



Participatory Forest
Management:
Implications for
Policy and Human
Resources'
Development in the
Hindu Kush-
Himalayas

Volume VI
PAKISTAN

Editor
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International Centre for Integrated Mountain Development
Kathmandu, Nepal

Participatory Forest Management: Implications for Policy and Human Resources' Development in the Hindu Kush-Himalayas

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Foreword

The last decade of this millennium is testimony to changing times for the people and forests of the Hindu Kush-Himalayas, and it has seen the emergence of people-centred forest policies in almost all the countries in the region. These policies aim to support and strengthen participatory forest management, and through this process ensure that the needs of mountain women and men are accorded due priority.

The evidence of the will of policy-makers in the countries of the Hindu Kush-Himalayas can be traced back to the beginning of this decade. In 1990, the Government of India approved an order to encourage *joint* forest management between government and forest dependent communities in degraded forest areas. Currently twenty-two states spread over the country have approved enabling government orders. These include all three states of the Western Himalayas—Jammu and Kashmir in 1993, Himachal Pradesh in 1993, and Uttar Pradesh in 1997—and three states in the North Eastern Himalayas—Tripura in 1991 and Arunachal Pradesh and Nagaland in 1997. Nepal approved a new Forest Act in 1993 that provides legal support to community forestry and remains one of the most progressive pieces of legislation in this field. Bangladesh approved a new forest policy incorporating the concept of participatory forest management in 1994. Myanmar gazetted a new Forest Act in 1992 and issued its first community forestry instructions notification in 1995. Bhutan enacted a new Forest and Nature Conservation Act in 1995 and approved its revised ‘Social Forestry Rules’ in 1996. Pakistan’s national draft ‘Forestry Sector Policy’ was under discussion at the time that this workshop was held, people’s participation was a strong element in the proposed policy. The North West Frontier Province of Pakistan developed a draft forest policy for the first time in 1997. The draft is people-centred, it is still under discussion and awaits approval. In 1993, Yunnan Province in the People’s Republic of China put into place provisions for the auction of tenure of barren mountain areas, and this has stimulated people’s involvement in forest management. Forest policies were revised in 1994 in the Tibetan Autonomous Region to encourage and support the involvement of the local population.

The emergence of people-oriented policies in all these countries over a decade points to a dramatic paradigm shift in forest management. This is the result of the increasing understanding of the fact that forests play a pivotal role in mountain areas and can no longer be managed without the active cooperation of the mountain communities.

An increasing area is being brought under community management through different benefit-sharing systems and tenure arrangements. These arrangements often build on or add to traditional forest management practices in mountain areas and this augurs well for the sustainable development of these areas.

The role of forestry professionals is changing from custodial to participatory. Reorientation of all levels of staff in forest departments is currently underway, and the curricula of educational institutions are being revised to ensure that the new generation of people-centred forestry professionals has the appropriate skills to support community-based forest management.

ICIMOD recognised this emerging trend and in 1993 established the Participatory Natural Resources Management Programme with a clearly defined focus on participatory forest management. ICIMOD has been able to document successes and provide regional and national forums for the exchange of views and experiences through workshops and field visits. We take some pride in having been a part of this exciting decade of change and in having made a modest contribution to changing policies and perspectives in the Hindu Kush-Himalayas.

The regional workshop 'Participatory Forest Management: Implications for Policy and Human Resources' Development' held in May 1998, whose proceedings are described in this publication, is one of the many activities arranged by the Participatory Natural Resources' Management Programme since 1993. This workshop brought together senior policy-makers from seven of the eight countries of the Hindu Kush-Himalayas.

Apart from providing a unique opportunity for professional foresters in the region to share their experiences in relation to the evolution of new policies, the meeting was also a milestone in the establishment of HIFCOM — the Hindu Kush-Himalayan Forum for Forest Conservation and Management — on a broad footing. The idea for HIFCOM was conceived at an earlier ICIMOD workshop held in India in 1995. Over the last three years, the institutional development process has been nurtured in close collaboration with forestry professionals in the region. The workshop in China brought together seven of the eight HKH countries for the first time, and the idea of HIFCOM as a regional forum for promoting participatory forest management among forestry and related professionals in the HKH was endorsed by the representatives of all these countries. This endorsement and the willingness of foresters to take responsibility for the further evolution of HIFCOM are indicative of the need for this forum. The stakeholders themselves have now taken over leadership of the forum and have drawn up plans for the future.

As we move into the next century, I am glad that we are able to bring this sense of optimism and hope to individuals and institutions in the Hindu Kush-Himalayas. The evolution of these policies for mountain forests would not have been possible without the sustained effort of the women and men of the mountains who have been managing these resources. It is they who have demonstrated that, given appropriate policies and an enabling framework, they can manage the natural resources of the mountains to meet their own needs whilst ensuring that the needs of future generations are safeguarded.

