	2701	2396	27
Total		**12**	**63933**	**32016.76**	**14811.106**	**17205.654**	
Average							**42.00**
%					**23.17**	**26.91**	
Haripur	Jamia	1	27000.00	25650	23855	1796	95

Range/Sub-Division	Location	Units allocated	Total	Net Stock	Plantable	Unplantable	Survival Rate
Khanpur	Mang	1	25500.00	22440	16830	5610	88
Makanial	Gambir	1	25000.00	12500	3125	9375	50
Total		**3**	**77500**	**60590**	**43809.5**	**16780.5**	
Average							**77.67**
%					**72.30**	**27.70**	
Batagaram	Maidan Ajmeera	2	62754	62754	43300.26	168808.26	80
Batagaram	Jehangir abad	4	176361	176361	149906.85	502628.85	88
Hillan	Mandar wali	3	49080	49080	41718	139878	63
Hillan	Shamlai	1	21414	2406	1563.9	-2406	81
Pashto	Bandi khanimullah	2	5116	5116	1534.8	0	26
Pashto	Bandi khanimullah	2	0	0	0	0	69.2
Allai	Ghozano Baray	1	14772	14772	4431.6	0	
Allai	Biari	1	48332	48332	38665.6	0	78
Allai	Biari	1	0	0	0	0	
Total		**17**	**377829.00**	**358821.00**	**281121.01**	**808909.11**	
Average							**69.31**
%					**78.35**	**225.44**	
Agror	**Mainwale**	**1**			1348.74		
Agror	**Mainwale**	**1**	14986	6743.70		5394.96	**45**
Agror	**Chatan gada**	**1**	24461	17367.31	12678.136	4689.17	**71**
Agror	**Bandi sadiq**	**1**	10166	6302.92	4096.898	2206.02	**62**
Agror	**Jangar mira**	**4**	98641	85817.67	44625.188	41192.48	**87**
Gidder pur	**Mallo**	**1**	9187	5512.20	4960.98	551.22	**60**
Gidder pur	**Mallo**	**1**	10187	7029.03	4568.8695	2460.16	**69**
Gidder pur	**Mallo**	**1**	14496	9132.48	6940.6848	2191.80	**63**
Gidder pur	**Mallo**	**1**	8529	5202.69	3017.5602	2185.13	**61**
Total		**12**	**190653.00**	**143108.00**	**82237.06**	**60870.94**	
Average							**64.75**
%					**57.47**	**42.53**	
Jalkot	**Ghoshali**	**1**	**25332.00**	**24572.04**	**22606.28**	**1965.76**	**97**
Harband	**Shatial das**	**1**	**20891.00**	**18801.90**	**14101.43**	**4700.48**	**90**
Total		**2**	**46223**	**43373.94**	**36707.702**	**6666.2382**	
Average							**93.5**
%			**100**	**94**	**84.63**	**15.37**	
Patan	**Ranolia**	**1**	15935	10995.15	**8796.12**	2199.03	**69**
Total		**1**	**15935**	**10995.15**	**8796.12**	**2199.03**	
Average							**69.00**
%					**80.00**	**20.00**	
Judba	**Khataki**	**1**	24309	21148.83	**20091.39**	1057.44	**87**
Juba	**Serri**	**1**	25109	24857.91	**23615.01**	1242.90	**99**
Judba	**Vola**	**1**	26796	21436.80	**16077.60**	5359.20	**80**
Juba	**Hotal**	**1**	25102	25102.00	**22591.80**	2510.20	**100**
Judba	**Hotal**	**2**	25000	25000.00	**22500.00**	2500.00	**100**
JUdba	**Kandar**	**1**	25248	17673.60	**8836.80**	8836.80	**70**
Kandar	**Kotkay**	**1**	31901	20735.65	**14514.96**	6220.70	**65**

Range/Sub-Division	Location	Units allocated	Total	Net Stock	Plantable	Unplantable	Survival Rate
Kandar	**Kotkay**	**1**	0	0.00	**0.00**	0.00	
Total		**9**	**183465**	**155954.79**	**128227.56**	**27727.232**	
Average							**85.86**
%					**82.22**	**17.78**	
Total		**93**	**1676374**	**1387400.79**	**1154448.3**	**1104972.5**	
Average							**72.55**
%					**83.209432**	**79.643353**	
Siran	Murad pur	1	24389.00	22925.66	20974.54	3414.46	94
Siran	Murad pur	1	19269.00	17149.41	17727.48	1541.52	89
Siran	Murad pur	1	20475.00	17199.00	17813.25	2661.75	84
Balakot	Hassa	1	27096.00	20322.00	21676.80	5419.20	75
Balakot	Hassa	2	18575.00	11145.00	14860.00	3715.00	60
Balakot	Hassa	1	17528.00	12269.60	16651.60	876.40	70
Ghari habib ullah	Boi	1	9922.00	5853.98	9425.90	496.10	59
Siran	Murad pur	1	13521.00	10952.01	7706.97	5814.03	81
Siran	Tambah	1	22313.00	17850.40	16734.75	5578.25	80
Siran	Ber Khund	3	91870.00	63390.30	73496.00	18374.00	69
Siran	Shaniae Bala	1	24900.00	17679.00	18177.00	6723.00	71
Siran	Ber Khund	2	85870.00	65261.20	81576.50	4293.50	76
Siran	Ber Khund	1	0.00				
Total		**17**	**375728**	**281998**	**316821**	**58907**	
Average							**75.67**
%					**112.35**	**20.89**	
Besham	Shang	1	28500	24795	21820	2975	87
Besham	Shang	2	50000	47500	40375	7125	95
Besham	Shang	2	50000	46500	32550	13950	93
Besham	Shang	2	50000	45000	18000	27000	90
Besham	Bar kana, Shahpur	1	25000	22000	19360	2640	88
Besham	Bar kana, Shahpur	6	150000	120000	96000	24000	80
Besham	Gulibatt	1	25000	19250	16170	3080	77
Besham	Gulibatt	2	60000	48000	21600	26400	80
Besham	Chakat, Karora	1	25000	18750	14250	4500	75
Besham	Shonial, Shahpur	2	50000	35000	17500	17500	70
Besham	Shonial, Shahpur	2	50000	40000	20000	20000	80
Total		**22**	**563500**	**466795**	**317624.6**	**149170**	
Average							**83.18**
%							
Sherghar	Manawal	2	50084	42571.4	40442.83	2129	85
Sherghar	Tanawa	2	30511	28985.45	17391.27	11594	95
Sherghar	Dogi	3	32513	29261.7	28676.466	585	90
Sherghar	Bazargai	1	16236	10228.68	7978.3704	2250	63
Batagarm	Maidan	1	24611	17227.7	13437.606	3790	70
Batagarm	Kandol	1	14500	11310	9387.3	1923	78
Batagram	Lundi dara	2	24984	18488.16	12017.304	6471	74

Range/Sub-Division	Location	Units allocated	Total	Net Stock	Plantable	Unplantable	Survival Rate
Allai	Bairi	6	120003	70801.77	64429.611	6372	59
Allai	Ashar rashang	2	14643	13178.7	9225.09	1464.3	90
Total		**20**	**328085.00**	**242053.56**	**202985.85**	**36578.40**	
Average							**78.22**
%					**83.86**	**15.11**	
Havaleia	Akhoon Bandi	2	500	335	285	50	67
Havaleia	Nar Bagh	2	26282	19711.5	14981	4731	75
Havaleia	Akhoon Bandi	5	76592	54380.32	28278	26103	71
Havaleia	Akhoon Bandi	4	0	0		0	
Havaleia	Nikkah pha	2	42938	35638.54	26729	8910	83
Havaleia	Akhoon bandi	2	47165	37260.35	28690	8570	79
Havaleia	Akhoon bandi	1	17589	14950.65	12409	2542	85
Haripur	Qazia	1	23500	21620	17945	3675	92
Haripur	Qazia	1	28800	27936	23187	4749	97
Total		**20**	**263366**	**211832.36**	**152503.15**	**59329.21**	
Average							**81.13**
%					**71.99**	**28.01**	
Pacha	Bhai Kali	**3**	78300	72036	50425	21611	92
Pacha	Pir Baba	**1**	35000	33250	29593	3658	95
Pacha	Pira Abba	**2**	53000	51940	51940	0	98
Pacha	Pacha Shariper	**1**	26000	25220	23959	1261	97
Pacha	Kala Khela	**1**	25400	23622	23622	0	93
Dagar	China Wara	**2**	51000	44370	40377	3993	87
Dagar	Gagra	**2**	25000	24500	19600	4900	98
Chamla	Aggarai	**1**	24500	24500	20825	3675	100
Chamla	Kaoga	**2**	50000	48000	30240	17760	96
Chamla	Kaoga	**1**	9500	8455	0	8455	89
Total		**16**	**377700**	**355893**	**290580.4**	**65312.6**	
Average							**94.78**
%					**81.65**	**18.35**	

Total		**95**	**1908379**	**1558571.48**	**1280514.8**	**369297.82**	
Average							**82.59**
%					**82.159516**	**23.694635**	

Total		356	7890703	6583194.77	5467705.4	2078750.5	
Average							77.8
%					82.159516	23.694635	

Appendix-G: Details of plantations of multipurpose tree species

S. No	Region	Forest division	Range/ sub-division	Location/ Site	Area planted (ha)				Plants planted				Survival Rate %
					Area claimed (ha)	Area ha (Monitoring Team)	Variance	%	Total plants planted (Per record)	Total plants planted (Monitoring Team)	Variance	%	
1	Malakand	Malakand	Batkhela	Agra	24.20	25.50	1.30	5.37	26100	27200	1100	4.21	90.45
2	Malakand	Malakand	Drgai	Heroshah	16.00	15.90	-0.10	-0.62	17400	16894	-506	-2.91	89.77
3	Malakand	Bunir	Daggar	Kat Kala (Chaar)	78.00	79.20	1.20	1.54	83850	85400	1550	1.85	94.00
4	Malakand	Bunir	Chamla	Ambela Dara	43.00	44.20	1.20	2.79	46250	46127	-123	-0.27	95.00
5	Malakand	Alpuri	Alpuri	Moharmai, Bingalai	68.00	67.89	-0.11	-0.16	65000	65000	0	0.00	83.00
6	Malakand	Alpuri	Karora	Takotya	25.00	24.70	-0.30	-1.20	26861	26485	-376	-1.40	86.30
7	Malakand	Kalam	Behrain South	Shamirai taronga	38.00	37.94	-0.06	-0.15	40850	37400	-3450	-8.45	83.00
8	Malakand	Kalam	Behrain South	Migram Piya	48.00	47.20	-0.80	-1.67	58920	59000	80	0.14	88.08
9	Malakand	Kalam	Kalam	Asaan	38.90	38.34	-0.56	-1.45	41830	40128	-1702	-4.07	82.31
10	Malakand	Kalam	Kalam	Gayal jalband	8.00	7.82	-0.18	-2.24	8530	8400	-130	-1.52	83.00
11	Malakand	Swat	Mangora	Shokat dara-1	50.00	43.89	-6.11	-12.22	56372	55400	-972	-1.72	87.31
12	Malakand	Swat	Mangora	Shokat dara-2	25.00	30.24	5.24	20.96	24730	24375	-355	-1.44	78.91
13	Malakand	Swat	Mangora	Sangota Shamalai	50.00	51.10	1.10	2.20	53978	53200	-778	-1.44	94.61
14	Malakand	Swat	Fatehpur	Chamtalai	64.00	68.55	4.55	7.10	68570	68400	-170	-0.25	94.11
15	Malakand	Swat	Matta	Shakardar	63.00	57.73	-5.27	-8.36	67767	66544	-1223	-1.80	95.85
16	Malakand	Dir Kohistan	Patrak	Ghlo kanda	54.00	54.10	0.10	0.18	58225	56400	-1825	-3.13	93.87
17	Malakand	Dir Kohistan	Shiringal	Bar Doog	50.00	50.09	0.09	0.18	50400	49800	-600	-1.19	90.85
18	Malakand	Dir Kohistan	Shiringal	Tangesir payeen	64.00	63.89	-0.11	-0.17	69670	65200	-4470	-6.42	90.04
19	Malakand	Upper Dir	Dir	Ganorai	150.00	152.00	2.00	1.33	161182	153000	-8182	-5.08	95.96
20	Malakand	Upper Dir	Dir	Chiragh	25.00	26.34	1.34	5.36	26861	25400	-1461	-5.44	81.51

S. No	Region	Forest division	Range/ sub-division	Location/ Site	Area planted (ha)				Plants planted				Survival Rate %
					Area claimed (ha)	Area ha (Monitoring Team)	Variance	%	Total plants planted (Per record)	Total plants planted (Monitoring Team)	Variance	%	
				Gali									
21	Malakand	Dir Lower	Timargirah	Asman Banda	127.00	125.25	-1.75	-1.38	136790	136723	-67	-0.05	97.53
22	Malakand	Chitral	Drosh North	Azodam	55.00	55.26	0.26	0.47	59125	58200	-925	-1.56	93.01
23	Malakand	Chitral	Drosh North	Osiak	10.00	10.13	0.13	1.30	10750	10200	-550	-5.12	96.00
24	Malakand	Chitral	Chitral	Maskor	35.00	35.70	0.70	2.00	37600	36944	-656	-1.74	94.55
	Malakand	Malakand	Avg										
	Malakand	Malakand	Total		1209.10	1212.96	3.86		1297611	1271820	-25791		
	Malakand	Malakand	%					0.32				-1.99	89.96
25	South	Peshawar	Risalpur	Walai	46.5	53	6.50	13.98	50000	49400	-600	-1.20	90.00
26	South	Peshawar	Peshawar	Ghari Chandan	209	204.98	-4.02	-1.92	224675	223421	-1254	-0.56	96.00
27	South	Peshawar	Chaesadda	Abazai	42	38.3	-3.70	-8.81	43000	39443	-3557	-8.27	86.00
28	South	Mardan	Rustam	Malandar	80.00	81.6	1.60	2.00	86000	82400	-3600	-4.19	94.17
29	South	Mardan	Rustam	Kohi Dana	40	42.9	2.90	7.25	43000	41400	-1600	-3.72	91.00
30	South	Kohat	Kohat	KUST	20	20.63	0.63	3.15	21500	20800	-700	-3.26	88.73
31	South	Kohat	Kohat	Muslam Ababd	40	38.2	-1.80	-4.50	43500	42285	-1215	-2.79	91.64
32	South	Kohat	Karak	Domanzee	73	70.2	-2.80	-3.84	80000	81313	1313	1.64	
33	South	Kohat	Hango	Duaba	16.72	16.32	-0.40	-2.39	17750	17974	224	1.26	90.68
34	South	Bannu	Bannu	Kasho	232	237	5.00	2.16	249400	248600	-800	-0.32	92.52
35	South	Bannu	L. Marwat	Tor Talla	90	91.83	1.83	2.03	96750	97000	250	0.26	96.30
36	South	D.I.Khan	Shikh Badin	Talghi	10	12.17	2.17	21.70	10750	10600	-150	-1.40	95.00
37	South	D.I.Khan	D I Khan	Roda	50	56.54	6.54	13.08	53700	53800	100	0.19	92.02
38	South	D.I.Khan	D I Khan	Daraban	70	74.13	4.13	5.90	75200	75800	600	0.80	96.33
39	South	D.I.Khan	Makanial	Dhab Chappak	48.00	47.8	-0.20	-0.42	52000	51648	-352	-0.68	94.58
	South	South	Avg										
	South	South	Total		1067.22	1085.60	18.38		1147225	1135884	-11341		
	South	South	%					1.72				-0.99	92.50

