

SCOPE OF FORESTRY EXTENSION IN CHITRAL

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ABSTRACT

Extension plays a vital role in adopting proper management practices and establishing more plantations by involvement of the communities in the forestry activities joint management of the government and communal forest lands. Communities have realised that the development of forestry sector in Chitral is catalysed by extension agents. All the segments of the society expressed their interest in cooperation with the Forest Department for increasing tree cover in the area. The objective of the current research is to assess the role of forestry extension agents in promoting social forestry activities in Chitral District. The study analysed the activities carried out for forestry extension in Chitral by various Organizations including Income Generation Project for Afghan Refugees (IGPRA), Agha Khan Rural Support Program (AKRSP), Chitral Area Development Project (CADP), Environmental Rehabilitation Project (ERP), International Union for Conservation of Nature (IUCN), Forestry Sector Project (FSP) and the Khyber Pakhtunkhwa Forest Department. Though extension work is a challenging job but the challenge has been accepted by the extension agents and has been addressed properly in Chitral.

INTRODUCTION

Forests are the most important renewable resource by virtue of their ecological and socio-economic importance. They provide timber and other construction wood and act as major source of energy for cooking and heating in rural areas. Mountain forests are also important for soil conservation and watershed protection. Besides, forests also host habitats for wildlife, medicinal and aromatic plants which are important components of the ecosystem. Thus forests are crucial for biodiversity conservation.

Deforestation and forest degradation are serious environmental issues in Pakistan. Deforestation rate was 1.63% during 1990-2000 which further increased to 2.02% during 2000-2005 leading to 24.7% decrease in forests between 1990 and 2005 (FAO, 2005). This degradation has severely depleted the natural forests of Himalayan ranges of Pakistan. The mountain slopes have been denuded completely of tree cover and only remnants of the primary forests are now remaining in the remote and inaccessible hills.

Social Forestry Project Malakand/Dir (1995), pointed out that the demand for fodder, firewood and timber exceeds the production from natural forests and plantations. The country imports wood and wood products worth almost US \$ 110 million (Rupees 6.5 billion) annually to augment local supply. To combat the situation, it is necessary to raise forest trees on marginal lands and farms for which the role of forestry extension is crucial.

World Bank (1978) reported that the equivalent of 0.84 million hectare of forest planting on suitable sites is needed to meet Pakistan's basic needs. It was pointed out that the two wide gaps visible to both foresters and economists are the use of agricultural residue as fuel and the importance of timber and timber products. Use of imported kerosene oil as fuel, depressed consumption, and unsatisfied demand for wood and

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wood products and the use of imported and local costly substitutes for timber, such as steel, cement, plastic, aluminum etc. was declared beyond the purchase power of the public. It was concluded that undertaking could be made possible by the private owners through effective extension program so that the people adopt social forestry practices.

Farmlands are increasingly becoming a source of wood supply in Pakistan. Wani *et al.* (2004) reported that 72% of timber and 99% of fuel wood supply are contributed by farmlands. Thus farm lands have reduced pressure on forest to a great extent. This increase in wood products on farmlands is due to the promotion of social forestry by the extension agents.

FAO (1978) reported that wherever the local economy is based on subsistence farming in combination with population size and techniques of production, diet is the primary factor determining land use and the demand for foods takes precedence over the demand for wood. The shortage of labour in peak seasons of plantation and harvesting of agricultural crops and lack of awareness about the pros and cons of growing forest trees have been termed as the greatest hurdles in promoting forestry activities. Availability of fast growing, multi-purpose, nitrogen-fixing, leguminous or valuable trees for various ecological zones has been stressed. Therefore forestry extension in a way to synchronise food and wood could be used as an effective tool to combat the situation effectively.

The total area of Chitral district is 36,82,560 acre, out of which 1,07,985 acre (2.9%) is forest area (Khan, 1992). Forests are not evenly distributed in the district and most of the forests occur in the few southern valleys of Arandu, Shishi, Birir, Bamboret and Ramboor. The dependency of people is high on forest resources in the area and is increasing with passage of time. Keeping in view the vulnerability of forests and socio-economic conditions of the local people, extension in all fields of forestry including raising of nursery, tree planting, timber economy and fuel efficiency are highly important for conserving the existing forests and fulfilling fuelwood and timber requirements of the local population.

The area of forest plantation in Chitral is very low and many villages have no more than a few trees per household planted on farmlands. Indications are that the people of Chitral will remain dependent on forest products for many years and that demand will further grow. Alternative products and technologies such as kerosene oil, natural gas, solar energy are relatively expensive and beyond the power of purchase of the inhabitants of Chitral. Forestry extension is the most effective tool for growing trees on farm lands that would not only help in resolving the energy and construction wood problems but would help in resolving environmental issues such as soil erosion, watershed management biodiversity conservation and climate change (Jilani 1999).

Keeping in view the scope of forestry extension, a study was conducted to look at the performance of various interventions performed by different organization in promoting forestry practices in Chitral District. This paper reports the findings of the same study.