I am confident that we are now moving from a decade of policies and experiments to a future of practise and implementation that will test these policies on the ground and lead to further reflection, learning, and change. This can only happen successfully if policies are backed by appropriate, timely, and clear laws and rules that enshrine the spirit of the policies. A high level of commitment is required to ensure that policies do not remain merely statements of intent. For this, we will need to address the issue of human resources development with a greater sense of urgency than we have in the past. Apart from development of skills, the workshop participants identified issues of reorientation and changes of attitude as major future challenges.

I would like to take this opportunity to thank the South West Forestry College, Kunming, Yunnan Province, of the People's Republic of China for being such an effective host for the workshop and all the resource persons and authors of the papers for their commitment.

My gratitude also extends to the numerous mountain women and men who have shown that participatory forest management can work. They have been, and remain, our continuing source of inspiration and encouragement.

Egbert Pelinck
Director General

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It is always difficult to acknowledge all the individuals and institutions who have contributed to the planning, designing, and implementation of a regional forum. We would, however, like to offer our special thanks to the following people, groups, and institutions.

We thank Professor Yang Fucheng and the senior officials, faculty, and staff of the South West Forestry College, Kunming, Yunnan, who worked with us over a two-year period to make this workshop a reality. Their commitment and efficient arrangements contributed to the organization of an excellent event. We would also like to make a special mention of the contribution made by Lai Quingkui and Dequn Zhou to this forum.

A wide range of institutions from China contributed in several ways to this workshop. We would like to express our appreciation to the the Chinese Academy of Sciences; the Chinese Academy of Forestry; the International Network for Bamboo and Rattan; the National Forestry Bureau of China; the International Cooperation Division of the National Forestry Bureau; the Provincial Government of Yunnan; the Municipality of Kunming; the Forest Bureau of Yunnan; the Foreign Affairs' Office of Yunnan; the Forest Bureau of Kunming; and the Kunming Institute of Botany. We acknowledge their support to the workshop and recognise that without their assistance we would not have been able to host this forum in China.

We would also like to thank ICIMOD's partner organizations in our regional member countries for their support to this important forum and for facilitating the participation of senior forestry professionals.* In particular, we would like to thank the Ministry of Forests, Bangladesh; the Ministry of Agriculture, the Royal Government of Bhutan; the Ministry of Environment and Forests, the Government of India; the Ministry of Forests, the Government of the Union of Myanmar; the Ministry of Forest and Soil Conservation, His Majesty's Government of Nepal; and the Ministry of Environment and Forests, Government of Pakistan.

We would also like to thank the regional and national executive committee members of HIFCOM—the Hindu Kush-Himalayan Forum for Forest Conservation and Management—for working closely with us to plan and organize this workshop.

The intellectual contributions from the many authors who worked hard on the case studies have been significant and we would like to express our appreciation for their efforts.

This workshop would not have been possible without financial support from several donor organizations. We would like to thank the Swiss Development Cooperation, Berne, Switzerland, for providing major support to the workshop and to the International Development Research Centre for their contribution to the forum. We would also like to thank the Ford Foundation, Beijing, China, for their grant to the South West Forestry College. The grant enabled the participation of Chinese institutions.

We would like to thank the Ford Foundation, New Delhi, India, for its continuing and generous support to ICIMOD's Participatory Natural Resources' Management Programme under whose aegis this workshop was organized.

Lastly we would like to place on record the contributions made by many ICIMOD staff to this workshop.

Abstract

The Workshop on 'Participatory Forest Management: Implications for Policy and Human Resources' Development in the Hindu Kush-Himalayas' brought together forest management personnel from various parts of the Hindu Kush-Himalayas. The basis of their discussions was the people-centred forest policies that have emerged in many countries of the region and their objectives of supporting and strengthening participatory forest management to ensure that the needs of mountain people receive the priority they deserve. The policies along with their constraints and opportunities were discussed in depth, guided by papers provided by the participants themselves. Volume 1 is the Workshop Document, Volume 2 deals with China, Volume 3 – Eastern Himalayas, Volume 4 – India, Volume 5 – Nepal, and Volume 6 – Pakistan.

Abbreviations and Acronyms

ACS	Additional Chief Secretary
ADB	Asian Development Bank
AJK	Azad Jammu and Kashmir
AKLASC	Azad Kashmir Logging and Saw Milling Corporation
AKRSP	Aga Khan Rural Support Programme
CITES	Convention on the International Trade of Endangered Species
DFO	District Forest Office
DDFW	Department of Forestry, Fisheries and Wildlife
FAO	Food and Agriculture Organization
FDC	Forest Development Corporation
FSDGC	Forestry Sector Donors Coordination Group
FSP	Forestry Sector Master Plan
FSP	Forestry Sector Project
GEF/UNDP	Global Environment Facility/United Nations Development Programme
GIS	Geographic Information Systems
GTZ	Gesellschaft für Technische Zusammenarbeit GmbH
HJP	Himalayan Jungle Project
HKH	Himalayas, Karakoram, Hindu-Kush
HWP	Himalayan Wildlife Project
ITC	Institutional Transformation Cell
IUCN	The World Conservation Union
JFM	Joint Forest Management
KIDP	Kalam Integrated Development Project
KVO	Khunjerab Village Organization
MSFP	Malakand Social Forestry Project
NAs	Northern Areas
NCS	National Conservation Strategy
NGOs	Non-governmental Organizations
NWFP	North-West Frontier Province
NWFP-FDC	North-West Frontier Province - Forest Development Corporation