S. No	Region	Forest division	Range/ sub-division	Location/ Site	Area planted (ha)				Plants planted				Survival Rate %
					Area claimed (ha)	Area ha (Monitoring Team)	Variance	%	Total plants planted (Per record)	Total plants planted (Monitoring Team)	Variance	%	
40	Hazara	Haripur	Khanpur	Julian	24.37	23.64	-0.73	-3.00	26200	25984	-216	-0.82	88.94
41	Hazara	Haripur	Makanial	Barkote	20	20	0.00	0.00	21750	21800	50	0.23	70.95
42	Hazara	Haripur	Makanial	Dhari Kiala	50	53	3.00	6.00	53000	54600	1600	3.02	61.19
43	Hazara	Haripur	Makanial	Gambir	80	79.62	-0.38	-0.47	85640	84800	-840	-0.98	83.36
44	Hazara	Haripur	Ghazi	Kaker Gali	85.53	86.22	0.69	0.81	91375	91067	-308	-0.34	90.64
45	Hazara	Haripur	Haripur	Jabbi	60	61.7	1.70	2.83	64500	64000	-500	-0.78	89.74
46	Hazara	Gallies	Abbottabad	Havellia	8.00	8.00	0.00	0.00	6000	5800	-200	-3.33	77.23
47	Hazara	Gallies	Bagnotar	Namlimira	30.00	30.30	0.30	1.00	27840	27200	-640	-2.30	85.52
48	Hazara	Gallies	Biran	Chattri	40.00	40.01	0.01	0.02	43000	41400	-1600	-3.72	94.07
49	Hazara	Kaghan	Balakot	Bela Paras	60.00	59.70	-0.30	-0.50	64790	49000	-15790	-24.37	83.00
50	Hazara	Kaghan	Ghari Habib Ullah	Naroka Dalola	40.00	40.05	0.05	0.12	43500	42000	-1500	-3.45	81.00
51	Hazara	Siran	Lower siran	Dharyal	30.00	29.90	-0.10	-0.33	32325	32200	-125	-0.39	93.30
52	Hazara	Siran	Lower siran	Shaniae Bala	20.00	19.30	-0.70	-3.50	14870	15600	730	4.91	73.53
53	Hazara	Siran	Upper siran	Chitta Bala	30.00	30.10	0.10	0.33	32625	31400	-1225	-3.75	80.41
54	Hazara	Siran	Upper siran	Jabbori	20.00	19.68	-0.32	-1.60	21750	21200	-550	-2.53	97.35
55	Hazara	Hazara Tribal	Batagram	Kara Habib banda	60.00	59.30	-0.70	-1.17	65250	66400	1150	1.76	89.17
56	Hazara	Hazara Tribal	Hazara tribe	Kals hillan	15.00	14.70	-0.30	-2.00	16125	15214	-911	-5.65	86.33
57	Hazara	Thor Ghar	Judba	Taralah	40.00	40.20	0.20	0.50	43500	44600	1100	2.53	96.80
58	Hazara	Thor Ghar	Kanadr	Kalo khan	28.00	28.10	0.10	0.36	31000	29800	-1200	-3.87	92.29
59	Hazara	Agror Tanawal	Agror	Bar char	54.00	54.80	0.80	1.48	58725	55890	-2835	-4.83	93.08
60	Hazara	Upper Kohistan	Harban	Ashpar	31.00	28.50	-2.50	-8.06	33060	0	-33060	-100.0	0
61	Hazara	Upper Kohistan	Harban	Shatial Dass	10.00	10.01	0.01	0.10	10875	0	-10875	-100.0	0
62	Hazara	Upper Kohistan	Komila	Zaid Khar	30.00	31.08	1.08	3.60	32250	28200	-4050	-12.56	12.48
63	Hazara	Lower	Patan	Dongo	26.00	25.40	-0.60	-2.31	28355	27400	-955	-3.37	63.99

S. No	Region	Forest division	Range/ sub-division	Location/ Site	Area planted (ha)				Plants planted				Survival Rate %
					Area claimed (ha)	Area ha (Monitoring Team)	Variance	%	Total plants planted (Per record)	Total plants planted (Monitoring Team)	Variance	%	
		Kohistan		Gabar									
	Hazara	Hazara	Avg										
	Hazara	Hazara	Total		891.90	893.31	1.41		948305	875555	-72750		
	Hazara	Hazara	%					0.16				-7.67	74.35
64	Watershed	Bunir W/Shed	Pacha	Hisar	65.70	65.30	-0.40	-0.61	70625	70445	-180	-0.25	81.01
65	Watershed	Bunir W/Shed	Chamla	Agaray	40.00	38.33	-1.67	-4.18	43000	42600	-400	-0.93	42.93
66	Watershed	Besham W/Shed	Besham	Shahpur khwar	64.00	63.08	-0.92	-1.44	68800	68800	0	0.00	93.02
67	Watershed	Besham W/Shed	Besham	Kerai	40.00	40.09	0.09	0.23	43000	43400	400	0.93	95.93
68	Watershed	Daur W/Shed	Haveleian	Baldher	29.14	28.66	-0.48	-1.65	31200	30709	-491	-1.57	78.02
69	Watershed	Daur W/Shed	Haveleian	Kalsia harikhetar	87.50	87.50	0.00	0.00	94213	86993	-7220	-7.66	93.41
70	Watershed	Kunhar W/Shed	Khunhar W.S	Jabbi Batora	40.00	40.70	0.70	1.75	43000	35200	-7800	-18.14	93.74
71	Watershed	Kunhar W/Shed	Khunhar W.S	Bandi mar	64.00	64.55	0.55	0.86	70750	64800	-5950	-8.41	91.50
72	Watershed	Kunhar W/Shed	Khunhar W.S	Tarrana	22.00	21.70	-0.30	-1.36	23650	21800	-1850	-7.82	90.04
73	Watershed	Kunhar W/Shed	Ghari Habibiullah/ Kunhar W.s	Bove	40.00	39.90	-0.10	-0.25	43000	41400	-1600	-3.72	74.31
74	Watershed	Kunhar W/Shed	Ghari Habibiullah/ Kunhar W.s	Mera Batora	33.00	32.98	-0.02	-0.06	35475	32029	-3446	-9.71	90.45
75	Watershed	Unhar W/Shed	Batagram	Tahkot	40.00	40.40	0.40	1.00	42978	41400	-1578	-3.67	97.49
76	Watershed	Unhar W/Shed	Sher ghar	Nowa Sher	40.00	40.30	0.30	0.75	42978	42400	-578	-1.34	99.50
	Watershed	Watershed	Avg										
	Watershed	Watershed	Total		605.34	603.49	-1.85		652669	621976	-30693		

S. No	Region	Forest division	Range/ sub-division	Location/ Site	Area planted (ha)				Plants planted				Survival Rate %
					Area claimed (ha)	Area ha (Monitoring Team)	Variance	%	Total plants planted (Per record)	Total plants planted (Monitoring Team)	Variance	%	
	Watershed	Watershed	%					-0.31				-4.70	86.26
	All regions	All regions	Avg										
	All regions	All regions	Total		3773.56	3795.36	21.80		4045810	3905235	-140575		
	All regions	All regions	%					0.58				-3.47	85.76

Appendix-H: Details of roadside and canal side plantations

Region	Forest division	Range/ sub-division	Location/ Site	Area claimed (ha)	Total plants planted (Per record)	Total plants planted (Monitoring Team)	Variance	%	Survival Rate %	Avg Spacing (ft)
South	Peshawar	Charsadda	Nisata Moterway	22	22575	22400	-175	-0.78	87.44	10.35
South	Mardan	Sawabi	Ambar Moterway	15	16500	16286	-214	-1.30	92.20	10.5143
South	Mardan	LSC	Rashaka Moterway	30	32200	31929	-271	-0.84	92.1	10.45
South	Mardan	USC	Machi Branch USC	10	10700	10600	-100	-0.93	85.3	10.62
South	Kohat	Kohat	Kohat Bypass	2.46	2220	2411	191	8.60	85.5	10.72
South	Kohat	kohat	Kohat pindi railway Track	4.66	5500	5406	-94	-1.71	91.36	9.98
South	Bannu	L Marwat	Taja Zai Lakki Road	20	21500	21000	-500	-2.32	90.85	9.88
South	D I Khan	D I Khan	D I Khan Bypass	2.5	2700	2750	50	1.85	75.60	10.0333
South	D I Khan	D I Khan	Zhob Road	8	8800	8733	-67	-0.76	65.53	10.1
South	Total			114.62	122695	121515	-1180			
South	Average			12.74	13632.78	13501.67	-131.11	0.20	85.10	10.29
Malakand	Malakand	Dargai	Malakand Top NCC Road	23.00	24,750	24,342	-408	(2)	79.9	10.3
Malakand	Bunir	Chamla	Ambala Amazi Road	5	5375	5500	125	2	78.3	9.8
Malakand	Swat	Kabal	Kanju to Shamozai	20	21750	20500	-1250	-5.747	5.0	10.2
Malakand	Dir Lower	Chakdara	Lal Koh Laram	15.00	21000	17250	-3750	-17.9	94.39	9.75

Malakand	Chitral	Booni	Parwak to Nisur Gol	15	16125	16125	0	0	89.67	10.31
Malakand	Total			78.00	89000.00	83717.00	-5283.00	-22.93		
Malakand	Average			15.60	17800.00	16743.40	-1056.60	-4.59	69.4	10.1
Lower Hazara	Kaghan	Balakot	Paras	10	10750	6714	-4036	-38	94.3	12.7
Lower Hazara	Siran	Lower Siran	Dharyal canal	14	15200	11060	-4140	-27.24	60.87	11.82
Upper Hazara	Hazara Tribe	Hillan	Ayeen	10	10905	10600	-305	-2.80	69.64	10.06
Upper Hazara	Thor Ghar	Judba	Ghara road	10	10750	12000	1250	11.63	91.64	5.80
Upper Hazara	Agror Tanawla	Sherghar	Pabbal	20	21750	21333	-417	-1.92	98.61	10.03
Upper Hazara	Total			64	69355	61707	-7648	-57.86		
Upper Hazara	Average			12.8	13871	12341.4	-1529.6	-11.57	83.0	10.1
Total				256.62	281050	266939	-14111		0	0
Average				13.71	15101.26	14195.49	-905.77	-5.40	79.19	10.15

Appendix-I: Details of enclosures

Region	Division	Location/Sub-division	Name of VDC	Zone	No of Closures verified	Total area (ha)	Area traversed for plot sampling	Avg. Reg. per Plot	Avg. Reg. per ha	Total Regeneration in total area
South	Mardan	Gadoon	Mazghund	Sub-Tropical Chir Pine	4	80	80	52.4	5240	419200
South	Mardan	Gadoon	Utal	Sub-Tropical Chir Pine	6	120	120	58.5	5850	702000
South	Kohat	Kohat	Nak Banda	Sub-Tropical Broad Leaved	2	80	40	27.4	2740	219200
South	Kohat	Hango	Khrasha Banda	Sub-Tropical Broad Leaved	1	40	40	31.4	3140	125600
South	Kohat	Hango	Jawarzara	Sub-Tropical Broad Leaved	1	40	40	13.7	1370	54800
South	D I Khan	Sheikh Baddin	Said Abad	Tropical	11	220	110	8	800	176000
South	D I Khan	Sheikh Baddin	Pezu	Tropical	25	180	90	11.1	1110	199800
Total					**50**	**760**	**520**			**1896600**
Avg							**130**	**28.93**	**2892.86**	
Hazara	Agror Tanawal	Singalli	Kalo Basti	Moist Temperate	1	40	40	17	1650	66000
Hazara	Agror Tanawal	Jalogali	Kalo Basti	Moist Temperate	1	40	40	17	1730	69200
Hazara	Agror Tanawal	Jalogali	Karyalla	Moist Temperate	1	40	40	13	1290	51600
Hazara	Agror Tanawal	Gidder pur	Darra lal	Sub-Tropical Chir Pine	1	40	40	17	1680	67200
Hazara	Agror Tanawal	Chowki	Chowki	Sub-Tropical Chir Pine	1	40	40	32	3190	127600
Hazara	Agror Tanawal	Arbora	Susal Gali	Moist Temperate	1	40	40	9	870	34800
Hazara	Agror Tanawal	Shamdara	Hawgali	Sub-Tropical Chir Pine	1	40	40	14	1420	56800
Hazara	Gallies	Sialkot RF	Okhrila ander Seri	Moist Temperate	1	10	10	12	1183.67	11836.7
Hazara	Gallies	Ander seri	Okhrila ander Seri	Moist Temperate	3	124	8	38	3820	473680
Hazara	Gallies	Darwaza	Darwaza	Moist Temperate	1	70	7	9	871.43	61000.1
Hazara	Gallies	Darwaza	Darwza	Moist Temperate	2	80	20	10	1000	80000
Hazara	Gallies	Shakri Nala	Namli Kala	Moist Temperate	1	12	12	14	1443.33	17319.96

Hazara	Gallies	Namli (Miranjanji)	Namli mera Khurd	Moist Temperate	1	40	40	4	400	16000
Hazara	Haripur	Makanyal	Makhanial	Sub-Tropical Chir Pine	4	236	236	77	7721	1822156
Hazara	Haripur	Khanpur	Sohava	Sub-Tropical Broad Leaved	3	174	58	42	4210	732540
Hazara	Haripur	Satora	Sadha Bahar	Sub-Tropical Chir Pine	3	319	319	65	6530	2083070
Hazara	Hazara Tribal	Shabora	Ajmera	Sub-Tropical Chir Pine	1	30	5	22	2220	66600
Hazara	Hazara Tribal	Ghazi kot	Deshan gijbore	Sub-Tropical Chir Pine	1	30	5	23	2300	69000
Hazara	Hazara Tribal	Anora	Anora	Moist Temperate	1	30	5	45	4490	134700
Hazara	Hazara Tribal	Anora	Katora	Moist Temperate	1	40	10	38	3800	152000
Hazara	Hazara Tribal	Ghat seri	Ghat seri	Moist Temperate	1	60	20	9	940	56400
Hazara	Hazara Tribal	Ghat seri	Ghat seri	Moist Temperate	7	235	20	8	750	176250
Hazara	Hazara Tribal	Batila	Kana batila	Moist Temperate	12	624	424	7	748.57	467107.68
Hazara	Kaghan	Jahgeer	Jahgeer	Sub-Tropical Chir Pine	1	70	70	16	1630	114100
Hazara	Kaghan	Dohar RF	Jared Sharqi	Moist Temperate	1	56	56	24	2410	134960
Hazara	Kaghan	Maidan	Jared Sharqi	Moist Temperate	1	63	63	22	2240	141120
Hazara	Kaghan	Chambar Hangrai	Hangri	Moist Temperate	1	124	124	8	840	104160
Hazara	Kaghan	Mitikot Guzra	Balakot	Moist Temperate	4	657	169	13	1260	827820
Hazara	Siran	Shapra Tangli	Kotli bala	Sub-Tropical Chir Pine	3	150	150	15	1466.67	220000.5
Hazara	Siran	Timri	Timri	Moist Temperate	1	658	658	9	943	620494
Hazara	Siran	Tangli RF	Karmang	Moist Temperate	1	124	124	11	1133	140492
Hazara	Siran	Devli Gozara	Dawali	Moist Temperate	1	117	117	20	1950	228150
Hazara	Siran	Massar RF	Shinkiari	Sub-Tropical Chir Pine	1	160	160	28	2833.33	453332.8
Hazara	Siran	Jadwall	Tamba	Sub-Tropical Chir Pine	1	97	97	42	4200	407400
Hazara	Siran	Panjool RF	Salbandi Mera	Moist Temperate	1	65	65	20	1950	126750
Hazara	Siran	Bhorgharmang Guzara	Bhogharrmang	Sub-Tropical Chir Pine	1	42	42	25	2483	104286
Hazara	Siran	Tangli RF	Ahl	Sub-Tropical Chir Pine	1	327	327	31	3100	1013700
Hazara	Siran	Massar RF	Jabba	Sub-Tropical Chir Pine	1	93	93	33	3300	306900
Hazara	Siran	Massar RF	Jabba	Sub-Tropical Chir Pine	1	81	81	15	1517	122877

Hazara	Siran	Shinkiari Massar RF	Shinkiari	Sub-Tropical Chir Pine	1	460	460	20	1983.3	912318
Hazara	Siran	Paryai RF	Stana gali	Sub-Tropical Chir Pine	1	183	183	18	1816.7	332456.1
Hazara	Thor Ghar	Aleema Banda Sari	Aleema sari	Moist Temperate	5	279	279	12	1150.81	321075.99
Total					**78**	**6200**	**4797**			**13525253**
Avg							**223.07**	**22.02**	**2201.54**	
Malakand	Bunir	Dagar	Kat Kalla	Sub-Tropical Chir Pine	8	684	591	46.5	4650	3180600
Malakand	Bunir	Chamla	Nagri	Sub-Tropical Chir Pine	5	350	250	45.2	4520	1582000
Malakand	Alpuri	Alpuri	Machar	Moist Temperate	2	150	16	15.23	1523.39	228508.5
Malakand	Alpuri	Alpuri	wahab Khel Kotkay	Moist Temperate	1	15	15	11.24	1124.19	16862.85
Malakand	Alpuri	Karora	Damorai	Moist Temperate	1	33	33	11.31	1130.57	37308.81
Malakand	Alpuri	Alpuri	Lilownai	Moist Temperate	1	16	16	2.52	251.54	4024.64
Malakand	Alpuri	Karora	Darkali Upal	Moist Temperate	1	22	22	2.9	289.94	6378.68
Malakand	Alpuri	Karora	Chakesar	Moist Temperate	1	25	25	12.73	1272.66	31816.5
Malakand	Chitral	Booni	Golain Payeen	Dry Temperate	3	210	70	12	1200.19	252039.9
Malakand	Chitral	Chitral	Birir	Dry Temperate	2	200	100	13.76	1376.34	275268
Malakand	Chitral	Chitral	Jughor Gol	Dry Temperate	3	300	100	9.7	969.89	290967
Malakand	Chitral	Chitral	Sahan Ayun	Dry Temperate	2	200	100	8.36	836.02	167204
Malakand	Chitral	Chitral	Sahan Ayun	Dry Temperate	2	340	70	9.05	905.27	307791.8
Malakand	Chitral	Drosh North	Kaldam	Dry Temperate	13	1040	80	6.16	615.59	640213.6
Malakand	Dir Kohistan	Patrak	Chamkot	Dry Temperate	1	82	82	21.19	2119.01	173758.82
Malakand	Kalam	Behrain North	Balakot	Dry Temperate	5	250	50	8.49	848.71	212177.5
Malakand	Kalam	Behrain South	Piya Chancharai	Moist Temperate	2	320	186	1.84	183.8	58816
Malakand	Kalam	Behrain South	Dabargai	Moist Temperate	2	300	182	2.98	298.39	89517
Malakand	Lower Dir	Timargirah	Amlook dara	Sub-Tropical Chir Pine	1	36	36	25.62	2562.1	92235.6
Malakand	Lower Dir	Timargirah	Gumbat	Sub-Tropical Chir Pine	1	20	20	28.57	2857.06	57141.2
Malakand	Lower Dir	Timargirah	Nasapa	Sub-Tropical Chir Pine	1	37	37	25.74	2574.1	95241.7
Malakand	Lower Dir	Chakdara	Kotaira Osakai	Sub-Tropical Chir Pine	1	46	46	25	2500.18	115008.28