MATERIALS AND METHODS

The study was conducted in areas where the social forestry practices have been carried out either by the Forest Department or any other organization. The secondary

data was obtained from Forest Department record, AKRSP, IUCN, WWF-P and other concerned offices. Primary data was collected from villages scattered throughout Chitral district and local people were interviewed in Booni, Mastooj, Ovee, Reshun, Chitral town, Ayun, Bamboret, Garam Chishma, Arkari, Shishee, Madaklasht, Drosh, Ashret and Arandu. A questionnaire/interview schedule was developed for this purpose with the help of field officers. Rural Rapid Appraisal (RRA) technique was followed to cross check the data in Madaklasht, Bamboret, Reshun and Booni villages. Stratified Random sampling method was adopted for collection of data through questionnaire and RRA.

Stratified Random sampling was adopted for selection of the respondents. All sections of the community were represented properly. The community people were classified into four categories: landowners, landless people, the members of Forest Protection Committee and the members of Union Councils. This was done because all these groups were presumed to have different point of view regarding the role of forestry extension in Chitral. Members of the Forest Protection Committee now called Joint Forest Management Committees (JFMC), who enjoy the prestige of the representation for many years are in target of the public representative who have recently been elected in the new set up of public representation. That's why it was presumed that both the groups might also have different point of view. Similarly the Forest Department officials in the field were also interviewed. Thus a total one hundred and fifty persons were interviewed for gathering the desired information for the study. Rapid Rural Appraisal (RRA) technique for the economic benefits of the study area was conducted at nine Village Development Committee (VDC) to record joint view of the local people in considerable groups. Also formal and informal meetings were attended with the Divisional Forest Officer Chitral and Range Forest Officers of Chitral and Drosh to get this point of view.

The respondents were interviewed personally at their homes or at farms. The Questionnaire/Interview schedule was structured in English but the questions were asked in Khowar, Urdu and Pushto languages for the convenience of the respondents to obtain reliable and required information with maximum accuracy. All the relevant information against each question was recorded. Notes were prepared in the field book where it was needed for general information about the study area. The questionnaire was developed keeping in view the objectives of the study, which was pre-tested in the field and consequently reviewed in light of the field observations and discussions held with key knowledgeable persons and Forest Extensionists. Thus the questionnaire was modified to increase its validity as well as reliability. Total 150 persons (minimum 15 from each of selected villages) were interviewed on opportunity random sampling method. The exact number of trees, measurements of the area and different statistics as reported by the community members were based on approximation so the field data for estimation of number could not be processed. However these statistics were obtained from secondary data from various departments and organization working in the district.

All the collected data was transferred to a tally sheet for the purpose of compilation and tabulation. Simple statistical techniques of average, ranking and percentages were used for interpretation and discussion of data, derivation of conclusions and making of pertinent recommendations and suggestions.

RESULTS AND DISCUSSION

Sources of Household Energy in Chitral

Wood is the only source of fuel for heating purpose. However, Liquefied Petroleum Gas (LPG) is also used in some houses for cooking purpose. The percentage of such households is negligible. Agriculture residues and cow dung is also used as fuel in remote areas where wood collection is a problem. Majority of the people is poor and cannot afford the alternate sources of fuel. Electricity is used for lightning purposes provided recently by WAPDA in the towns of Chitral and Drosh while in the small villages Micro Hydal Power Stations constructed on the Technical and Financial support of Agha Khan Rural Support program (AKRSP) and Chitral Area Support Project (CADP). These stations are managed and maintained by the village community Organizations.

Amount Spent on Purchase of Timber

Majority of the population in Chitral is of rural nature who live in kacha or semi pakka houses for which the need of timber is very high.

The respondents informed that timber is the basic need in the area for house construction and each household is needed to spend amount for timber because it is needed for construction of new houses, addition and repair of houses. The following table shows the approximate amount spent on purchase of timber by various respondents in the years 2003-2005.

Table 1. Purchase of timber during 2003-2005

S. No.	Amount in Pak Rupees	No. of Respondents	Percentage
1.	Upto 2000	83	55
2.	2000 to 4000	58	39
3.	4000 to 6000	9	6
	Total	150	100

Sources of fuel supply

Chitral is a remote and cold area where long winter season prevails and fuel wood is needed for cooking and heating of houses. The people mostly use trees and plants as fuel sources while use of alternate sources of fuel such as gas and kerosene oil are rare. Following table shows different sources of fuel in Chitral District. Sources of fuel wood.

Table 2. Source of Fuel used in Chitral wood

S. No.	Source	No. of Respondents	Percentage
2.	Farm Trees	150	100
1.	Forest	136	91
5.	Purchase from Market	114	76
4.	Cow Dung	93	62
3.	Crop Residues	76	51

The respondents told that they face many problems in getting fuel wood for their domestic needs. Fuel wood is procured in October and November in most of the area as the weather restricts transportation in the later months of winter.