PARC	Pakistan Agricultural Research Council
PFI	Pakistan Forest Institute
PVOs	Private Voluntary Organizations
SC	Standing Committee
SFDP	Siran Forest Development Project
SPCS	Sarhad Province Conservation Strategy
SWMP	Suketar Watershed Management Programme
TF	Task Force
UNCED	United Nations Conference on Environment and Development
USAID	United States Agency for International Development
VDCs	Village Development Committees
VOs	Village Organizations
WOs	Women's Organizations

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Introduction

The workshop proceedings and the studies and papers presented at the 'Regional Workshop on Participatory Forest Management: Implications for Policy and Human Resources' Development in the Hindu Kush-Himalayas', have been published in six volumes as per the details provided here.

Volume I

- Proceedings of the 'Regional Workshop on Participatory Forest Management: Implications for Policy and Human Resources' Development in the Hindu Kush Himalayas, 7-12 May 1998, Kunming, China.

Volume II

China

- Participatory Forest Management: Implications for Policy and Human Resources' Development in China
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**VOLUME VI
PAKISTAN**

**Participatory Forest Management: Implications for Policy and Human
Resources' Development in Pakistan**

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Part 1

**Participatory Forest Management: Implications
for Policy and Human Resources' Development in
Pakistan**

Rafiq Ahmad

1 Pakistan

Pakistan covers an area of about 887,700 sq. km. The country is bordered by India to the east, Iran to the west, China and Afghanistan to the north and north-west, and the Arabian Sea to the south. Topographically Pakistan can be divided into six regions: the northern mountains; the northern plateau; the western mountains; the Balochistan plateau; the south-eastern desert; and the Indus plain. Politically it is divided into six provinces: Punjab, Sindh, North-West Frontier Province (NWFP), Balochistan, the Northern Areas (NAs), and Azad Jammu and Kashmir (AJK). The major river is the Indus, which rises in Tibet, meanders for 2,500 km towards the north-west, then drops south of the Himalayan mountains to irrigate a vast plain and form an immense delta where it empties into the Arabian Sea.

Pakistan's landscapes are constantly changing and being worn down by erosion, which is a natural geological process. The western Himalayas and their associated mountain ranges are dynamic and in constant motion as a result of the forces of gravity and earthquakes. But now people have superimposed their land use on to these unstable and often fragile mountain landscapes, and increased their susceptibility to rapid natural erosion by rain, ice, and wind.

The cumulative effect of the increasing population pressure in the upper watershed areas, and the resultant exploitative, destructive and unsustainable use of the land, are the main causes of watershed degradation in Pakistan. Erosion is thought to be responsible for as much

as 70 per cent of the sedimentation in streams and rivers. In terms of sediment load carried, the Indus River ranks fifth in the world. Sediment production is estimated at 4.49 tonnes per ha per year. About 14.2 million ha of land in the northern hills, and 6.5 million ha in the Potowar plateau, are subject to severe erosion. In certain areas of the Tarbela watershed, erosion is estimated at two to four kg per sq. m per year, which amounts to 20 to 40 tonnes per ha. A substantial quantity of sediment is being carried downstream and deposited in the reservoirs behind the Tarbela and Mangala dams. At the current rate of sedimentation, it is estimated that these dams will be completely filled by sediment in less than 100 years and will lose their capacity to generate hydropower and supply irrigation water to the plains. The tangible and intangible benefits that could be lost amount to Rs 2.3 billion annually.

1.1 Climate

Pakistan has a continental climate influenced by monsoon rains. The rainfall pattern is erratic. The bulk of the summer precipitation falls in the northern mountain region, which comprises the Himalayan foothills of the NWFP, AJK, and the northern Punjab. This area receives 500 to 1,500 mm or more of rain annually, while the driest area, the southern part of Balochistan, receives less than 50 mm (Kureshi 1997). Temperatures also vary from region to region. Mean monthly temperatures in July range from below 20°C in the north-eastern region, to above 35°C in the country south of the Murree

Hills. The mean monthly temperatures in January lie below 10-15° C, but above 15° C in the southern coastal and southern inland area.