Malakand	Lower Dir	Chakdara	Osakay Mianz Kalay	Sub-Tropical Chir Pine	1	30	30	39.59	3959.07	118772.1
Malakand	Lower Dir	Chakdara	Landi Cham Osakay	Sub-Tropical Chir Pine	1	27	27	25.4	2539.87	68576.49
Malakand	Lower Dir	Chakdara	Dagai Osakay	Sub-Tropical Chir Pine	1	29	29	15.15	1515.23	43941.67
Malakand	Lower Dir	Timargirah	Sarai Bala-01	Sub-Tropical Chir Pine	1	23	23	26.35	2634.59	60595.57
Malakand	Lower Dir	Timargirah	Sarai Bala- 02	Sub-Tropical Chir Pine	1	29	29	35.67	3566.76	103436.04
Malakand	Lower Dir	Timargirah	Sarai bala-03	Sub-Tropical Chir Pine	1	5	5	19.4	1939.71	9698.55
Malakand	Lower Dir	Timargirah	Sarai bala-04	Sub-Tropical Chir Pine	1	29	29	26.31	2630.91	76296.39
Malakand	Malakand	Batkhela	Rahat Abad Agra	Sub-Tropical Chir Pine	2	90	43	23.14	2313.62	208225.8
Malakand	Malakand	Batkhela	Bazargai Agra	Sub-Tropical Chir Pine	1	32	32	36.78	3677.69	117686.08
Malakand	Swat	Mangora	Barikot	Sub-Tropical Chir Pine	5	120	19	34.4	3439.78	412773.6
Malakand	Swat	Kabal	Mian Bela	Sub-Tropical Chir Pine	2	200	194	44.58	4457.85	891570
Malakand	Upper Dir	Dir	Sundarwal	Dry Temperate	1	20	20	4.43	442.92	8858.4
Malakand	Upper Dir	Dir	Dir taraqiati committee Qulandi bala	Dry Temperate	1	21	21	5.93	593.16	12456.36
Malakand	Upper Dir	Dir	Barikot Dobando	Dry Temperate	1	48	48	6.2	620.2	29769.6
Malakand	Upper Dir	Dir	Rokhan	Dry Temperate	1	39	39	10.17	1016.51	39643.89
Malakand	Upper Dir	Darora	Jabbar	Dry Temperate	2	200	100	4.76	476.5	95300
Total					**82**	**5618**	**2815**			**10212481**
Avg								**18.54**	**1853.51**	
Total					**210**	**12578**	**8132**			**25634334**
Avg								**23.16**	**2315.97**	

Appendix-J: Details of reclamation of saline and water logged areas

Region	Forest division	Range/ sub-division	Location/ Site	Area claimed (ha)	Area ha (Monitoring Team)	Variance	Total plants planted (Per record)	Total plants planted (Monitoring Team)	Variance	Survival Rate %	Avg Spacing (ft)
South	Peshawar	Peshawar	Military Farm Kheshki	11	15	4	12000	12833	833	68.38	9.52
South	Peshawar	Charsadda	Nisata	5	4.8	-0.2	5160	4640	-520	54.00	10.2333
South	Kohat	Karak	Thapi Karak	4.85	5.29	0.44	5200	5438	238	61.19	9.875
South	Kohat	Karak	Shobli Banda	20	20.4	0.4	21500	20000	-1500	83.15	10.75
South	Bannu	L Marwat	Wanda Sher dil	40	41.06	1.06	4300	4400	100	93.16	9.795
South	**Total**			**80.85**	**86.55**	**5.7**	**48160**	**47311**			
South	**Avg**			**16.17**	**17.31**					**71.98**	**10.03**

Appendix-K: Details about farm forestry

Region	Division	Sub Division	Demand by Farmer	Provided by FD	Total	Survived	Survival %	Average Spacing in ft
Malakand	Swat	Mingora	4300	9800	9800	1602	16.34694	5.25
Malakand	Swat	Kabal	13000	13100	13100	2388	18.22901	6
Malakand	Swat	Fathipur	10000	9000	9000	2098	23.31111	5.5
Malakand	Alpuri	Alpuri	300	286	286	192	67.13287	4
Malakand	Alpuri	Karora	500	500	500	300	60	5.5
Malakand	Bunir	Chamla	40000	47385	47385	31424	66.31634	6.3
Malakand	Bunir	Daggar	75000	74115	74115	63212	85.28908	7
Malakand	Chitral	Drosh	3000	3000	3000	2240	74.66667	10
Malakand	Chitral	Boni	400	400	400	250	62.5	7
Malakand	Dir Kohistan	Patrak	1690	1690	1690	1420	84.02367	8
Malakand	Dir Kohistan	Shiringal	250	250	250	189	75.6	10
Malakand	Kalam	Behrain south	5100	5100	5100	3165	62.05882	4.2
Malakand	Kalam	Behrain North	320	275	275	55	20	7
Malakand	Lower Dir	Chakrada	6750	6750	6750	6361	94.23704	7
Malakand	Malakand	Dargai	56950	26000	26000	23874	91.82308	6.8
Malakand	Malakand	Batkhela	35700	56950	56950	49321	86.60404	4.2
Malakand	Upper Dir	Dir	1650	1650	1650	1232	74.66667	6
South	Peshawar	Charsadda	65000	50900	50900	49321	96.89784	4.7
South	Peshawar	Nizampur	48000	47600	47600	40323	84.71218	4.8
South	Mardan	Mardan	70805	70805	70805	64656	91.31559	5
South	Mardan	Sawabi	45000	45730	45730	40350	88.23529	3.5
South	Mardan	Katlang	85000	83500	83500	71332	85.42754	4.1
South	Kohat	Kohat	45000	44492	44492	32890	73.9234	5
South	Kohat	Karak	39780	39780	39780	31453	79.06737	3.7
South	Kohat	Hango	12000	13900	13900	8438	60.70504	4.6
South	Bannu	Bannu	16632	16632	16632	12311	74.01996	7
South	Bannu	L Marwat	9500	9460	9460	7200	76.10994	6
South	D I Khan	D I Khan	11000	10500	10500	6586	62.72381	6.3
Hazara	Haripur	Khanpur	13450	13450	13450	9432	70.12639	3.5
Hazara	Haripur	Haripur	20000	19590	19590	15242	77.805	4
Hazara	Haripur	Ghazi	7000	7000	7000	6200	88.57143	3.8
Hazara	Agror Tanawal	Agror	900	900	900	500	55.55556	6.5
Hazara	Kaghan	Ghari Habibullah	3500	3500	3500	185	5.285714	5.3
Hazara	Kaghan	Balakot	1800	1800	1800	71	3.944444	6
Hazara	Siran	Hilkot	15100	15100	15100	742	4.913907	7.5
Hazara	Gallies	Abbottabad	9200	9200	9200	8400	91.30435	4
Hazara	Hazara Trible	Hillan	10500	10400	10400	7540	72.5	5.1
Hazara	Thor Ghar	Judba	9000	8925	8925	5767	64.61625	3.8

Region	Division	Sub Division	Demand by Farmer	Provided by FD	Total	Survived	Survival %	Average Spacing in ft
Hazara	Khunar Watershed	Balakot	6650	6650	6650	4254	63.96992	8.4
Hazara	Khunar Watershed	Siran	4000	4000	4000	2420	60.5	6
Hazara	Unhar	Sherghar	5700	5700	5700	4400	77.19298	9
Hazara	Daur	Hawalia	7740	7740	7740	4289	55.41344	5
Hazara	Besham	Kandhar	330	330	330	245	74.24242	12
Total			**817497**	**803835**	**803835**	**623870**		
Average			**19011.56**	**18693.84**	**18693.84**	**14508.6**	**65.16**	**5.915116**
%age			**98.3288**					

Appendix-L: Details of promotion of forest based cottage industries related to Mazri and Kana through planting

Name Incharge	Range/Sub-Division	Location	Species	Number of Plants (FD Record)	Number of Plants by Monitoring Tema	Area (ha)		Fencing/Type	Survival Rate
						FD	MT		
Muhammad Iqbal	L. Marwat	Tor Talla	Kana	21560	24338	20	22.64	BW Fencing	98
Hukam Ali Shah	Hango	Duaba	Mazri	16125	15882	15	14.1	BW Fencing	96.2
Muhammad Ali	Karak	Sadadin Banda	Kana	16125	13305	15	13.7	Nil	71.2
Total				**53810**	**53525**	**50**	**50.44**		

Appendix-M: Details of badlands rehabiliatation and watershed management measures

Measures adopted	Site name	Number of measures/ structures at the monitored sites			Quantity at the monitores sites				Survival rate
		Unit	Achieved	Sampled	Unit	Average/ structure	Sampled	Total	
Loose stone check dam	Kasro Khan Khwar	No	200	20	Cft	113.00	2260.00	22600.00	N/A
Vegetated soft Gabion checkdams	Kasro Khan Khwar	No	50	6	Cft	80.50	483.00	4025.00	81.17
Gabion spur	Kasro Khan Khwar	No	2	2	Cft	546.00	1092.00	1092.00	N/A
Live brushwood checkdams	Kasro Khan Khwar	No	50	4	Sft	18.60	74.40	930.00	67.50
Plantation	Kasro Khan Khwar	ha	40	40	ha		40.00	40.00	92.23
Loose stone check dams	Ashari, Kabal	No	100	10	Cft	67	670.00	6700.00	N/A
Vegetated soft gabion	Ashari, Kabal	No	10	6	Cft	265.63	1593.78	2656.30	30.00
Plantation	Ashari, Kabal	ha	20	20	ha		10.00	20.00	70.00
Plantation	Bado Ziarat	ha	15	7.3	ha		7.00	15.00	86.90
Loose stone check dam	Gliat	No	4	4	Cft	326	1304.00	1304.00	N/A
Gabion Check Dam	Gliat	No	2	1	Cft	1302	1302.00	2604.00	N/A
Brushwood layering	Gliat	No	453	135	Rft	27.8	3753.00	12593.40	71.00
Brushwood check dam	Gliat	No	6	3	Cft	64.6	193.80	387.60	52.00
Loose stone check dam	Manur valley	No	80	14	Cft	104	1456.00	8320.00	N/A
Gabion Check Dam	Manur valley	No	30	13	Cft	215	2795.00	6450.00	N/A
Brushwood layering	Manur valley	No	125	125	Rft	23	2875.00	2875.00	87.00
Gabion spur	Manur valley	No	6	4	Cft	2384	9536.00	14304.00	N/A
Vegetated Loose Stone check dam	Manur valley	No	9	5	Cft	56.5	282.50	508.50	76.60
Brush wood check dams	Malkandi	No	5	5	Sft	27.2	136.00	136.00	76.40
Soft Gabion check dam	Malkandi	No	6	6	Cft	232	1392.00	1392.00	53.30
Vegetated Loose Stone Check Dam	Malkandi	No	36	18	Cft	138	2484.00	4968.00	61.70
Loose stone check dam	Malkandi	No	172	12	Cft	135	1620.00	23220.00	N/A
Brushwood layering	Malkandi	No	92.31	16	Rft	92	1472.00	8492.52	61.00
Loose stone check dam	Dharyal	No	36	18	Cft	170.2	3063.60	6127.20	N/A
Cutoff drains	Dharyal	Cft	1148	135	Cft	3.00	405.00	3444.00	N/A
Plantations	Dharyal	ha	15	15	ha		15.00	15.00	93.30

Appendix-N (1): Coordinates of block plantations

Region	Forest division	Range/ sub-division	Location/ Site	Coordinats		
				N	E	Ele. (m)
Malakand	Malakand	Batkhela	Agra	34 35 40.4	71 43 00.8	1113
Malakand	Malakand	Drgai	Heroshah	34 27 55.0	71 48 46.0	477
Malakand	Bunir	Daggar	Kat Kala (Chaar)	34 34 12.4	72 22 39.6	769
Malakand	Bunir	Chamla	Ambela Dara	34 23 17.8	72 26 45.7	779
Malakand	Alpuri	Alpuri	Moharmai, Bingalai	34 44 51	72 41 17	1210
Malakand	Alpuri	Karora	Takotya	34 47 57	72 46 11	1210
Malakand	Kalam	Behrain South	Shamirai taronga	35 08 .361	72 31 .239	1528
Malakand	Kalam	Behrain South	Migram Piya	31 54 76.9	12 12 .888	1351
Malakand	Kalam	Kalam	Asaan	35 29 .313	72 35 .201	2028
Malakand	Kalam	Kalam	Gayal jalband	35 28 .125	72 35 .615	2029
Malakand	Swat	Mangora	Shokat dara-1	34 42 .919	74 18 .782	1099
Malakand	Swat	Mangora	Shokat dara-2	34 43 .188	72 18 .99	1078
Malakand	Swat	Mangora	Sangota Shamalai	34 46 .438	72 25 .356	1213
Malakand	Swat	Fatehpur	Chamtalai	34 53 .999	72 30 .666	4934
Malakand	Swat	Matta	Shakardar	34 51 .720	72 23 .547	1408
Malakand	Dir Kohistan	Patrak	Ghlo kanda	35 22 38.3	72 04 09.4	2050
Malakand	Dir Kohistan	Shirigal	Bar Doog	35 20 22.6	71 5842.0	2129
Malakand	Dir Kohistan	Shirigal	Tangesir payeen	35 15 .028	71 59 .869	1589
Malakand	Upper Dir	Dir	Ganorai	35 08 54.3	71 51 53.9	1453
Malakand	Upper Dir	Karora	Chiragh Gali	34 47 57	72 46 11	1210
Malakand	Dir Lower	Timargirah	Asman Banda	34 59 41.0	71 44 24.2	2137
Malakand	Chitral	Drosh North	Azodam	35 35 02.8	71 48 39.1	1420
Malakand	Chitral	Drosh North	Osiak	35 33 33.0	71 47 14.1	1307
Malakand	Chitral	Chitral	Maskor	35 40 .649	71 45 25.5	1451
Lower Hazara	Haripur	Khanpur	Julian	33 46 06.2	72 52 48.9	546
Lower Hazara	Haripur	Makanial	Barkote	33 51 50.3	73 10 30.9	978
Lower Hazara	Haripur	Makanial	Dhari Kiala	33 52 20.4	73 10 08.1	1347
Lower Hazara	Haripur	Makanial	Gambir	33 51 30.0	73 15 49.7	1170
Lower Hazara	Haripur	Ghazi	Kaker Gali	34 04 54.9	72 47 27.9	892
Lower Hazara	Haripur	Haripur	Jabbi	33 56 31.1	73 05 12.6	952
Lower Hazara	Gallies	Abbottabad	Havellia (POF)	34 02 17.6	73 07 18.2	798
Lower Hazara	Gallies	Bagnotar	Namlimira	34 06 24.5	73 22 44.9	1910
Lower Hazara	Gallies	Biran	Chattri	341155.9	73 19 49.8	2147
Lower Hazara	Kaghan	Balakot	Bela Paras	34 40 07.0	73 26 29.4	1699
Lower Hazara	Kaghan	Ghari Habib Ullah	Naroka Dalola	34 20 50.3	73 23 45.6	1093
Lower Hazara	Siran	Lower siran	Dharyal	34 30 42.5	73 16 04.1	1100
Lower Hazara	Siran	Lower siran	Shaniae Bala	34 25 58.0	73 16 55.2	1031