Farm Forestry Practices

The people have raised trees on agriculture lands, marginal lands and communal lands with the technical and financial assistance of Forest Department, AKRSP and different projects including Environmental Rehabilitation Project (ERNP), Chitral Area Development Project (CADP) and Mountain Areas Conservancy Project (MACP) during last twenty years. Fast growing tree species, having fodder and fuel wood value, have been preferred by the locals and only willow (*Salix* spp), Russian Olive, *Elaeagnus* spp. and poplar (*Populus ciliata* and *P. nigra*) have been planted. The exotic tree species planted include *Robinia pseudoacacia*, *Ailanthus* spp. and *Populus* spp.

Table 3. Planting and survival of tree species

S.No.	Local Name	Botanical Name	Total No. of Trees Planted in the villages	Survival % age
1.	Willow	<i>Salix</i> spp	5,000	50
2.	Terak and Romain	<i>Populus ciliata</i> and <i>Populus nigra</i>	10,000	60
3.	Chinar	<i>Platinus orientalus</i>	500	25
4.	Walnut	<i>Jegulans regia</i>	800	20
5.	Robinia	<i>Robinia Pseudoacacia</i>	20,000	35
6.	Russian Olive	<i>Elaeagnus</i> spp	10,000	40
7.	<i>Ailanthus</i>	<i>Ailanthus</i> spp	4,000	30
8.	Poplars	<i>Poplus deltoides</i>	2,000	60
Total			52,300	

Based on the survey results, total 52,300 saplings have been planted in the last ten years which include 20,000 plants of Robinia, 12,000 local and exotic Poplars, 10,000 Russian Olive and the remaining 10,300 saplings of Willow, Chinar and Ailanthus. It has been pointed out that survival percentage is highest for Poplar (i.e. 60%) followed by Willow, Russian Olive, Robinia, Ailanthus and Chinar (50, 40, 35, 30 & 25 percent respectively). Walnut has the lowest survival percentage (i.e. 20%).

Only 6% of the respondents told that they sell some of the trees to the local people for low quality timber and fuelwood purposes while the remaining ninety-four percent of the respondents reported that they used the trees of their land for domestic purposes.

Eighteen respondents informed that they sold poplar and other local trees for low quality timber in their locality. They also told that the production of poplar could economize the need of timber in upper Chitral and would contribute to the income of household through saving the amount spent for timber procurement.

Factors for Promotion of Tree Plantation

The respondents reported that the practice of tree plantation on farmlands is encouraging and many factors including awareness raising through projects, growing need of the people for wood, environmental improvement and beautification have been listed as the major factors in this regards. Following table shows the driving factors behind promotion of tree plantation in Chitral district.

Table 4. Factors for promotion of area plantation

S. No.	Source	No. of Respondents	Percentage
1.	Awareness raising due to projects	150	100
2.	Needs of the people	150	100
3.	Environment	81	56
4.	Beautification	123	82
5.	Others	54	36

Impacts of Forestry Extension

The impact of forestry extension projects as listed by the respondents include improved skills, increased number of trees on farmlands and increase in grass and fodder production. Increase in number of wild animals, developmental works in the village and increase in the village funds were also reported as the benefits of the forestry activities adopted through extension practices. The following table shows the changes due to forestry projects in Chitral district.

Table 5. Impacts of forestry extension

S. No.	Change / Improvement	No. of Respondents	Percentage
1.	Improved skills	150	100
2.	Increased number of trees on farmlands	150	100
3.	Increased grass / fodder production	150	100
4.	Increased number of wild animals	150	100
5.	More development works for the village	150	100
6.	Improved village fund	78	52

CONCLUSION

- Forestry extension in Chitral district is in the early stage of development but still has made considerable progress. Farm trees are the main source of fuelwood followed by forests. *Robinia pseudoacacia*, *Populus* spp., *Elaeagnus* spp. and *Ailanthus* spp. are the common species planted on farmlands.
- According to the local people the development of farm forestry in Chitral district is due to the efforts and extension activities of various social forestry projects. As a result the skills of local communities have improved, the number of trees on

farmlands has increased and the biodiversity has improved. The projects have also carried several developmental initiatives in the area.

- Involvement of local communities in forestry extension process and the liaison of the Forest Department with these communities is very important for achieving the goal of increasing tree cover to meet the challenges of fuel wood and timber requirements of the growing population in this remote part of the country.
- The forestry extension programs implemented by various organizations could help in the conservation of meager natural resources of the Chitral District.

RECOMMENDATIONS

- Based on the findings of the study and general interaction with local communities, the following recommendations are made for promotion of forestry activities in Chitral.
- The local communities of Chitral have indigenous knowledge about forestry practices and the documentation of such knowledge may be useful for other areas of similar socio-economic and climatic conditions.
- The development and extension activities should be synchronized in a way that the development activities may reinforce the process of extension.
- The Forest Department should carry on the extension programmes initiated by different projects to further increase tree growth on farmland and reduce pressure on natural forest in Chitral.
- Continuous training and capacity building of Department / Organizations involved in forestry extension are needed to effectively implement social forestry programs.
- Incorporating forestry extension in School / College curriculum at local level.

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