1.2 Population

In 1981, according to the official census, Pakistan had a population of 99.6 million. The present population is estimated at 137 million. Seventy-two per cent of the population live in rural areas. The population growth has been accompanied by a considerable increase in livestock. At present there are an estimated 30 million head of cattle dependent on the forests and rangelands. In the hill areas, which form the watersheds, landholdings are too small to provide sustenance for these animals and incessant grazing and faulty agricultural practices in the vicinity of state forests are common. The winters are cold and long, and trees are cut indiscriminately to keep homes and hearths warm. Population growth and dependence on woody biomass to meet domestic energy needs are major factor affecting the forestry resources of Pakistan. Cutting of trees and other effects of population pressure have contributed to accelerated soil erosion, landslides, and the accretion of silt in the reservoirs of the multi-purpose dams constructed along the rivers Indus and Jhelum.

1.3 Land Use

The Forestry Sector Master Plan for Pakistan (FSMP) of 1992 reports that only five per cent

of the total area of the country is forested. The natural distribution of forests, which mostly consist of conifers, is influenced largely by the monsoon rainfall. Eighty per cent of the forests are naturally distributed in the Himalayan, Karakoram and Hindu Kush mountain ranges. The overall land use statistics for Pakistan are shown in Table 1.

1.4 Forests by Vegetation Type

The total forest area is shown in Table 2 and the distribution of forests by type is shown in Table 3. Forests, scrub, and trees planted on farmlands cover 4.27 million ha or 4.8 per cent of the country. In the Himalayan region (AJK, the NAs, and NWFP) most of this is coniferous forest. Scrub woodland is found in low rainfall areas. Irrigated plantations and riverine forests are classed as highly productive. Mangrove forests grow mostly in the Indus delta. Agricultural lands occupy 20.6 million ha of which 91 per cent are irrigated and nine per cent rainfed.

1.5 Legal Classification of Forests

Forests are managed according to their legal classification and type of tenure, rather than according to species and ecology. The distribution of forests by legal class is shown in Table 3. Forests are categorised as State Owned or Privately Owned and then further divided into different classes. The categories are described in more detail below.

Table 1: Land Use Statistics (in million ha)

Land Use	Punjab	Sindh	NWFP	Balochistan	NAs	AJK	Total
1. Geographical Area	20.63	14	10.17	34.81	7.04	1.33	87.98
2. Forest Area	0.57	0.68	1.41	0.3	0.95	0.36	4.27
3. Uncultivable Area	2.71	6.2	4	11.95	N.A.	0.77	25.63
4. Culturable Waste	1.85	1.6	1.05	4.77	N.A.	0.33	9.6
5. Cultivated Area (5i+5ii)	11.85	5.45	1.88	1.5	6.09	0	26.77
5i. Current Fallow	1.01	2.96	0.49	1	N.A.	N.A.	5.46
5ii. Net Area Sown	10.84	2.49	1.39	0.5	6.09	N.A.	21.31
6. Total Area Reported							0
(2+3+4+5)	16.98	13.93	8.34	18.52	7.04	1.46	66.27

Table 2: Distribution of Forests by Type (in '000 ha)

Forest Type	Punjab	Sindh	NWFP	Balochistan	NAs	AJK	Pakistan
Coniferous	46	-	1105	131	285	361	1928
Scrub	324	10	115	163	658	1	1271
Riverine	54	241	-	5	-	-	300
Mangrove	-	345	-	-	-	-	345
Irrigated plantations	136	82	-	-	2	-	220
Linear plantations	14	-	2	-	-	-	16
Mazri	-	-	24	-	-	-	24
Private Plantations	-	-	159	-	-	-	159
Rangelands	2722	1168	150	787	2104	362	7293
Total	3296	1846	1555	1086	3049	724	10711

Source: Reported by Provincial Forest Departments, 1998.

Table 3: Forest Area by Legal Class (in '000 ha)

Category	Punjab	Sindh	NWFP	Balochistan	Total
State Owned Forests					
Reserved	329	172	94	1087	1682
Protected	646	344	4	-	994
Unclassed	23	-	20	-	43
Municipal/ Cantonment	116	-	92	-	208
Resumed Lands	8	57	35	-	100
Privately Owned Forests					
Guzara Forests	37	-	585	-	622
Chos Act Areas	3	-	-	-	3
Section 38 Areas	6	-	42	-	48
Communal Forests	69	-	809	-	878
TOTAL	1237	573	1681	1087	4578

Source: FPD 1987, PFI 1987

1.5.1 State Owned Forests

State Owned forests are sub-divided into four classes on the basis of the legal protection provided to them: Reserved Forests, Protected Forests, Unclassed Forests, and Resumed Lands.

- **Reserved Forests**—These were designated after the first settlement of ownership and granting of forest user rights in 1872. These forests are generally devoid of rights and concessions, and all acts are prohibited unless permitted specifically by the government through a notification.
- **Protected Forests**—These differ from Reserved Forests in two ways. First, they

have not passed through the lengthy process of admittance or extinction of rights or concessions for local people; and second, all acts are permitted unless prohibited specifically by the government in a notification.