Region	Forest division	Range/ sub-division	Location/ Site	Coordinats		
				N	E	Ele. (m)
Lower Hazara	Siran	Upper siran	Chitta Bala	34 33 47.5	73 14 59.3	1242
Lower Hazara	Siran	Upper siran	Jabbori	34 36 13.0	73 15 23.5	1418
Upper Hazara	Hazara Tribe	Batagram	Kara Habib banda	34 42 10.5	73 03 00.9	1270
Upper Hazara	Hazara Tribe	Hazara tribe	Kals hillan	34 42 21.9	73 09 12.8	1930
Upper Hazara	Thor Ghar	Judba	Taralah	34 45 45.0	72 52 28.4	554
Upper Hazara	Thor Ghar	Kanadr	Kalo khan	34 31 12.6	72 53 18.9	1821
Upper Hazara	Agror Tanawla	Agror	Bar char	34 32 15.8	73 58 08.2	1755
Upper Hazara	Upper Kohistan	Harban	Ashpar			
Upper Hazara	Upper Kohistan	Harban	Shatial Dass	35 31 19.1	73 33 19.3	1099
Upper Hazara	Upper Kohistan	komila	Zaid Khar	35 14 37.3	73 10 45.2	953
Upper Hazara	Lower Kohistan	Patan	Dongo Gabar	35 03 09.7	72 55 23.1	1562
Watershed	Bunir W/Shed	Pacha	Hisar	34 32 22.5	72 29 51.1	866
Watershed	Bunir W/Shed	Chamla	Agaray	34 21 43.5	72 30 53.3	920
Watershed	Besham W/Shed	Besham	Shahpur khwar	34 56' 53"	72 44 19	1259
Watershed	Besham W/Shed	Besham	Kerai	34 55' 23"	72 50 01	777
Watershed	Daur W/Shed	Havaleia	Baldher	34 0 12	73 5.20	760
Watershed	Daur W/Shed	Havaleia	Kalsia harikhetar	34 02 31.7	73 16 39.2	1833
Watershed	Kunhar W/Shed	Khunhar W.S	Jabbi Batora	34 25 52.3	73 24 20.9	1217
Watershed	Kunhar W/Shed	Khunhar W.S	Bandi mar	34 15 10.6	73 05 31.8	1120
Watershed	Kunhar W/Shed	Khunhar W.S	Tarrana	34 29 59.5	73 21 20.1	923
Watershed	Kunhar W/Shed	Ghari Habibiullah/ Kunhar W.s	Bove	34 18 40.7	73 26 05.8	971
Watershed	Kunhar W/Shed	Ghari Habibiullah/ Kunhar W.s	Mera Batora	34 26 15.9	73 22 50.3	1150
Watershed	Unhar W/Shed	Batagram	Tahkot	34 46 53.9	72 55 47.6	548
Watershed	Unhar W/Shed	Sher ghar	Nowa Sher	34 24 46.3	73 06 05.3	799

Appendix-N (2): Coordinates of linear plantations

Region	Forest division	Range/ sub-division	Location/ Site	Coordinats			Category (Road/Canal/Railway tracks)
				N	E	Ele. (m)	
South	Peshawar	Charsadda	Nisata Moterway	34 07 07.0	71 46 59.9	224	Road
South	Mardan	Sawabi	Ambar Moterway	34 00 48.8	72 24 37.9	301	Road
South	Mardan	LSC	Rashaka Moterway	34 03 54.4	72 06 18.1	320	Road
South	Mardan	USC	Machi Branch USC	34 28 30.1	71 58 59.7	450	Canal
South	Kohat	Kohat	Kohat Bypass	33 36 52.2	71 29 11.6	551	Road
South	Kohat	kohat	kohat pindi railway track	33 22 25.1	71 32 33.9	442	Railway Track
South	Bannu	L Marwat	Taja Zai Lakki Road	32 37 33.0	70 46 36.2	273	Road
South	D I Khan	D I Khan	D I Khan Bypass	31 47 27.1	70 51 37.9	162	Road
South	D I Khan	D I Khan	Zhob Road	31 49 20.3	70 48 00.4	166	Road
Malakand	Malakand	Dargai	Malakand Top NCC Road	34 32 40.8	71 53 50.6	590	Road

Region	Forest division	Range/ sub-division	Location/ Site	Coordinats			Category (Road/Canal/Railway tracks)
				N	E	Ele. (m)	
Malakand	Bunir	Chamla	Ambala Amazi Road	34 24 45.7	72 35 46.8	651	Road
Malakand	Swat	Kabal	Kanju to Shamozai	34 40' 59"	72 08' 23"	743	Road
Malakand	Dir Lower	Chakdara	Lal Koh Laram	34 47 .651	71 59 .526	1566	Road
Malakand	Chitral	Booni	Parwak to Nisur Gol	36 16 .356	72 22 .195	2285	Road
Lower Hazara	Kaghan	Balakot	Paras	343.38.51.8	73.26.27.7	1445	Road
Lower Hazara	Siran	Lower Siran	Dharyal canal	34 30 30.2	73 51 38.4	1065	Canal
Upper Hazara	Hazara Tribe	Hillan	Ayeen	34 41 54.7	73 07 24.7	1493	Road
Upper Hazara	Thor Ghar	Judba	Ghara road	34 45 22.6	72 49 59.2	653	Road
Upper Hazara	Agror Tanawla	Sherghar	Pabbal	34 29 42.7	72 53 46.4	2146	Road

Appendix-N (3): Coordinates of enclosures

Region	Division	Location/Sub-division	Name of VDC	Coordinats			Zone
				N	E	Ele. (m)	
Southern	Mardan	Gadoon	Mazghund	34 16 09.8	72 39 40.8	1133	Sub-Tropical Chir Pine
Southern	Mardan	Gadoon	Utal	34 1505.8	72 40 47.8	1186	Sub-Tropical Chir Pine
Southern	Kohat	Kohat	Nak Banda	33 23 59.0	71 45 37.5	290	Sub Tropical Broad Leaved
Southern	Kohat	Hango	Khrasha Banda	33 31 14.9	71 06 31.0	817	Sub Tropical Broad Leaved
Southern	Kohat	Hango	Jawarzara	33 34 50.5	71 11 41.6	782	Sub Tropical Broad Leaved
Southern	D I Khan	Sheikh Baddin	Said Abad	32 17 04.7	70 51 02.8	386	Tropical
Southern	D I Khan	Sheikh Baddin	Pezu	32 18 16.51	70 48 02.8	416	Tropical
Hazara	Agror Tanawal	Singalli C-8	Kalo Basti	34 12 34.5	73 57 11.6	2030	Moist Temprate
Hazara	Agror Tanawal	Jalogali C-9	Kalo Basti	34 21 28.6	72 57 00.5	1963	Moist Temprate
Hazara	Agror Tanawal	Jalogali C-2	Karyalla	34 22 12.0	72 58 03.9	1800	Moist Temprate
Hazara	Agror Tanawal	Gidder pur	Darra lal	34 29 05.6	73 09 08.0	936	Sub-Tropical Chir Pine
Hazara	Agror Tanawal	Chowki	Chowki	34 27 23.2	73 05 14.2	1200	Sub-Tropical Chir Pine
Hazara	Agror Tanawal	Arbora	Susal Gali	34 26 10.9	73 03 00.7	1792	Moist Temprate
Hazara	Agror Tanawal	Shamdara	Hawgali	34 28 47.8	73 04 10.7	1542	Sub-Tropical Chir Pine
Hazara	Gallies	Sialkot RF C 1	Okhrila ander Seri	34 13 42.6	73 21 26.1	7751	Moist Temprate
Hazara	Gallies	Ander seri RF C-3	Okhrila ander Seri	34 13 12.3	73 21 20.2	2475	Moist Temprate

Region	Division	Location/Sub-division	Name of VDC	Coordinats			Zone
				N	E	Ele. (m)	
Hazara	Gallies	Darwaza C 1	Darwaza	33 59 58.1	73 24 08.3	2416	Moist Temprate
Hazara	Gallies	Darwaza C 4 (iv)	Darwza	33 59 56.9	73 25 27.5	6648	Moist Temprate
Hazara	Gallies	Shakri Nala RF C 3	Namli Kala	34 07 14.3	73 22 28.1	1902	Moist Temprate
Hazara	Gallies	Namli (Miranjanji) RF C-1(ii)	Namli mera Khurd	34 06 30.9	73 24 08.7	2741	Moist Temprate
Hazara	Haripur	Makanyal	Makaryal	33 48 57.1	73 07 35 .6	1438	Sub-Tropical Chir Pine
Hazara	Haripur	Khanpur	Sohava	33 45 54.4	72 54 47.3	775	Sub Tropical Broad Leaved
Hazara	Haripur	Satora	Sadha Bahar	35 52 37.3	73 09 53.0	1109	Sub-Tropical Chir Pine
Hazara	Hazara Tribal	Shabora C-1	Ajmera	34 39 08.0	73 01 01.9	1188	Sub-Tropical Chir Pine
Hazara	Hazara Tribal	Ghazi kot C-1	Deshan gijbore	34 40 39.7	72 59 29.7	999	Sub-Tropical Chir Pine
Hazara	Hazara Tribal	Anora C-1	Anora	34 41 41.3	73 07 14.9	1472	Moist Temprate
Hazara	Hazara Tribal	Anora C3	Katora	34 40 19.8	73 07 59.6	1761	Moist Temprate
Hazara	Hazara Tribal	Ghat seri C-1	Ghat seri	34 44 06.1	73 05 36.9	2252	Moist Temprate
Hazara	Hazara Tribal	Ghat seri C-3	Ghat seri	34 44 14.5	73 05 26.9	2257	Moist Temprate
Hazara	Hazara Tribal	Batila C-8	Kana batila	34 53 20.5	73 06 31.3	2219	Moist Temprate
Hazara	Kaghan	Jahgeer	Jahgeer	34 26 42.4	73 20 27.3	1150	Sub-Tropical Chir Pine
Hazara	Kaghan	Dohar RF C &	Jared Sharqi	34 41 29.0	73 35 11.0	1858	Moist Temprate
Hazara	Kaghan	Maidan C-7	Jared Sharqi	34 40 35.5	73 33 56.6	1553	Moist Temprate
Hazara	Kaghan	Chambar Hangrai	Hangri	34 38 19.2	73 23 20.2	2123	Moist Temprate
Hazara	Kaghan	Mitikot Guzra C VI	Balakot	34 32 24.7	73 19 46.8	1289	Moist Temprate
Hazara	Siran	Shapra Tangli	Kotli bala	34 31 03.7	73 11 36.9	1165	Sub-Tropical Chir Pine
Hazara	Siran	Timri	Timri	34 31 06.9	34 31 06.9	1338	Moist Temprate
Hazara	Siran	Tangli RF 9	Karmang	34 31 18.7	73 08 16.3	1575	Moist Temprate
Hazara	Siran	Devli Gozara	Dawali	34 41 51.3	73 13 01.1	2314	Moist Temprate
Hazara	Siran	Massar RF C-8	Shinkiari	34 29 15.0	73 17 14.4	1203	Sub-Tropical Chir Pine
Hazara	Siran	Jadwall	Tamba	34 29 26.1	73 17 24.3	1256	Sub-Tropical Chir Pine
Hazara	Siran	Panjool RF C 12 (i)	Salbandi Mera	34 34 01.5	73 16 24.6	1564	Moist Temprate
Hazara	Siran	Bhorgharmang Guzara C5	Bhogharrmang	34 33 46.3	73 16 40.1	1858	Sub-Tropical Chir Pine

Region	Division	Location/Sub-division	Name of VDC	Coordinats			Zone
				N	E	Ele. (m)	
Hazara	Siran	Tangli RF 11	Ahl	34 31 44.3	73 09 24.6	1631	Sub-Tropical Chir Pine
Hazara	Siran	Massar RF 12 (ii)	Jabba	34 26 54.2	73 18 39.2	1102	Sub-Tropical Chir Pine
Hazara	Siran	Massar RF 12 (iii)	Jabba	34 26 50.9	73 18 56.7	1141	Sub-Tropical Chir Pine
Hazara	Siran	Shinkiari Massar RF 8(1)	Shinkiari	34 28 48.3	73 18 04.2	1381	Sub-Tropical Chir Pine
Hazara	Siran	Paryai RF 2(i)	Stana gali	34 36 28.4	73 18 04.8	2017	Moist Temprate
Hazara	Thor Ghar	Aleema Banda Sari C 3	Aleema sari	34 45 12.1	72 51 55.1	1208	Moist Temprate
Malakand	Alpuri	Alpuri	Machar	34 54 9.2	72 37 20.3	1874	Moist Temprate
Malakand	Alpuri	Alpuri	wahab Khel Kotkay	34 53 04.8	72 36 42.9	1800	Moist Temprate
Malakand	Alpuri	Karora	Damorai	34 59 58.8	72 45 21.7	1519	Moist Temprate
Malakand	Alpuri	Alpuri	Lilownai	34 55 56.4	72 33 26.4	1521	Moist Temprate
Malakand	Alpuri	Karora	Darkali Upal	34 49 53.9	72 48 11.1	1597	Moist Temprate
Malakand	Alpuri	Karora	Chakesar	34 49 08.4	72 47 57.3	1582	Moist Temprate
Malakand	Bunir	Dagar	Kat Kalla	34 35 13.5	72 22 33.8	1332	Sub-Tropical Chir Pine
Malakand	Bunir	Chamla	Nagri	34 22 28.6	72 39 55.4	775	Sub-Tropical Chir Pine
Malakand	Chitral	Booni	Golain Payeen	35 54 19.1	72 00 18.3	2420	Dry Temperate
Malakand	Chitral	Chitral	Birir	35 83 34.7	71 42 32.0	1737	Dry Temperate
Malakand	Chitral	Chitral	Jughor Gol	35 49 26.6	71 48 57.2	1853	Dry Temperate
Malakand	Chitral	Chitral	Sahan Ayun	35 42' 14"	71 43' 8.3"	2492	Dry Temperate
Malakand	Chitral	Chitral	Sahan Ayun	35 42' 14"	71 43' 8.3"	2492	Dry Temperate
Malakand	Chitral	Drosh North	Kaldam	35 34 34.4	71 49 27.2	1501	Dry Temperate
Malakand	Dir Kohistan	Patrak	Chamkot	35 23 .031	72 02 .110	2071	Dry Temperate
Malakand	Kalam	Behrain North	Balakot	35 19 .807	72 36 .186	2211	Dry Temperate
Malakand	Kalam	Behrain South	Piya Chancharai	35 06 .932	72 33 .020	2276	Moist Temprate
Malakand	Kalam	Behrain South	Dabargai	35 09 .473	72 35 .435	2000	Moist Temprate
Malakand	Lower Dir	Timargirah	Amlook dara	34 42 .742	71 52 .933	1070	Sub-Tropical Chir Pine
Malakand	Lower Dir	Timargirah	Gumbat	34 43 .577	71 51 .829	1021	Sub-Tropical Chir Pine
Malakand	Lower Dir	Timargirah	Nasapa	34 43 .517	71 54 .522	1045	Sub-Tropical Chir Pine

Region	Division	Location/Sub-division	Name of VDC	Coordinats			Zone
				N	E	Ele. (m)	
Malakand	Lower Dir	Chakdara	Kotaira Osakai	34 42 .170	71 57 .691	1113	Sub-Tropical Chir Pine
Malakand	Lower Dir	Chakdara	Osakay Mianz Kalay	34 42 .077	71 57 .426	1280	Sub-Tropical Chir Pine
Malakand	Lower Dir	Chakdara	Landi Cham Osakay	34 42 .434	71 56 .539	1355	Sub-Tropical Chir Pine
Malakand	Lower Dir	Chakdara	Dagai Osakay	34 42 .863	71 56 .444	1286	Sub-Tropical Chir Pine
Malakand	Lower Dir	Timargirah	Sarai Bala-01	34 42 44.6	71 54 59.8	1175	Sub-Tropical Chir Pine
Malakand	Lower Dir	Timargirah	Sarai Bala- 02	34 42 45.2	71 55 15.1	1291	Sub-Tropical Chir Pine
Malakand	Lower Dir	Timargirah	Sarai bala-03	34 42 41.5	71 55 30.9	1393	Sub-Tropical Chir Pine
Malakand	Lower Dir	Timargirah	Sarai bala-04	34 43 06.7	71 55 37.6	1221	Sub-Tropical Chir Pine
Malakand	Malakand	Batkhela	Rahat Abad Agra	34 45 47.7	71 43 27.8	1192	Sub-Tropical Chir Pine
Malakand	Malakand	Batkhela	Bazargai Agra	34 44 37.9	71 42 08.3	1078	Sub-Tropical Chir Pine
Malakand	Swat	Mangora	Barikot	34 36 46.3	72 16 314	1375	Sub-Tropical Chir Pine
Malakand	Swat	Kabal	Mian Bela	34 54 .668	72 11 .512	1715	Moist Temprate
Malakand	Upper Dir	Dir	Sundarwal	3507 34.6	71 49 23.4	1300	Dry Temperate
Malakand	Upper Dir	Dir	Qulandi bala	35 13 00.8	71 52 20.4	2044	Dry Temperate
Malakand	Upper Dir	Dir	Barikot Dobando	35 13 59.3	71 50 20.7	1903	Dry Temperate
Malakand	Upper Dir	Dir	Rokhan	35 13 41.0	71 53 56.1	1825	Dry Temperate
Malakand	Upper Dir	Darora	Jabbar	35 08 24.6	72 02 11.4	1300	Dry Temperate