- **Resumed Lands**—These are lands surrendered by big landlords because they were in excess of the ceiling fixed under the Land Reforms Act of 1959. In the Hazara Civil Division (NWFP) and Attock District (Punjab), big landlords retained cultivated lands and surrendered the wooded lands they owned. Under the Pakistan Forest Act of 1927, the Resumed Lands were given the legal status of Protected Forests.

- **Unclassed Forests**—Unclassed Forests are forest lands owned by the government but not notified as Reserved or Protected forests under the Pakistan Forest Act of 1927.

1.5.2 Privately Owned Forests

Privately Owned Forests are divided into five categories: *Guzara* Forests, Communal Forests, Chos Act Areas, Section 38 Areas and Farm Forest Areas.

- **Guzara Forests**—*Guzara* literally means subsistence. When forests were reserved for government ownership and management in Hazara at the time of the first settlement of land ownership in 1872, sizeable patches of wooded lands close to habitations were set aside to meet the bonafide domestic needs of the local communities. Such forests were designated as *Guzara* Forests. Their ownership is vested in local people, either as individual property or as joint (communal) property called 'village *shamilat*'.
 - **Communal Forests**—Communal Forest is *Guzara* Forest. Essentially Communal Forest is owned by the entire village. This type of forest is mostly found in the Rawalpindi Civil Division in Punjab Province.
 - **Chos Act Area**—Privately-owned lands that are subject to erosion hazards and thus endanger vital public installations or structures can be taken over by the government under the Chos Act, 1900. These areas are returned to the original owners after treatment.
 - **Section 38 Areas**—Private owners can offer their lands to Forest Departments for afforestation and management for an agreed period ranging from 10 to 20 years under Section 38 of the Pakistan Forest Act, 1927. Section 38 states that:

"The owner of any land or, if there be more than one owner thereof, the owners of shares therein amounting in the

aggregate to at least two-thirds thereof may, with a view to the formation or conservation of forests thereon, represent in writing to the Collector their desire: that such land be managed on their behalf by the Forest Officer as a Reserved or a Protected Forest on such terms as may be mutually agreed upon; or that all or any of the provisions of this Act be applied to such land."

- **Farm Forest Areas**—Farm Forests are linear or compact plantations of trees on private farmlands. These trees are owned individually or jointly by a family. These forests are found on farmlands in rainfed and irrigated areas.

1.5.3 The De Jure and De Facto Status of Legal Categories of Forest

There is a widening gap between the legal status of forests and the actual practice of forest management in the various categories. This is illustrated in the comparison of the *de jure* and the *de facto* positions in some classes of forest laid out in the Box.

1.6 Sharing of Forest Product Benefits

In the Hindu Kush-Himalayas, the use of forest resources was traditionally based on the needs of the communities. Mountain communities lived in an environment of plenty. Sufficient resources were available to meet their day to day needs, ensure food security, and contribute to the quality of life. Decisions related to access to and distribution of benefits, management of the resource, and responsibilities were deeply rooted in sociocultural mechanisms like the *Jirga* system (Council of Tribal Chiefs). Penetration of external market and related forces remained minimal because of the inaccessible terrain. In recent times, this system has been weakened as a result of societal conflicts.

Box 1

A COMPARISON OF *DE JURE* AND *DE FACTO* POSITIONS IN FOREST ACTIVITIES

DE JURE POSITION

Reserve Forest

Reserved forests are public forests free of all rights except those admitted in the settlement process, which must precede the declaration of an area as Reserved Forests. Such rights are limited. The land on which these forests exist is state land.

Protected Forests

Prohibitions. The protected forests are public forests but are open to all uses by people residing around them, except those which may have been prohibited by special government notifications. Such prohibition usually applies to harvesting of trees, setting fire to the forest, encroachment of forest land, and cultivation in the forest.

The forests are not demarcated and the local people do not allow the process of demarcation and official settlement of rights. This leads to continuous forest encroachment by the people, for agriculture. Illicit felling of trees is common.

Many local communities claim the ownership of protected forests. In most cases, the government has agreed to pay 60-80% of the timber sales to locals as royalty, signifying government acknowledgement of such ownership. The distribution of the proceeds from commercial sale of timber is generally fair but very time consuming. Local people frequently cultivate any large opening, which may be made in the forest canopy as a result of timber harvesting.

There are no arrangements for meeting the domestic needs of the non-right holders. Therefore, they frequently either buy timber issued to the right holders for their domestic needs (which is illegal) or obtain it themselves by illicit means. The right holders complain about low

DE FACTO POSITION

All Reserved Forests are used for unrestricted grazing, except small areas which might have been fenced and/or guarded by special watchers for regenerating trees; there is no involvement of the people living in or around the forest with forests departments. Illicit removal of trees and encroachment of forestland is quite common.