Appendix N (4) coordinates of departmental tube nurseries

Regions	Division	Range/Sub-Division	Location	Coordinats		Ele. (m)
				N	E	
Southern	Peshawar	Risalpur	Nowshera DFO Office	34 00 25.2	71 57 59.1	282
Southern	Peshawar	Charsadda	Zyam	34 18 12.3	71 43 03.9	358
Southern	Peshawar	Charsadda	Khayali	34 08 44.9	71 42 33.7	291
Southern	Peshawar	Risalpur	Nodia	33 56 58.1	72 13 17.6	279
Southern	Peshawar	Peshawar	Ghufran Abad	34 01 00.9	71 41 47.4	304
Southern	Mardan	LSC	Said Azam Kali	34 10 20.5	71 58 14.9	355
Southern	Mardan	Rustam	Said Abad	34 20 23.1	72 17 27.4	388
Southern	Mardan	USC	Matha	34 23 12.4	72 04 15.8	392
Southern	Mardan	LSC	Aslam Abad	34 11 17.7	72 00 37,2	301
Southern	Mardan	Sawabi	Pange Pir	34 05 07.1	72 27 50.8	315
Southern	Mardan	Sawabi	Shikh Dara	34 02 49.2	72 24 13.8	308
Southern	Kohat	Karak	Ambiria	33 02 50.9	71 00 44.2	540
Southern	Kohat	Karak	Kanda Karak	33 05 25.1	71 06 48.7	570
Southern	Kohat	Kohat	Togh Mangara	33 33 59.9	71 31 38.2	476
Southern	Kohat	Kohat	Chikar Kot Bala	33 35 58.3	71 19 03.7	596
Southern	Bannu	L.Marwat	Lukki Town	32 37 40.4	70 46 48.2	278

Regions	Division	Range/Sub-Division	Location	Coordinats		Ele. (m)
				N	E	
Southern	Bannu	L.Marwat	Sheen Bagh	32 37 07.9	70 53 39.2	
Southern	Bannu	L.Marwat	Mujahid Town	32 36 18.1	70 53 31.8	271
Southern	Bannu	Bannu	DFO Office	32 59 49.8	70 35 16.4	378
Southern	D I Khan	D I Khan	DFO Office			
Southern	D I Khan	D I Khan	Darya Khan bridge	31 45 33.2	70 56 07.3	165
Malakand	Malakand	Bathkhela	Akhoon Baba	34 36 51.1	71 56 36.0	647
Malakand	Malakand	Bathkhela	Dak Koto Khar	34 36 36.7	71 56 37.4	643
Malakand	Malakand	Dargai	Pattak Dargai	34 31 25.7	71 53 42.6	473
Malakand	Swat	Mingora	Islampur	34 42 .971	72 21 .612	1117
Malakand	Swat	Mingora	Badar seer	34 49 .569	72 30 .232	1125
Malakand	Swat	Matta	Chuprial	34 59 .354	72 21 .252	1258
Malakand	Swat	Kabal	Kanju township	34 49 .414	72 21 .083	985
Malakand	Swat	Fatihpur	Naway kalay Bagh darai	35 2 0"	72 28 36"	1219
Malakand	Swat	Fatihpur	Ghar Shin	35 1 50"	72 28 33"	1210
Malakand	Swat	Fatihpur	Jokhtai	35 3' 52"	72 30' 54"	1484
Malakand	Kalam	Behrain South	Benaorai	617750	617750	617750
Malakand	Shangla	Alpuri	Sanailla	34 46 22.5	72 39 33.4	1163
Malakand	Bunair	Chamla	Sura village	34 23 17.8	72 33 33.8	657
Malakand	Dir kohistan	Patrak	Khani belaa	35 20 .451	72 03 .521	1504
Malakand	Upper Dir	Dir	Dodba	35 10 06.4	71 53 26.4	1237
Malakand	Chitral	Chitral	Gahrait	35 39 .658	71 45 .520	1920
Malakand	Chitral	Drosh north	Damik	35 31 .446	71 45 .808	1262
Malakand	lower Dir	Timargirah	Bandagai	34 45 09.1	71 49 37.5	470.002
Malakand	lower Dir	Timargirah	Guru Talash	34 44' 45"	71 49' 12"	758.952
Malakand	lower Dir	Chakdara	Shaheed abad	34 39 07.9	72 01 41.1	695.249
Hazara Teritorial	Kaghan	Balakot	Malkndi	34,39, 25.1	73,30,06.1	1381
Hazara Teritorial	Kaghan	Garhi Habibullah	Range office Garhi habibullah	34,23,50.5	73,22,56.9	822
Hazara Teritorial	Kaghan	Balakot	Pori	34,32,28.8	732054	976
Hazara Teritorial	Siran	Mansehra	Bafa Dohrah	34 24 40.0	73 14 00.8	950
Hazara Teritorial	Siran	Lower siran	Daryal	34 29 50.3	73 15 56.5	1060
Hazara Teritorial	Siran	Lower siran	Shinkairi	34 28 04.7	73 16 18.6	999
Hazara Teritorial	Hazara Tribe	Batagarm	Jehangir abad	34 40 39.2	73 00 57.1	1016
Hazara Teritorial	Torghar	Kandar	Ismail Band	34 28 35.5	72 58 29.4	1113
Hazara Teritorial	Agror tanawal	Gidder pur	Chowki	34 29 12.5	73 07 17.3	885
Hazara Teritorial	Agror tanawal	Agror	Arbora	34 28 10.9	73 02 52.5	1162
Hazara Teritorial	Agror tanawal	Sherghar	Paryina	34 21 19.9	73 05 25.9	798
Hazara Teritorial	upper kohistan	Jal kot	Dassu	35 16 32.1	73 13 25.8	792
Hazara Teritorial	Gullies	Gallies	Salhad	34 07 22.4	73 11 03.2	
Hazara Teritorial	Haripur	Haripur	Nikkapur	33 59 53.2	73 03 52.0	680
Hazara Teritorial	Haripur	Khanpur	Kali Thara Gharbi	33 53 58.8	72 53 05.2	527
Hazara Teritorial	Haripur	Haripur	Sikandar Pur	34 00 11.6	72 56 55.7	531
Hazara Watershed	Unhar Watershed	Sherghar	Jehangi	34 22 45.3	73 03 08.4	908
Hazara Watershed	Unhar Watershed	Batagarm	Pagori	34 38 57.4	73 03 23.9	1106
Hazara Watershed	Unhar Watershed	Batagarm	Kandoli	34 39 11.0	73 03 22.7	1098
Hazara Watershed	Unhar Watershed	Allia	Chota Banna	34 50 10.0	73 03 25.2	1333
Hazara Watershed	Kunhar w.shed	Garhi Habibullah	Paksari	34,24,27.1	73,22,00.1	831
Hazara Watershed	Kunhar w.shed	Siran	Makraia	34 28 51.3	73 16 23.0	1026
Hazara Watershed	Kunhar w.shed	Balakot	Hassa Shahotar	34,31,05.0	73.21.12.2	987
Hazara Watershed	Kunhar w.shed	Siran	Bela Mutrai	34 19 08.6	73 19 08.6	1084
Hazara Watershed	Daur w.shed	Havaleia	Narbagh	34 03 44.4	73 12 21.5	913
Hazara Watershed	Daur w.shed	Havaleia	Nikkahpa i	335950.8	730340.1	2194
Hazara Watershed	Daur w.shed	Havaleia	Nikkahpa ii	335953.7	730349.6	2243
Hazara Watershed	Daur w.shed	Qazian		34 01 25.2	72 55 33.9	498
Hazara Watershed	Besham w.shed	Besham	Shang	34 52 54.7	72 52 49.7	608.076
Hazara Watershed	Besham w.shed	Besham	Shang	34 52 56.5	72 52 49.4	583.997
Hazara Watershed	Buner w.shed	Pacha	Daggar Talan	34 32 00.4	72 28 46.6	734
Hazara Watershed	Buner w.shed	Chamla	Kaoga	34 22 44.1	72 30 36.0	707
Hazara Watershed	Buner w.shed	Dagar	Gagra Kalapani	34 28 16.1	72 32 22.2	671

Appendix N (5) coordinates of departmental bare rooted nurseries

Region	Division	Range/Sub-Division	Location	Coordinats and elevation		
				N	E	Ele. (m)
South	Peshawar	Charsadda	Zyam	34 18 05.5	71 42 59.9	349
South	Peshawar	Charsadda	Toheed Abad Jindi	34 19 25.6	71 41 30.6	342
South	Mardan	LSC	Azeem Kali	34 10 25.9	71 58 19.5	309
South	Mardan	USC	Serikh Kali	34 19 46.2	72 08 54.2	343
South	Mardan	Sawabi	Rahat abad	34 10 00.1	72 29 59.5	303
South	Mardan	Sawabi	Pange Pir	34 05 05.1	72 27 49.1	313
South	Mardan	USC	Gulli Bagh	34 19 46.2	72 08 24.4	345
South	Kohat	Kohat	Kogh Maingal	33 33 58.7	71 31 36.7	481
South	Kohat	Kohat	Chakar Kot Bala	33 35 48.8	71 18 20.3	590
South	Kohat	Karak	Kanda Karak	33 05 19.7	71 06 49.8	570
South	Bannu	Bannu	Said Abad	32 58 31.4	70 37 04.3	362
South	DI Khan	I D Khan`	Dhab Chappak	31 47 43.7	70 57 47,2	160
Malakand	Malakand	Dargai	Sakha Kot	34 27 23.0	71 55 28.4	410
Malakand	Malakand	Dargai	Sakha Kot	34 26 55.0	71 54 46.4	415
Malakand	Malakand	Batkhela	Akhoon Baba	34 36 53.9	71 56 41.8	646
Malakand	Malakand	Batkhela	Pir Kali	34 34 23.3	71 48 44.2	646
Malakand	Swat	Mingora	Islampur	34 42 .971	72 21 .612	1117
Malakand	Swat	Mingora	Telegram	34 42 .614	72 30 .079	1134
Malakand	Swat	Matta	Baidara	34 57 .056	72 26 .346	1115
Malakand	Swat	Kabal	Kanju township	34 49 .247	72 20 .997	977
Malakand	Swat	Kabal	Shah darai langan	34 53 .782	72 13 .877	1219
Malakand	Swat	Fatehpur	Naway kalay Bagh darai	35 2 0"	72 28 36"	1219
Malakand	Swat	Fatehpur	Ghar shin	35 1 50"	72 28 33"	1210
Malakand	Swat	Fatehpur	Chamtalai	34 55 .471	72 30 .916	1236
Malakand	Kalam	Behrain South	Benaorai	35 04 .417	72 29 .529	1305
Malakand	Kalam	Behrain South	Chikrai	35 05 .009	72 29 .329	1261
Malakand	Alpuri	Karora	Shang	34 52 49.3	72 53 18.5	622
Malakand	Alpuri	Alpuri	Sanella	34 46 15.0	72 39 36.0	1163
Malakand	Bunair	Daggar	Daggar	34 30 02.5	72 27 58.3	687
Malakand	Dir Kohistan	Patrak	Deon Patrak	35 20 .432	72 03 .522	1501
Malakand	Dir Kohistan	Shiringal	Khani bela	35 17 .292	72 00 .826	1396
Malakand	Upper Dir	Dir	Makhay	35 07 05.0	71 44 13.1	1644
Malakand	Upper Dir	Dir	Sundrawal	35 07 40.8	71 49 18.5	1349
Malakand	Upper Dir	Darora	Gandigar	35 07 18.8	71 57 47.4	1148
Malakand	Chitral	Booni	Bumbagh	36 13 39.5	72 10 17.5	1927
Malakand	Chitral	Booni	Koghuzi	35 56 .246	71 55 .354	
Malakand	Chitral	Chitral	Chitur Broze	35 44 .134	71 46 .685	1405
Malakand	Chitral	Chitral	Jutilasht	35 46 .843	7146 .420	1421
Malakand	Chitral	Chitral	Gahrait	35 39 .658	71 45 .520	1920
Malakand	Chitral	Drosh North	Damik	35 31 28.0	71 45 47.5	1278
Malakand	Lower dir	Chakdara	Shaheed abad	34 39 07.9	72 01 41.1	695
Malakand	Lower dir	Timargirah	Bandagai	34 45 07.3	71 49 38.0	773
Hazara	Kaghan	Garhi habibullah	Paksari	34,24,16.6	73,22,18.4	806
Hazara	Kaghan	Balakot	Khawas	34,31,37.9	73,21,21.4	1017
Hazara	Kaghan	Balakot	Hadyan	34,33,44.1	73,20,33.6	1131
Hazara	Siran	Shinkiari	Shani bala	34 26 18.3	73 16 57.1	1004
Hazara	Siran	Mansehra	Bafa Dohra	34 24 39.1	73 14 03.1	952
Hazara	Siran	Lower Siran	Daryal	34 29 48.0	73 15 56.3	1063
Hazara	Siran	Upper Siran	Bhogharmang	34 34 26.6	73 15 35.3	1314

Region	Division	Range/Sub-Division	Location	Coordinats and elevation		
				N	E	Ele. (m)
Hazara	Torghar	Judba	Gijbori	34 38 48.4	72 59 30.9	1124
Hazara	Torghar	Judba	Gojar bandi	34 29 43.8	72 59 11.4	1118
Hazara	Agror tanawal	Gidder pur	Chowki	34 27 12.4	73 07 16.0	885
Hazara	Agror tanawal	Agror	Arbora	34 27 52.3	73 03 01.4	477
Hazara	upper kohistan	Harban	Shinodar	35 31 56.0	73 36 03.5	1083
Hazara	upper kohistan	Komila	Shang	34 52 57.8	72 52 35.7	608
Hazara	Gullies	Abbottabad	Danga pul	33 59 48.0	73 03 02.6	658
Hazara	Haripur	Haripur	Sikandar Pur	34 00 11.6	72 56 55.7	531
Hazara	Haripur	Khanpur	Kali Thara Gharbi	33 53 57.5	72 53 06.6	527
Hazara	Haripur	Haripur	Dheri Sikandapur	34 00 31.9	72 56 17.2	530
Hazara	Haripur	Haripur	Qazia	34 01 26.8	72 55 35.4	498
Hazara	Haripur	Khanpur	Bhara	33 47 17.0	72 51 47.8	513
Hazara	Lower Kohistan		Nawa kally shahpur	34 56 12.7	72 45 08.9	1159
Hazara Watershed	Unhar watershed	Batagram	Pagora	34 38 57.0	73 03 21.7	1099
Hazara Watershed	Unhar watershed	Sherghar	Parihna	34 21 47.6	73 05 23.4	977
Hazara Watershed	Kunhar W.shed	Siran/Kunhar W.s	Makraia	34 28 52.9	73 16 24.4	1032
Hazara Watershed	Kunhar W.shed	Siran/Kunhar W.s	Murad Pur	34 26 07.4	73 08 12.4	852
Hazara Watershed	Kunhar W.shed	Balakot	Hassa Shahotar	343105.6	732112.2	994
Hazara Watershed	Kunhar W.shed	Garhi Habibullah	Paksari	34 24 27.1	73,22,00.1	831
Hazara Watershed	Daur w.shed	Haripur	Qazia	34 01 31.0	72 55 34.7	498
Hazara Watershed	Daur w.shed	Haripur	Nakkapa	33 59 58	73 33 07	680
Hazara Watershed	Besham w.shed	Besham	Damana, Shahpur	34 56 22.3	72 45 04.7	1176
Hazara Watershed	Besham w.shed	Besham	Shang	34 52 52.9	72 52 51.1	614
Hazara Watershed	Bunair w.shed	Dagar	KulpiKass	34 28 16.6	72 32 18.5	679
Hazara Watershed	Bunair w.shed	Dagar	Gagra Kalpary	34 28 20.8	72 32 24.3	699
Hazara Watershed	Bunair w.shed	Pacha	Bahi Kali	34 34 46.4	72 26 20.9	736
Hazara Watershed	Bunair w.shed	Pacha	Shiri Pay	34 35 56.2	72 26 54.4	498