Revenue Sharing. People having customary rights in Protected Forests are entitled to 60% share net sale proceeds of timber in Malakand Civil Division and 80% share in Hazara Civil Division from areas which are harvested according to the forest management plans under the supervision of the Forest Department. The payments are made by the forest department to the revenue authorities that have detailed records of the heads of the communities entitled to the payments and are conversant with the system of distributing the share among the various households.

Domestic Use. Under their rule making powers, the forest departments prescribe a certain quantity of timber to be issued to right holders for their assessed domestic use, but not for sale.

quotas prescribed by the forest department for meeting their domestic needs.

Grazing. People owning cultivated lands in the village with customary rights in a forest can graze their livestock in the forest. People who do not own such land but reside in such villages are also allowed this privilege. People not belonging to such villages must obtain the permission of the right holders before grazing their livestock in the forest.

Guzara Forests

Dry wood may be used without restriction for meeting domestic needs by the owners and right holders, and also by non-right holders residing in the village so long as the owners and right holders do not raise any objections to this practice.

Green trees for domestic purposes may be cut by the owners and right holders with the permission of the Conservator of Forests in accordance with prescribed rules. Non-right holders are not allowed to cut green trees. *Guzara* Forests that are dense enough to be capable of sustaining timber harvesting are harvested in accordance with the prescriptions of their management plans. The owners of these forests are entitled to an 80% share in the sale proceeds and the government retains 20% as departmental charges.

Torch Wood. No person is allowed to lop, debark, or remove torch wood from coniferous trees.

Medicinal Plants. Collection and removal of medicinal plants is prohibited except as authorised sales, 80% of the sales' proceeds going to the owners and 20% to the forest department.

Grazing. Beside owners, right holders as well as resident non-right holders may graze their livestock in the *Guzara* Forests. Non-resident, non-right holders must obtain permission to graze from their owners, on payment of the agreed amount.

Communal Forests

According to local tradition, only the owners of cultivated land have the right to any income that might accrue from sale of timber trees from the adjacent mountains.

All people resident in a village, whether land owners or landless, may graze their livestock and collect firewood from communal forest land belonging to the village. No outsiders are allowed these privileges except with the permission of the village elders, on payment of an agreed sum.

The management and use regulations concerning *Guzara* forests are generally carried out according to the *de jure* position. However, beside *Guzara* owners and right holders, resident non-right holders have traditionally been collecting firewood from *Guzara* forests.

Illicit felling in *Guzara* forest is quite common.

All these practices are common.

The forest department cannot rigorously enforce these legal provisions without undue harassment.

Grazing pressures adversely affect tree regeneration and the hydrological cycle.

Large land owners in the mountains have generally moved to cities or towns, with the result that communal and private forest lands are now being used for grazing and collection of firewood by small land owners and the landless. Yet large landowners, although they no longer reside in the villages, will still consider communal forest land as their property. This introduces a major complication in the advance of social forestry: the communities residing in the mountains have little incentive plant and/or manage timber trees because on maturity they may be claimed by the non-resident large land owners.

The rights in forests are recorded in the 'Wajib-ul-Arz' (a revenue document prepared for each village at the time of land settlement). The book of rights is maintained by the *Tehsildar* (Revenue Official). Concessions or rights in a forest are guided by the over-riding principle that all acts are prohibited in a 'Reserved Forest' unless specifically permitted and all acts are permitted in all other types of forest unless specifically prohibited. The general list of rights and concessions is as follows.

- Shares in royalties (from *Guzara* forests in Hazara)
- Trees for construction of houses, household furniture, and agricultural implements in Hazara, Malakand, Rawalpindi, Murree Hills, Azad Kashmir, and the Northern Areas
- Timber at concessional rates in Malakand, Azad Kashmir, and the Northern Areas
- Grazing of domestic animals either free or on payment of a nominal fee (full rights)
- Collection of grass (full rights)
- Rights of way
- Cutting of dry trees and collection of such things as fuelwood, cones, and pine needles.

1.6.1 Rights in Forests

The legal status of forests and the rights and concessions enjoyed by the local people are spelled out in the Forest Working Plans. Some of the rights and concessions recorded in some typical Forest Working Plans covering three different categories of forests are summarised below as an example.

Government Reserved Forests

- **Cantonment Forests in the Murree Hills (1971-72)**—In 1885, when the first revenue settlement was completed, the residents of Birgran village were given unlimited rights to graze their cattle in Gharial forests without payment. Taking one cow equal to two sheep and one buffalo equal to four sheep, the incidence of grazing over an area of 313 acres comes

to the equivalent of 45 sheep per acre, much heavier than the calculated carrying capacity.