Appendix N (6) coordinates of private tube nurseries

Region	Division	Range/Sub-Division	Name of nry grower	Location	Coordinats and elevation		
					N	E	Ele. (m)
South	Peshawar	Charsadda	Aslam	Shikh abad	34 10 05.6	71 46 08.4	300
South	Peshawar	Charsadda	Shakir	Kot	34 11 44.0	71 42 14.0	303
South	Peshawar	Charsadda	Noor Rahman	Jindi Pul	34 19 23.1	71 41 45.8	357
South	Peshawar	Charsadda	Wajid Ali	Haki1 Abad	34 18 07.1	71 43 08.4	347
South	Peshawar	Risalpur	Sher Azam	Jahengri	33 58 26.6	72 11 34.4	285
South	Peshawar	Risalpur	Khalid	Kharabad	33 56 57.4	72 13 02.7	283
South	Peshawar	Risalpur	Fahim	Kharabad	33 56 51.1	72 13 20.3	281
South	Peshawar	Risalpur	Hafiz Ul Haq	Kharabad	33 56 51.1	72 13 20.3	281
South	Peshawar	Peshawar	mati ur Rehman	Karva	34 03 20.1	71 44 54.1	291
South	Peshawar	Peshawar	Nowshad	Titara	34 01 46.1	71 43 43.9	292
South	Peshawar	Peshawar	Muhammad Tariq	Fazal Kurna	34 03 22.2	71 44 40.6	288
South	Peshawar	Peshawar	Mukhtar Ulamin	Fazal Kurna	35 03 22.2	72 44 40.6	289
South	Peshawar	Peshawar	Syed Ittifaq Badsha	Tarnab	34 00 06.9	71 41 32.7	300
South	Peshawar	Peshawar	Mushrif	Tarnab	34 00 07.1	71 41 23.3	299

Region	Division	Range/Sub-Division	Name of nry grower	Location	Coordinats and elevation		
					N	E	Ele. (m)
South	Peshawar	Peshawar	Abdul Rehman	Karva	34 03 17.1	71 44 55.5	287
South	Peshawar	Peshawar	Shoukat	Tarnab	34 01 02.6	71 42 58.2	299
South	Peshawar	Peshawar	Naseer Ullah	Titara	34 02 05.9	71 43 38.5	293
South	Peshawar	Peshawar	Shah Fahad	Akbar Pura	34 02 40.2	71 43 25.1	294
South	Peshawar	Peshawar	Rahim Khan	Akbar Pura	34 03 02.8	71 43 15.2	293
South	Peshawar	Charsadda	Sardar Ali	Hanaabad	34 10 52 7	71 47 56.3	304
South	Peshawar	Charsadda	Rab Nawaz	Shikh abad	34 10 04.2	71 46 01.9	295
South	Peshawar	Charsadda	Imtiaz	Shikh abad	34 10 05.1	71 46 09.8	300
South	Mardan	Rustam	Parveen	Miralai	34 17 49.5	72 21 36.1	393
South	Mardan	Rustam	Sadiq	Miralai	34 17 47.7	72 21 39.7	390
South	Mardan	Rustam	Salman	Char Gulla	34 18 44.2	72 13 50.4	352
South	Mardan	Rustam	M Walid	Rustam	34 20 10.0	72 17 15.7	385
South	Mardan	USC	Ibrahim	Jangae Koruna	34 19 21.0	72 10 15.1	347
South	Mardan	USC	Sundas	Sawalderi	34 18 53.1	72 09 20.6	340
South	Mardan	Rustam	Noor Kamash	Sher Dara	34 18 19.2	72 22 05.8	400
South	Mardan	Rustam	Gul Bano	Sher Dara	34 19 19.2	72 23 18.0	393
South	Mardan	USC	Johar Ali	Dubai Adda	34 18 57.2	72 09 17.2	335
South	Mardan	USC	Muhammad fayaz	Musa Khat	39 19 16.1	72 08 46.2	348
South	Mardan	USC	Nadia W/O Saeed	Dubai Adda	34 18 53.1	72 09 20.6	335
South	Mardan	Rustam	Arshad Ali	Rustam	34 20 21.2	72 17 00.2	385
South	Mardan	Marghuz	Said Bacha	Sawabi	34 04 11.5	72 32 13.3	322
South	Mardan	Marghuz	Shahab	Sawabi	34 04 11.5	72 32 13.3	322
South	Mardan	Marghuz	Anwar Sher	Sawabi	34 03 38.1	72 31 46.0	317
South	Kohat	Karak	Nor Muhammad	Tamgazai	33 03 04.6	70 58 06.3	418
South	Kohat	Karak	Fareed Iqbal	Bharam Khel	32 57 51.0	71 00 06.0	448
South	Kohat	Karak	Zahid Muhammad	Payala Banda	32 58 31.5	71 03 00.1	498
South	Kohat	Karak	Aziz Ullah	Gandari Khattak	32 59 06.6	71 03 46.0	518
South	Kohat	Karak	Muhammad Fahim	Gandari Khattak	33 59 06.6	72 03 46.0	518
South	Kohat	Karak	Khyal Badsha	Takht-e-Nusrati	33 00 00.3	71 04 47.6	541
South	Kohat	Karak	Imtiaz khan	Lakarki Banda	33 00 58.3	71 04 52.1	542
South	Kohat	Karak	Muhammad Ijaz	Uchobi Banda	33 01 23.6	71 04 00.2	513
South	Kohat	Karak	Muhammad Rafique	Lura Banda	32 57 07.7	70 58 38.0	422
South	Kohat	Karak	Qasir Khursheed	Algadi	33 06 10.9	71 06 22.0	569
South	Kohat	Kohat	Muhammad Ismial	Shaheeda Banda	33 30 47.0	71 28 46.9	442
South	Kohat	Kohat	Rehman Gul	Shaheeda Banda	33 30 51.5	71 28 47.1	440
South	Kohat	Kohat	Kamran	Shaheeda Banda	33 30 47.9	71 28 49.4	439

Region	Division	Range/Sub-Division	Name of nry grower	Location	Coordinats and elevation		
					N	E	Ele. (m)
South	Kohat	Kohat	Khava Gul	Shaheeda Banda	33 30 49.7	71 28 50.1	440
South	Kohat	Kohat	Akhtar Munir	Shaheeda Banda	33 30 42.8	71 28 46.4	446
South	Kohat	Kohat	Wali Muhammad	Shaheeda Banda	33 30 46.1	71 28 48.7	438
South	Kohat	Kohat	Ibrahim Khan	Shaheeda Banda	33 30 44.3	71 28 49.6	441
South	Kohat	Kohat	Abdur Rehman	Suleiman Talab	33 33 32.8	71 22 39.3	481
South	Kohat	Hangu	Rahat Ullah	Dhoaba (Toheed Abad)	33 25 22.1	70 43 38.6	880
South	Kohat	Hangu	Zabih Ullah	Dhoaba	33 25 37.4	70 44 54.4	889
South	Bannu	L.Marwat	Nimra Gul	Taja Zai	32 37 38.5	70 45 55.7	281
South	Bannu	L.Marwat	Amir Nawaz	Taja Zai	32 37 38.5	70 45 55.7	281
South	Bannu	Bannu	Inam Ullah	Gambila	32 36 57.0	70 54 30.9	244
South	Bannu	Bannu	Jhan baz	Kinger Pull	32 58 05.4	70 35 26.2	367
South	Bannu	L.Marwat	Niaz	Kinger Pull	32 57 58.0	70 35 20.1	363
South	Bannu	L.Marwat	Gul Naeem	Nar Sahibzada khosth	32 50 10.4	70 46 45.3	294
South	Bannu	L.Marwat	Amjad ullah	Nar Sahibzada khosth	32 50 10.4	70 46 45.3	294
South	Bannu	L.Marwat	Imam Mohammad	Dabak Mandra Khel	32 36 11.0	70 56 17.6	254
South	Bannu	L.Marwat	Akhtar Nisa	Machan Khel	32 35 55.1	70 55 10.5	269
South	Bannu	Bannu	Waheed khan	Aladad Mamarkhel	32 58 35.8	70 33 51.0	381
South	Bannu	Bannu	Imran Ullah Khan	Aladad Mamarkhel	32 58 43.0	70 33 46.3	387
South	Bannu	Bannu	Fareed ullah	New Ghari mamash Khel	32 58 15.4	70 34 01.1	374
South	DI Khan	D I Khan	Neelofar etc.	Dhapo Wala Band	31 47 36.5	70 54 00.3	156
South	DI Khan	D I Khan	Khizar Abbas etc.	Baloch Abad	31 46 06.1	70 53 52.4	156
South	DI Khan	D I Khan	Malak Nomman	Lachra	31 51 05.2	70 53 03.5	168
South	DI Khan	D I Khan	Muhammad Zubair	Multan Road	31 47 47.8	70 52 3.0	166
South	DI Khan	D I Khan	Shahid	Multan Road	31 47 50.4	70 52 54.4	175
South	DI Khan	D I Khan	Ehtisham	Multan Road	31 47 50.4	70 52 54.4	175
South	DI Khan	D I Khan	Qaizar Khan	Multan Road	31 47 46.6	70 52 51.0	167
South	DI Khan	D I Khan	Asad Miankhel	Rahman Abad	31 46 52.2	70 53 40.8	159
South	DI Khan	D I Khan	Asad Perviz	Wala DIK	31 46 42.3	70 53 41.6	163
South	DI Khan	D I Khan	Malak Shoukat	Dappo Wala Band	31 46 41.2	70 53 41.8	157
South	DI Khan	Shikh Badin	Imran	Khani Wanda	32 13 49.1	70 48 34.5	255
South	DI Khan	Shikh Badin	Qalandar	Khani Wanda	34 02 26.9	72 55 40.6	484
Malakand	Swat	Mangora	Omer Meena	Islampur	34 42 .666	72 21.061	1078
Malakand	Swat	Matta	Nazmina	Madina colony	34 55.999	72 24 .847	1122
Malakand	Swat	Matta	Muhammad Sher	Koza doresh	34 59 .380	72 26 .973	1202

Region	Division	Range/Sub-Division	Name of nry grower	Location	Coordinats and elevation		
					N	E	Ele. (m)
				khela			
Malakand	Swat	Matta	Fatima	Duresh khela (Kas)	34 59 .177	72 26 .028	1203
Malakand	Swat	Kabal	Haroon rashid	Kabal sugai			1125
Malakand	Swat	Kabal	Shah Faisal	Argot qala new deolai	34 51 .658	72 14 .656	1074
Malakand	Swat	Kabal	najeeb ullah	Deolai	34 52 .018	72 14 .998	1088
Malakand	Swat	Fatehpur	Gul shahzada	Sam Shin	35 0' 58"	72 28' 11"	1120
Malakand	Swat	Fatehpur	Javeed	Chaliyar	34 57' 29"	72 28' 21"	1134
Malakand	Alpuri	Alpuri	Nasar Khan	Nasapai	34 45 10	72 41 31	1180
Malakand	Alpuri	Alpuri	Riaz Ahmed	Nasapai	34 45 10	72 41 31	1180
Malakand	Alpuri	Alpuri	said Umar	Machar	34 54 20.4	72 37 35.4	1620
Malakand	Alpuri	Alpuri	Mian Jee	Machar	34 54 13.6	72 37 29.3	1619
Malakand	Alpuri	Karora	Anwar hayat	Jaba	34 52 34.8	72 53 41.6	616
Malakand	Alpuri	Karora	Sardar jahan	Bura Jaba	34 52 33.6	72 53 48.8	620
Malakand	Alpuri	Karora	Falak Ser	Kuz kana, Baghcha	34 55 36.1	72 45 06.8	1137
Malakand	Alpuri	Karora	Anwar Iqbal	Kuz kana, Baghcha	34 55 36.1	72 45 06.8	1137
Malakand	Alpuri	Karora	Nafees Ahmed	Kuz kana, Baghcha	34 55 36.1	72 45 06.8	1137
Malakand	Alpuri	Karora	Aqib javeed	Kuz kana, Baghcha	34 55 36.1	72 45 06.8	1137
Malakand	Alpuri	Karora	Mubashar hassan	Karshat	34 58 27.1	72 44 52.8	1363
Malakand	Alpuri	Karora	Abid	Karshat	3458 50.5	72 44 47.4	1378
Malakand	Malakand	Batkhela	Shakeela Bibi	Mrizar	34 3758.9	72 02 53.1	698
Malakand	Malakand	Batkhela	Shoukat	Khar	34 36 38.8	71 56 17.3	647
Malakand	Malakand	Batkhela	Shreen Zada	Khar	34 36 38.8	71 56 17.3	647
Malakand	Malakand	Batkhela	Jamsheed Ali	Khar	34 36 42.0	71 56 07.5	593
Malakand	Malakand	Batkhela	Waseem Feroz	Khar	34 36 41.5	71 56 27.2	648
Malakand	Malakand	Batkhela	Said Ali	Khar	34 36 41.5	71 56 27.2	648
Malakand	Malakand	Batkhela	Iqbal Hussain	Allah Dand	34 37 16.7	72 01 45.8	689
Malakand	Malakand	Batkhela	Iqbal Hussain	Gul-e-Nargas	34 37 17.3	72 01 56.6	681
Malakand	Malakand	Batkhela	Ali Rahman	Gul-e-Nargas	34 37 16.3	72 01 48.2	683
Malakand	Malakand	Batkhela	Amir Hassan	Gul-e-Nargas	34 37 16.3	72 01 48.2	633
Malakand	Malakand	Batkhela	Abdullah	Gul-e-Nargas	34 37 16.3	72 01 48.2	633
Malakand	Malakand	Batkhela	Naveed	Gul-e-Nargas	34 37 16.3	72 01 48.2	633
Malakand	Malakand	Batkhela	Majeed	Gul-e-Nargas	34 37 16.3	72 01 48.2	633
Malakand	Malakand	Batkhela	Muhammad Rahman	Gul-e-Nargas	34 37 20.2	72 02 03.1	681
Malakand	Malakand	Batkhela	Sardar Hussain	Allah Dand	34 37 15.0	72 01 46.3	684
Malakand	Malakand	Dargai	Amir Sultan	Hero Shah	34 27 12.4	71 50 14.2	431
Malakand	Malakand	Batkhela	Mrs. Gohar Ali	Tothakhan	34 34 26.5	71 48 49.7	658

Region	Division	Range/Sub-Division	Name of nry grower	Location	Coordinats and elevation		
					N	E	Ele. (m)
Malakand	Malakand	Batkhela	Aiman Bibi	Tothakhan	34 36 43.6	71 49 34.1	602
Malakand	Malakand	Batkhela	Akbar Khan	Allah Dand	34 37 16.7	72 01 45.8	689
Malakand	Kalam	Behrain North	Ahmad Zada	Darolai	35 12 .857	72 32 .541	1494
Malakand	Kalam	Behrain North	Saleem	Ramait hawai	35 17 .247	72 36 .547	1588
Malakand	Kalam	Behrain North	Muhammad Nawaz	Ramait hawai	35 17 .242	72 36 .463	1585
Malakand	Kalam	Behrain North	Sher Alam	Rahimabad Kaidam	35 15 .023	72 35 .031	1565
Malakand	Kalam	Behrain South	Saeed Zaman	Kas Qandil	35 05 .363	72 29 .689	1280
Malakand	Kalam	Behrain South	Muhammad Irshad	Kas Qandil	35 05 .363	72 29 .689	1280
Malakand	Kalam	Behrain South	Sayed Yahya Basha	Jaro Piya	35 06 .175	72 30 .626	1321
Malakand	Kalam	Behrain South	Ahmad Nizam Bacha	Jaro Piya	35 06 .175	72 30 .626	1321
Malakand	Kalam	Behrain South	Fazal Mabood	Damana			
Malakand	Chitral	Karak	Nor Muhammad	Tamgazai	33 03 04.6	70 58 06.3	418
Malakand	Chitral	Karak	Fareed Iqbal	Bharam Khel	32 57 51.0	71 00 06.0	448
Malakand	Chitral	Chitral	Sajid Khaliq	Broze Birbolok	35 44 .571	71 46 .824	1476
Malakand	Bunir	Chamla	Javed Iqbal Khan	Khanano Dera	34 25 08.6	72 39 54.0	668
Malakand	Bunir	Chamla	Sartaj Khan	Khanano Dera	34 25 11.1	72 39 49.9	659
Malakand	Bunir	Chamla	Akbar Zeb	Khanano Dera	34 25 11.4	72 39 53.3	667
Malakand	Bunir	Chamla	Sher Bahadar Khan	Khanano Dera	34 25 09.5	72 39 53.3	668
Malakand	Bunir	Chamla	Ghani Akbar	Koria	34 24 36.2	72 36 50.3	644
Malakand	Bunir	Chamla	Jan Sarvar	Koria	34 24 36.2	72 36 50.3	644
Malakand	Bunir	Chamla	Bakht Wali Shah	Koria	34 24 36.6	72 36 46.7	642
Malakand	Bunir	Chamla	Jan Bacha	Koria	34 24 36.7	72 36 40.5	643
Malakand	Bunir	Chamla	Parveez	Kuz Kali	34 25 27.1	72 39 27.3	613
Malakand	Bunir	Chamla	Imtiaz	Kuz Kali	34 25 27.1	72 39 27.3	613
Malakand	Bunir	Chamla	Shamsher	Kuz Kali	34 25 27.1	72 39 27.3	613
Malakand	Bunir	Chamla	Zameer Rahman etc.	Maskipur	34 23 55.9	72 29 41.3	705
Malakand	Bunir	Chamla	Jamsheed Ali	Maskipur	34 23 56.0	72 29 40.7	706
Malakand	Bunir	Dagar	Ikram Ullah	Pacha Kali	34 36 08.9	72 27 00.5	742
Malakand	Bunir	Dagar	Amjed Iqbal	Ghani Bagh	34 29 47.6	72 14 59.6	860
Malakand	Bunir	Dagar	Mushtaq	Nauseer	34 29 13.3	72 15 58.9	863
Malakand	Bunir	Dagar	Rafique Ullah	Bashonai	34 38 12.1	72 25 59.6	900
Malakand	Bunir	Dagar	Abdul Kabir etc.	Bashonai	34 38 17.5	72 26 05.7	932
Malakand	Bunir	Dagar	Hamayun Khan etc.	Matnawari	31 29 53.7	72 35 23.5	737
Malakand	upper Dir	Darora	Pervaiz	Usharai	35 09 45.4	72 07 14.2	1545
Malakand	upper Dir	Darora	Fazal Haqani	Samkot	35 10 11.9	72 09 07.7	1667
Malakand	upper Dir	Darora	Usman Ali	Batal	35 10 39.2	72 10 05.2	1670
Malakand	upper Dir	Darora	Shakir ullah	Katan bala	35 08 14.5	72 00 50.1	1258
Malakand	upper Dir	Darora	Sayed Ahmed Shah	Katan bala	35 08 12.2	72 00 50.1	1250

Region	Division	Range/Sub-Division	Name of nry grower	Location	Coordinats and elevation		
					N	E	Ele. (m)
Malakand	upper Dir	Dir	Hayat Ullah	makhay	35 07 03.6	71 44 12.4	1642
Malakand	lower Dir	Chikdara	hazrat Isma	Khyrabad	34 46 .024	71 59 .600	336
Malakand	lower Dir	Chikdara	Islam	Mian Baangola	34 38 24.5	71 54 49.0	626
Malakand	lower Dir	Chikdara	Aman ur Rehman	Mian Baangola	34 38 33.5	71 55 50.7	638
Malakand	lower Dir	Chikdara	Waqas Ahmed	Warsak	35 42 41.0	72 00 43.7	797
Malakand	lower Dir	Chikdara	Waqar Ahmed	Warsak	36 42 41.0	73 00 43.7	797
Malakand	lower Dir	Chikdara	Asgar Khan	Ouch Sharqi	34 43 58.2	72 01 38.0	836
Malakand	lower Dir	Chikdara	Rashid	Ouch Sharqi	34 43 58.2	72 01 32.0	836
Malakand	lower Dir	Chikdara	Ishaq Zada	Tiknibala	34 47 11.4	72 03 57.8	1098
Malakand	lower Dir	Chikdara	Ghafar Khan	Tiknibala	34 47 11.4	72 03 57.8	1098
Malakand	lower Dir	Chikdara	Irfan	Ouch Sharqi	34 43 58.1	72 01 32.0	836
Malakand	lower Dir	Chikdara	Sadia	Tharnao	34 45 52.8	72 05 40.8	969
Malakand	lower Dir	Chikdara	Haidar Zaman	Sisada	34 39 30.5	7202 30.2	695
Malakand	lower Dir	Chikdara	Ayub Khan	Shaheed Abad	34 39 11.9	72 01 37.2	701
Malakand	lower Dir	Chikdara	Nasrat Bibi	asband	34 42 37.3	72 02 38.8	801
Malakand	lower Dir	Chikdara	samia	Gulabad	34 42 37.1	72 01 56.0	789
Malakand	lower Dir	Chikdara	W/O Nizam uddin	Gulabad	34 42 37.1	72 01 54.6	785
Malakand	lower Dir	Chikdara	Fazal Naeem	Gulabad	34 42 40.7	72 01 52.5	787
Malakand	lower Dir	Chikdara	Shuakat Ali	Asband	34 44 43.6	72 04 27.6	900
Malakand	lower Dir	Chikdara	Gul Zaman	Chekho Ouch	34 43 38.4	7157 48.2	905
Malakand	lower Dir	Chikdara	Shafath	Asband	34 46 11.6	72 04 10.2	1006
Malakand	lower Dir	Chikdara	Saeed ullah	Amlok dara	34 46 20.4	72 0345.9	1061
Malakand	lower Dir	Chikdara	Moin uddin	asband	34 46 07.7	72 04 13.2	994
Malakand	lower Dir	Chikdara	M/O Adnan	Shaheed Abad	35 39 11.9	73 01 37.8	701
Malakand	lower Dir	Timargirah	Dawood khan	Shobaba	34 44 .940	71 50 .485	850
Malakand	lower Dir	Timargirah	Asif khan and Kashif raza	Amlok dara	34 44.358	71 53 .203	868
Malakand	lower Dir	Timargirah	Amir Ali	Ghoro Kalai	34 44 .751	71 49 .282	758
Malakand	lower Dir	Timargirah	Muhammad Waris	Bajaoro Kalai	34 45 .593	71 53 .493	972
Malakand	lower Dir	Timargirah	Hamid ur rehman	Chamanabad	34 50 48.1	71 50 04.7	775
Malakand	lower Dir	Timargirah	Asya Bibi	Chamanabad	34 50 48.1	71 50 04.7	775
Hazara	Kaghan	Balakot	Sayed Fateh -ud-dine	Chuntian	34.39.35.4	73.21.52.7	1466
Hazara	Kaghan	Bissia	Sajjid Niaz Asaad zia	lower Bisssia	34,27,08.7	73,20,46.5	886
Hazara	Kaghan	Bissia	Zulikha bibi	Bissia	34,27,18.2	73,20,37.7	873
Hazara	Kaghan	Bissia	Nasreen	Bissia	34,27,16.1	73,20,38.4	875
Hazara	Kaghan	Bissia	Shazia bibi	Bissia	34,27,15.3	73,20,39.6	875
Hazara	Kaghan	Bissia	Gul nasreen	Bissia	34,27,13.5	73,20,37.6	875
Hazara	Kaghan	Bissia	Gul Naz	Bissia	34,27,16.3	73,20,37.1	874
Hazara	Kaghan	Bissia	Sabaz Nisa	Bissia	34,27,17.6	73,20,35.6	872

Region	Division	Range/Sub-Division	Name of nry grower	Location	Coordinats and elevation		
					N	E	Ele. (m)
Hazara	Kaghan	Garhi Habibullah	Yasir Mahmood etc.	Bissia	34,27,59.6	73,20,37.3	879
Hazara	Kaghan	Garhi Habibullah	Manzoor Ahmed	Bissia Chok	34,27,45.4	73,20,35.8	889
Hazara	Kaghan	Garhi Habibullah	Siraj-ud- din	Jabbri	34 28 55.9	73 21 53.4	1009
Hazara	Kaghan	Garhi Habibullah	Bibi Maryam	Jabbri	34 28 55.9	73 21 53.4	1009
Hazara	Kaghan	Garhi Habibullah	Abdul sajad etc.	Jabbri	34 28 07.6	73 22 52.0	1386
Hazara	Kaghan	Balakot	Fiazan Ali	Mangli	34 33 08.1	73 20 49.1	1034
Hazara	Kaghan	Garhi Habibullah	Muhammad Faheem khan	Batora	34 25 32.1	73 23 01.2	1034
Hazara	Siran	Lower Siran	Sajad	Shinkiria	34 28 30.9	73 16 51.1	1015
Hazara	Siran	Upper Siran	Saddaf Afzal	Andrasi	34 35 21.3	73 15 56.7	1312
Hazara	Siran	Upper Siran	Ansib	Shinkiria	34 28 08.4	73 16 10.6	975
Hazara	Siran	Upper Siran	Miraj Bibi	Andrasi	34 35 21.5	73 21 20.1	1321
Hazara	Siran	Upper Siran	Nagina bibi	Andrasi	34 35 10.5	73 15 24.9	1277
Hazara	Siran	Upper Siran	Sharift Jan Bibi	Panjool	34 38 36.5	73 14 10.4	1795
Hazara	Siran	Upper Siran	Zahera Jan bibi	Panjool	34 38 36.5	73 14 10.4	1796
Hazara	Siran	Upper Siran	Rubina Bibi	Panjool	34 38 36.5	73 14 10.4	1797
Hazara	Siran	Upper Siran	Amna	Andrasi	34 35 07.6	73 15 24.6	1248
Hazara	Siran	Lower Siran	Shabir khan	Kottli Bala	34 31 00.9	73 12 17.0	1130
Hazara	Siran	Upper Siran	Saeeda Bano	Andrasi	34 35 09.0	73 15 41.8	1282
Hazara	Siran	Upper Siran	Phool bibi	Andrasi	34 35 04.1	73 15 11.6	1272
Hazara	Siran	Upper Siran	Mehrnisa	Panjool	34 38 36.5	73 14 10.4	1795
Hazara	Siran	Upper Siran	Shaheen bibi	Andrasi	34 35 04.1	73 15 11.6	1272
Hazara	Siran	Upper Siran	Kamran	Kottli Bala	34 30 43.8	73 12 37.7	1091
Hazara	Siran	Upper Siran	Asad Munir	Andrasi	34 35 21.5	73 21 20.1	1321
Hazara	Siran	Upper Siran	Muhammad Nazeer	Karmang Bala	34 33 01.5	73 10 21.7	1404
Hazara	Gallies	Abbottabad	Farzana	Deri maira	34 06 58.1	73 09 59.4	1107
Hazara	Gallies	Birangali	Mujahid Ali etc.	Chattri	34 12 09.6	730334.3	1856
Hazara	Gallies	Bagnotar	Mushtaq	Sajjan gali	32 02 41.9	73 20 49.4	2313
Hazara	Haripur	Makanial	Hassan Dad	Kohmal Bala	33 50 14.3	73 08 13.1	1165
Hazara	Haripur	Makanial	Riyasat	Kohmal Bala	33 50 15.3	73 08 14.4	1146
Hazara	Haripur	Makanial	Iqra	Khas Gambir	33 51 37.1	73 15 08.3	1057
Hazara	Haripur	Makanial	Muhammad Ashraf	Kohmal Bala	33 50 15.3	73 08 14.4	1146
Hazara	Haripur	Satora	Akhtar Nawaz Khan	Khush Khayala Dook	34 01 51.6	73 15 15.1	1222
Hazara	Haripur	Satora	Zahid Ul Islam	Khush Khayala Dook	34 01 55.5	73 15 13.9	1215
Hazara	Haripur	Ghazi	Atta Ur Rehman	Sirikot	34 02 06.4	72 46 25.0	953
Hazara	Haripur	Ghazi	Waseem Afzal	Boti Gram	34 02 27.8	72 46 56.9	983
Hazara	Haripur	Ghazi	Waseem Afzal	Boti Gram	34 02 07.5	72 47 29.7	1001
Hazara	Haripur	Khanpur	Rubina Gul	Najaf Pur	33 48 04.7	72 59 16.4	681
Hazara	Haripur	Haripur	Asif Manboob	Jamia	34 02 26.9	72 55 40.6	484

Region	Division	Range/Sub-Division	Name of nry grower	Location	Coordinats and elevation		
					N	E	Ele. (m)
Hazara	Haripur	Haripur	Waheed Akhtar	Gujar Mura	33 59 54.7	72 56 48.1	539
Hazara	Hazara tribe	Batagaram	Gul Faraz	Maidan	34 40 20.1	73 00 29.9	997
Hazara	Hazara tribe	Allai	Abdur Rashad	Ghuzano Banda	34 49 57.6	73 06 06.8	1526
Hazara	Hazara tribe	Allai	Rooh ul Amin	Biari	34 48 57.2	73 05 31.5	1507
Hazara	Hazara tribe	Allai	Muhammad Zaman	Biari	34 48 57.2	73 05 31.5	1507
Hazara	Hazara tribe	Allai	Bakht Munir	Biari	34 48 57.2	73 05 31.5	1507
Hazara	Hazara tribe	Hiaalan	Zahir Khan	Malkal Gali	34 41 13.9	73 07 59.8	1544
Hazara	Hazara tribe	Hillan	Naiz Muhammad	Shamli	34 40 53.9	73 08 07.6	1598
Hazara	Hazara tribe	Pashto	Wali Muhammad	Bandi khanimullah	34 49 57.5	73 03 05.9	1366
Hazara	Hazara tribe	Batagarm	Gul Zareen	Gijbore	34 39 15.3	72 59 22.1	1148
Hazara	Hazara tribe	Pashto	Akram Ul Haq	Dotial kelay banna	34 50 12.1	73 03 25.4	1335
Hazara	Agror tanawal	Gidder pur	Danyal	Mallo	34 28 36.3	73 08 25.5	878
Hazara	Agror tanawal	Gidder pur	Ghulam Murtaza	Mallo	35 28 36.3	74 08 25.5	878
Hazara	Agror tanawal	Gidder pur	Shabana	Chowki	34 27 39.1	73 08 16.4	878
Hazara	Agror tanawal	Gidder pur	Ahmed khan	Kulhari garbi	34 27 22.6	73 13 14.8	930
Hazara	Agror tanawal	Gidder pur	Asia	Kulhari garbi	34 27 15.4	73 13 19.8	938
Hazara	Agror tanawal	Agror	Sajida bibi	Chatan gada	34 31 41.7	73 06 02.7	1234
Hazara	Agror tanawal	Agror	Jannat gul	Chatan gada	34 31 41.7	73 06 07.7	1234
Hazara	Agror tanawal	Agror	Sultan Muhammad	Mainwule	34 30 49.6	72 58 53.9	1284
Hazara	Agror tanawal	Agror	Zafar javid	Mainwule	34 32 34.7	72 59 50.5	1288
Hazara	Agror tanawal	Sherghar	Israr Ahmed	Bela gali badral	34 25 24.4	73 00 23.0	1133
Hazara	Upper kohistan	Jal kot	Harair	Goshali	34 13 47.6	73 12 12.1	849
Hazara	Torghar	Judba	Ibrahim	Bab sar	34 45 07.7	72 49 41.9	659
Hazara	Torghar	Judba	Gul Farooq syed	Darra	34 44 52.0	72 49 47.0	678
Hazara	Torghar	Judba	Sheer khan	Darra	34 44 51.2	72 49 47.1	678
Hazara	Torghar	Judba	Bakht zareen	Hotal	34 44 36.9	72 49 46.8	685
Hazara	Torghar	Judba	Fazal ul Rahman	Hotal	34 44 36.5	72 49 47.3	686
Hazara	Torghar	Judba	Noor Hakeem Shah	Hotal	35 44 36.5	73 49 47.3	687
Hazara	Torghar	Judba	syed Nawab shah	Hotal	36 44 36.5	74 49 47.3	688
Hazara	Torghar	Juba	Khurshid Alam	Hotal	34 44 40.5	72 49 40.8	705
Hazara	Torghar	Judba	Muhammad Yab khan	Daur bala	34 44 45.9	72 49 50.0	716
Hazara	Torghar	Judba	Aurang Zeb	Khataki	34 45 11.5	72 49 45.7	657
Hazara	Torghar	Judba	Gul Shehzad	Kandar	34 44 46.9	72 49 48.1	
Watershed	Unhar Watershed	Sherghar	Muhammad Zubair	Malookra	34 30 36.4	73 02 09.5	1159
Watershed	Unhar Watershed	Sherghar	Muhammad Nawaz	Dogi	34 29 43.2	72 59 27.5	1113
Watershed	Unhar Watershed	Sherghar	Shahid Nawaz	Bazargai	34 29 45.1	73 00 28.7	1116
Watershed	Unhar Watershed	Sherghar	Muhammad Ashiq	Tanawa	34 25 24.7	73 00 20.2	1112