- **Scrub Forests in Rawalpindi District (1966-67 to 1975-76)**—The Reserved Forests in Murree *Tehsil* are open to free grazing of kine, horses, and donkeys. The Divisional Forest Officer may, however, close 1/4th of the area at a time for regeneration. This concession was granted to ensure the cooperation of local people in preventing incendiary fires.
- **Murree Kahuta Forests of Rawalpindi District (1965-66 to 1984-85)**—According to a Government Notification, all Reserved Forests shall be open to free grazing of kine, mules, horses, and donkeys, except such forests as the Divisional Forest Officer may consider necessary to close for the purposes of regeneration. The area of the forest closed at any one time shall not exceed 1/4th of the total area of the Reserved Forest.
- **Keran and Sharda Forests of AJK (1974-1983)**—No rights are recognised in the demarcated forests, but Zamindars (land owners) residing within three miles of these forests have been granted liberal concessions. The rules regulating the grant of these concessions are fully defined in the Kashmir Forest Notice. The concessions are revocable, however, at the pleasure of the Government. They are primarily for the *bona fide* domestic and agricultural use of Zamindars (landlords) and cannot be sold, bartered or exchanged. All villagers in the presently constituted Keran and Sharda Forest Divisions are entitled to these concessions. The more important features of the concessions that influence the forest management are described below.
 - Trees, except deodar, are granted for construction of buildings and agricultural implements on payment of a very nominal fee. Zamindars residing within three miles of demarcated forests get timber at 1/6th of the Zamindari rates, and those living beyond this limit at full Zamindari

rates. The concession is further reduced to half of these rates in the Keran Forest Division subject to a maximum of Rs10 and Rs five per tree of kail and fir respectively of any size, and to Rs five and 2.5 in the Sharda Division.

- The concessionaires are also entitled to remove from forests, free of any charge, natural fallen dead trees or timber – including broad-leaved trees of any size. Deodar poles 3' in girth at the base, or naturally broken pieces of it under 3' in length and of any girth, can also be removed.
- The concessionaires are granted kail and fir trees free of cost for their houses in the case of natural calamities such as fire, avalanches, earthquakes, and floods. Timber, including that of deodar, is also granted free of cost for the construction of mosques, primary, and middle school buildings.
- The concessionaires may also use broad-leaved trees, other than special classes of trees as defined in the Forest Kashmir Notice, free of charge for their *bona fide* use and for agricultural implements.
- Grazing and grass cutting in all forests are free of charge. The grazing tax levied earlier on grazers was abolished by the Azad Government of the State of Jammu and Kashmir soon after its inception through Government Order No.84/1949. The grazing tax was suspended as a temporary measure in order to afford relief to the refugee graziers from Jammu Province.

Private (Guzara) Forests

- **Guzara Forests of Haripur Forest Division (1984-85 to 1993-9)**– According to the Hazara Forest Act 1936, and rules made thereunder, and subject to the rights and powers of the government in respect of seignorage and forest conservancy as defined under the relevant act, all wastelands are the property of

individuals or are held jointly by the community. Such owners are entitled to a free grant of trees for their *bona fide* needs. The owners have full rights for the grazing of domestic animals, grass cutting, and collection of dry wood for fuel. The right to timber for domestic use is subject to prior sanction by the District Forest Office (DFO) and is restricted to the actual requirement not exceeding the limit laid down in the *Wajib-ul-Arz*. The owners recorded in *Wajib-ul-Arz* are entitled to the proceeds of any sale, less 20 per cent departmental charges and any seignorage fee leviable under the Hazara Forest Act, 1936.

Private (Communal) Forests

- **Khandia-Uthor Forests of Kohistan Forest Division (1985-86 to 1999-2000)**– Since the rights in private (communal) forests have not been settled administratively, the extent of lawful rights and concessions enjoyed by the local people have not been properly defined. However, the rights practised by local people at present are substantial. Some examples are listed below.
 - Right-holders are allowed unrestricted grazing of domestic livestock, grass cutting, and lopping of trees for fodder, free of charge.
 - Villagers can obtain construction timber and firewood for domestic purposes from all kinds of trees.
 - Right-holders may collect a fee (*kalang*) from nomadic grazers for grazing cattle, sheep, and goats in alpine pastures. The government does not share this fee.
 - Villagers can hunt wild animals and birds without regard to restrictions on species, sex, size, or breeding period.
 - Villagers can fish using nets and dynamite.
 - Villagers can cut trees, burn stumps and use logs along field boundaries to prepare land for cultivation of agricultural crops.

1.7 Land Tenure

1.7.1 Agricultural Tenure

The land tenure system in Pakistan is complicated. It has been identified as one of the major causes of low productivity in agriculture; the gradual disappearance of trees from wastelands (both unclassified government lands and common village wood lots); and the degradation of pastures resulting from unregulated grazing. It is deep-rooted in history, tradition, and laws.