Region	Division	Range/Sub-Division	Name of nry grower	Location	Coordinats and elevation		
					N	E	Ele. (m)
Watershed	Unhar Watershed	Batagarm	Ghulam Rasool	Ajmira	34 40 18.8	73 01 26.7	1126
Watershed	Unhar Watershed	Batagarm	Daud	Maidan	34 40 28.6	73 00 29.1	1001
Watershed	Unhar Watershed	Batagarm	Habib Rehman	lundi Dara	34 37 51.2	73 05 42.3	1485
Watershed	Unhar Watershed	Batagarm	Sher Muhammad	lundi Dara	34 38 15.5	73 05 56.6	154
Watershed	Unhar Watershed	Allai	Faqir khan & Khurshed	Hotel batkool	34 48 25.8	72 58 00.7	781
Watershed	Unhar Watershed	Allai	Sultan Muneer	Biari	34 48 57.4	73 05 31.3	1514
Watershed	Unhar Watershed	Allai	Imdad Ullah	Rop kanai	34 50 03.5	72 05 50.2	1998
Watershed	Daur Watershed	Havaleia	Muhammad Akram	Dhoka	34 01 48.9	73 15 21.7	1249
Watershed	Daur Watershed	Havaleia	Ilyas Sha	Basti sheer sha	33 59 33.7	73 03 44.0	677
Watershed	Daur Watershed	Havaleia	Jawad Sha	Basti sheer sha	33 59 45.0	73 03 52.3	680
Watershed	Daur Watershed	Havaleia	Muhammad Irshad	Basti sheer sha	33 59 35.5	73 03 48.7	684
Watershed	Daur Watershed	Havaleia	Muhammad Asif	Basti sheer sha	33 59 38.5	73 03 41.6	676
Watershed	Daur Watershed	Havaleia	Gul Naiz	Basti sheer sha	33 59 36.4	73 03 47.4	684
Watershed	Daur Watershed	Havaleia	Muhammad Abbas	Basti sheer sha	33 59 46.9	73 03 45.8	679
Watershed	Daur Watershed	Havaleia	Shakeel sha	Nikkapha	34 00 04.2	73 04 02.0	688
Watershed	Daur Watershed	Havaleia	Mumtaz	Dhoka	34 01 48.9	73 15 21.7	1249
Watershed	Daur Watershed	Havaleia	Muhammad Sheraz	Akhoon bandi	340012.6	730329.9	1011
Watershed	Daur Watershed	Havaleia	Rasheeda Bibi,Naheed bibi	Akhoon bandi	340029.5	730334.3	1011
Watershed	Daur Watershed	Havaleia	Hukam dad	Band shoib khan	34 04 49.8	73 08 45.5	938
Watershed	Daur Watershed	Havaleia	Naveed Akhtar	Kokal	34 05 55.8	73 06 47.5	1159
Watershed	Daur Watershed	Haripur	Waqas	Qazia	34 01 29.7	72 55 37.3	447
Watershed	Kunhar Watershed	Kunhar W.S	Ghulam Mustafa	Makriya	34 28 53.9	73 16 24.8	1020
Watershed	Kunhar Watershed	Siran	Atif zakir	Shinkiria	34 28 08.4	73 16 10.6	975
Watershed	Kunhar Watershed	Siran	Arif Khurshid etc.	Murad Pur	34 26 24.5	73 08 16.1	865
Watershed	Kunhar Watershed	Siran	Adeel Khetab	Makriha	34 28 50.9	73 16 35.4	1044
Watershed	Kunhar Watershed	Siran	Iftikhar Hussain	Karmang Bala	34 32 35.6	73 10 44.4	1326
Watershed	Kunhar Watershed	Siran	Dildar Ahmed	Karmang Bala	34 32 34.1	73 10 42.2	1333
Watershed	Kunhar Watershed	Balakot Kunhar W.s	Muhammad Saleem etc.	Hassa	34 30 22.6	73 21 11.6	913
Watershed	Kunhar Watershed	Balakot Kunhar W.s	Israr Ahmed	Hassa	34 30 51.4	73 21 18.7	949
Watershed	Kunhar Watershed	Balakot Kunhar W.s	Muhammad Waseem	Hassa	34,30,38.2	73.21.02.8	940
Watershed	Kunhar Watershed	Ghari Habibullah	Muhammad Naheed	Boi	34 18 38.6	73 26 23.8	801
Watershed	Kunhar Watershed	Siran	Abid	Tambah	34 21 28.2	73 13 25.8	1017
Watershed	Kunhar Watershed	Siran	Sayed Salah ud din	Lassa Tarkal	34 16 21.4	73 04 42.1	875

Region	Division	Range/Sub-Division	Name of nry grower	Location	Coordinats and elevation		
					N	E	Ele. (m)
Watershed	Kunhar Watershed	Siran	Sha wali etc.	Ber Khund	34 23 38.7	73 09 55.2	865
Watershed	Besham w.shed	Besham	Hassan Taj	Shang	34 52 44.6	72 53 16.4	630
Watershed	Besham w.shed	Besham	Umar hayat	Shang	3452 35.1	72 53 41.9	621
Watershed	Besham w.shed	Besham	Abuzar Ghaffari	Barkana, Shahpur	34 57 76.0	72 44 89.3	1255
Watershed	Besham w.shed	Besham	Naveed shah	Barkana, Shahpur	34 58 16.9	72 44 56.7	1320
Watershed	Besham w.shed	Besham	Farjad Ali	Barkana, Shahpur	34 58 16.9	72 44 56.5	1316
Watershed	Besham w.shed	Besham	Waqas Ahmed	Barkana, Shahpur	34 58 16.9	72 44 56.5	1316
Watershed	Besham w.shed	Besham	Sohail Raof	Barkana, Shahpur	34 58 15.7	72 44 57.3	1309
Watershed	Besham w.shed	Besham	Ikram Ul haq	Barkana, Shahpur	34 58 16.5	72 58 16.5	1349
Watershed	Besham w.shed	Besham	fazl hayat	Jaba, Shang	34 52 35.1	71 53 41.9	621
Watershed	Besham w.shed	Besham	Shahid	Buda, Shang	34 52 31.9	72 53 49.6	631
Watershed	Besham w.shed	Besham	Faiz Muhammad	Buda, Shang	34 52 31.1	72 53 53.0	646
Watershed	Besham w.shed	Besham	Noor elahi	Shang	34 52 44.5	72 53 16.4	636
Watershed	Besham w.shed	Besham	Mazhar Hussain	Shang	34 52 44.6	72 53 16.4	630
Watershed	Besham w.shed	Besham	Noor ul Hasan	Shang	34 52 44.6	72 53 16.2	634
Watershed	Besham w.shed	Besham	Shah Faisal	Karshal Shah Pur	34 58 37.1	72 44 49.8	1376
Watershed	Besham w.shed	Besham	MuhammadHanif	Kandhar, Gulibat	34 52' 4"	72 46' 26"	1341
Watershed	Besham w.shed	Besham	Muhammad Azam	Kandhar, Gulibat	34 52' 4"	72 46' 26"	1341
Watershed	Besham w.shed	Besham	umar Khan	Chakat, Karora	34 52 09.8	72 45 50.5	988
Watershed	Bunair w.shed	Pacha	Shafiq Ur Rahman etc.	Bhai Kali	34 34 48.0	72 36 19.7	716
Watershed	Bunair w.shed	Pacha	Bacha Khan	Suktan Wass	34 33 44.7	72 27 22.2	754
Watershed	Bunair w.shed	Pacha	Zafar Ali	Dagar Talan	34 30 52.4	72 29 14.7	701
Watershed	Bunair w.shed	Pacha	Abdul Hayat	Pacha Kali	34 36 16.7	72 27 37.6	759
Watershed	Bunair w.shed	Dagar	Muhammad Tahir etc.	Gagra	34 28 20.1	72 32 19.4	670
Watershed	Bunair w.shed	Dagar	Malik Dad	China Wara	34 26 35.4	72 29 24.5	699
Watershed	Bunair w.shed	Dagar	Nasir Ali Khan etc.	Mattaq	34 28 33.2	72 34 34.4	660
Watershed	Bunair w.shed	Chamla	Faiz Muhammad	Aggarai	34 23 24.2	72 32 18,5	672
Watershed	Bunair w.shed	Chamla	Bakht Biland Khan	Kaoga	34 23 25.0	72 30 35.2	692
Watershed	Bunair w.shed	Chamla	Sher	Kaoga	34 22 50.1	72 30 32.0	700

Appendix N (7) coordinates of private bare rooted nurseries

Region	Division	Range/Sub-Division	Location	Coordinats and elevation		
				N	E	Ele. (m)
Southern	Peshawar	Charsadda	Zyam	34 18 05.5	71 42 59.9	349
Southern	Peshawar	Charsadda	Toheed Abad Jindi	34 19 25.6	71 41 30.6	342
Southern	Mardan	LSC	Azeem Kali	34 10 25.9	71 58 19.5	309
Southern	Mardan	USC	Serikh Kali	34 19 46.2	72 08 54.2	343
Southern	Mardan	Sawabi	Rahat abad	34 10 00.1	72 29 59.5	303
Southern	Mardan	Sawabi	Pange Pir	34 05 05.1	72 27 49.1	313
Southern	Mardan	USC	Gulli Bagh	34 19 46.2	72 08 24.4	345
Southern	Kohat	Kohat	Kogh Maingal	33 33 58.7	71 31 36.7	481
Southern	Kohat	Kohat	Chakar Kot Bala	33 35 48.8	71 18 20.3	590
Southern	Kohat	Karak	Kanda Karak	33 05 19.7	71 06 49.8	570
Southern	Bannu	Bannu	Said Abad	32 58 31.4	70 37 04.3	362
Southern	DI Khan	I D Khan`	Dhab Chappak	31 47 43.7	70 57 47,2	160
Malakand	Malakand	Dargai	Sakha Kot	34 27 23.0	71 55 28.4	410
Malakand	Malakand	Dargai	Sakha Kot	34 26 55.0	71 54 46.4	415
Malakand	Malakand	Batkhela	Akhoon Baba	34 36 53.9	71 56 41.8	646
Malakand	Malakand	Batkhela	Pir Kali	34 34 23.3	71 48 44.2	646
Malakand	Swat	Mingora	Islampur	34 42 .971	72 21 .612	1117
Malakand	Swat	Mingora	Telegram	34 42 .614	72 30 .079	1134
Malakand	Swat	Matta	Baidara	34 57 .056	72 26 .346	1115
Malakand	Swat	Kabal	Kanju township	34 49 .247	72 20 .997	977
Malakand	Swat	Kabal	Shah darai langan	34 53 .782	72 13 .877	1219
Malakand	Swat	Fatehpur	Naway kalay Baghdheri	35 2 0"	72 28 36"	1219
Malakand	Swat	Fatehpur	Ghar shin	35 1 50"	72 28 33"	1210
Malakand	Swat	Fatehpur	Chamtalai	34 55 .471	72 30 .916	1236
Malakand	Kalam	Behrain South	Benaorai	35 04 .417	72 29 .529	1305
Malakand	Kalam	Behrain South	Chikrai	35 05 .009	72 29 .329	1261
Malakand	Alpuri	Karora	Shang	34 52 49.3	72 53 18.5	622
Malakand	Alpuri	Alpuri	Sanella	34 46 15.0	72 39 36.0	1163
Malakand	Bunair	Daggar	Daggar	34 30 02.5	72 27 58.3	687
Malakand	Dir Kohistan	Patrak	Deon Patrak	35 20 .432	72 03 .522	1501
Malakand	Dir Kohistan	Shiringal	Khani bela	35 17 .292	72 00 .826	1396
Malakand	Upper Dir	Dir	Makhay	35 07 05.0	71 44 13.1	1644
Malakand	Upper Dir	Dir	Sundrawal	35 07 40.8	71 49 18.5	1349
Malakand	Upper Dir	Darora	Gandigar	35 07 18.8	71 57 47.4	1148
Malakand	Chitral	Booni	Bumbagh	36 13 39.5	72 10 17.5	1927
Malakand	Chitral	Booni	Koghuzi	35 56 .246	71 55 .354	
Malakand	Chitral	Chitral	Chitur Broze	35 44 .134	71 46 .685	1405
Malakand	Chitral	Chitral	Jutilasht	35 46 .843	7146 .420	1421
Malakand	Chitral	Chitral	Gahrait	35 39 .658	71 45 .520	1920
Malakand	Chitral	Drosh North	Damik	35 31 28.0	71 45 47.5	1278
Malakand	Lower dir	Chakdara	Shaheed abad	34 39 07.9	72 01 41.1	695
Malakand	Lower dir	Timargirah	Bandagai	34 45 07.3	71 49 38.0	773
Hazara	Kaghan	Garhi habibullah	Paksari	34,24,16.6	73,22,18.4	806
Hazara	Kaghan	Balakot	Khawas	34,31,37.9	73,21,21.4	1017
Hazara	Kaghan	Balakot	Hadyan	34,33,44.1	73,20,33.6	1131
Hazara	Siran	Shinkiari	Shani bala	34 26 18.3	73 16 57.1	1004
Hazara	Siran	Mansehra	Bafa Dohra	34 24 39.1	73 14 03.1	952
Hazara	Siran	Lower Siran	Daryal	34 29 48.0	73 15 56.3	1063

Region	Division	Range/Sub-Division	Location	Coordinats and elevation		
				N	E	Ele. (m)
Hazara	Siran	Upper Siran	Bhogharmang	34 34 26.6	73 15 35.3	1314
Hazara	Torghar	Judba	Gijbori	34 38 48.4	72 59 30.9	1124
Hazara	Torghar	Judba	Gojar bandi	34 29 43.8	72 59 11.4	1118
Hazara	Agror tanawal	Gidder pur	Chowki	34 27 12.4	73 07 16.0	885
Hazara	Agror tanawal	Agror	Arbora	34 27 52.3	73 03 01.4	477
Hazara	upper kohistan	Harban	Shinodar	35 31 56.0	73 36 03.5	1083
Hazara	upper kohistan	Komila	Shang	34 52 57.8	72 52 35.7	608
Hazara	Gullies	Abbottabad	Danga pul	33 59 48.0	73 03 02.6	658
Hazara	Haripur	Haripur	Sikandar Pur	34 00 11.6	72 56 55.7	531
Hazara	Haripur	Khanpur	Kali Thara Gharbi	33 53 57.5	72 53 06.6	527
Hazara	Haripur	Haripur	Dheri Sikandapur	34 00 31.9	72 56 17.2	530
Hazara	Haripur	Haripur	Qazia	34 01 26.8	72 55 35.4	498
Hazara	Haripur	Khanpur	Bhara	33 47 17.0	72 51 47.8	513
Hazara	Lower Kohistan		Nawa kally shahpur	34 56 12.7	72 45 08.9	1159
Hazara Watershed	Unhar watershed	Batagram	Pagora	34 38 57.0	73 03 21.7	1099
Hazara Watershed	Unhar watershed	Sherghar	Parihna	34 21 47.6	73 05 23.4	977
Hazara Watershed	Kunhar W.shed	Siran/Kunhar W.s	Makraia	34 28 52.9	73 16 24.4	1032
Hazara Watershed	Kunhar W.shed	Siran/Kunhar W.s	Murad Pur	34 26 07.4	73 08 12.4	852
Hazara Watershed	Kunhar W.shed	Balakot	Hassa Shahotar	343105.6	732112.2	994
Hazara Watershed	Kunhar W.shed	Garhi Habibullah	Paksari	34 24 27.1	73,22,00.1	831
Hazara Watershed	Daur w.shed	Haripur	Qazia	34 01 31.0	72 55 34.7	498
Hazara Watershed	Daur w.shed	Haripur	Nakkapa	33 59 58	73 33 07	680
Hazara Watershed	Besham w.shed	Besham	Damana, Shahpur	34 56 22.3	72 45 04.7	1176
Hazara Watershed	Besham w.shed	Besham	Shang	34 52 52.9	72 52 51.1	614
Hazara Watershed	Bunair w.shed	Dagar	KulpiKass	34 28 16.6	72 32 18.5	679
Hazara Watershed	Bunair w.shed	Dagar	Gagra Kalpary	34 28 20.8	72 32 24.3	699
Hazara Watershed	Bunair w.shed	Pacha	Bahi Kali	34 34 46.4	72 26 20.9	736
Hazara Watershed	Bunair w.shed	Pacha	Shiri Pay	34 35 56.2	72 26 54.4	498

Photo collage of all activities

Photo collage of Southern Region

Photo collage of Malakand Region





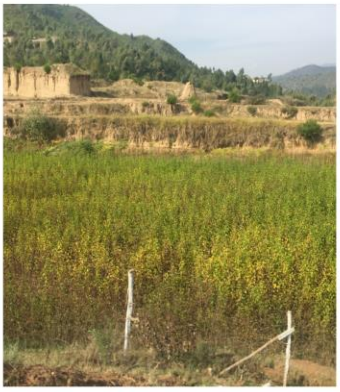
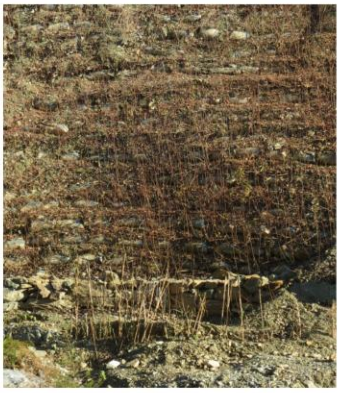




Photo collage of Hazara Region