According to the Muslim Family Laws, sons and daughters inherit property in a ratio of 2:1 and divide it physically. This process continues until the holding becomes uneconomical or the owner loses interest in the land. The process of fragmentation of landholdings was accelerated as a result of the land reforms introduced in 1959. The 1959 Act prescribed a maximum ceiling of 500 acres of individual ownership of irrigated and 1,000 acres of unirrigated land. This resulted in the resumption of about a million hectares of land, for which tenants were given first choice of purchase. However, the 1959 Act could not be enforced effectively, partly, perhaps, as a result of the provisions of the Muslim Family Laws, and agricultural land was further fragmented.

Another wave of land reforms was initiated in 1971. The ceiling on landholdings was reduced by 70 per cent to a maximum ownership of 150 acres of irrigated or 300 acres of unirrigated land, or an area equivalent to 12,000 Produce Index Units (PIU), whichever was greater. The owner of a tubewell or tractor was allowed an additional 2000 PIUs. In addition, the reforms provided extra security to tenants, prohibited arbitrary eviction of tenants, defined cost and crop sharing relations between landowners and tenants, and laid down a policy for the distribution of resumed lands (January 1993).

1.7.2 Forest Tenure

None of the forest policies, except the draft Forestry Sector Policy 1998, recommends institutionalising land-use planning, not even

in the hilly terrain where it is most needed. Privately-owned forests held in proprietorship by individual families or communities have to contend with the requirements of non-right holders. Lack of clearly defined property rights inhibits these groups, which may include tenants, landless people, and nomads, from investing in the forests. In such cases, common properties become open access regimes. Even forestry projects that considered this factor did not provide incentives to these groups. Many crop areas are share cropped by tenants, and their interest in planting trees is low as a result of the uncertainty of tenure over the trees and the long gestation period of tree plantations.

In the NWFP and the NAs, communities and individuals own *Guzara* Forests. The rights in these forests are defined locally as property rights. All the villagers are stakeholders in the *Guzara* forests. Revenue from timber sales is split, with 80 per cent going to the community and 20 per cent to the government. If a forest contractor tries to purchase forest royalties, he (they are always men) encounters the difficult task of getting all the stakeholders to agree to his proposal.

An interesting feature of the land tenure prevalent among Pashtuns in the northern high hills of Pakistan is the system of periodic land rotation (*re-allotment*) known as *wesh*. According to *wesh*, which means division, lineage segments have shares in alpine pastures and forest, and occasionally also in agricultural land. After a specified interval, the lineages shift land between themselves, thus segment A takes control of land formerly used by segment B, and segment B in turn takes control of land formerly used by C, and so on.

Continuity of joint ownership has served to protect the forests in these areas because logging cannot proceed unless the ownership and distribution of royalties have been resolved. In the lower reaches of the Palas Valley, temporary user rights are gradually being replaced by private property rights. Despite a continuation of disputes between sub-tribes over the distribution of royalties, privatisation and road construction have

opened the area for commercial harvests of forests.

In Swat in Malakand Division, all the private forests were declared as government property and in 1974 as Protected Forests. A year later, they were re-classified as Reserved Forests, which is the strictest tenure class under the Pakistan Forest Act, 1927. People reacted violently, and this forced the government to concede that, although the classification of the forests as Reserved Forests would remain, they would be managed as Protected Forests, and 60 per cent forest royalties would be paid to the local concessionaires.

Under the Kalam Integrated Development Project (KIDP) being implemented in Swat, efforts were started to modernise local agriculture by introducing potato cultivation. When the Federal Government first placed a three-year moratorium on logging operations in 1993, and subsequently extended it for another three years, the project activities under KIDP did not suffer. One problem that the KIDP could not solve is that of forest regeneration. High grazing pressure in these forests hinders natural regeneration. The entitlement of local communities to collect

fuelwood free of charge contributes to increased tree cutting and depletion of the forests. The potential for cultivation of potato and other cash crops has also paved the way for encroachment of forest areas after logging, and the local communities do not allow forest areas to regenerate.

1.7.3 Grazing Tenure

Grazing is an important tenure practised in alpine pastures and forest areas in the mountain region. Policies that provided incentives to commercial dairy industries led to an increased demand for fodder production. The impacts of such policies have not reached the remote mountain areas where livestock herding is carried out in the traditional way. In the absence of grazing associations, unregulated grazing is practised in range watersheds. Transhumant herds of Afghan refugees have further accentuated the problem. With the increase in livestock population, grazing pressure on alpine pastures and forest areas in uplands has continued with ominous consequences for soil erosion, leading to heavy siltation of water reservoirs and reduced capacity of water conveyance systems in downstream areas.

2 The Himalayan- Karakoram-Hindu Kush Region

2.1 Natural Resources

Northern Pakistan, including the Himalayas, the Karakoram, and the Hindu Kush (HKH), presents a unique and formidable arrangement of mountain ecosystems. This region provides the basis for the country's life support systems like the water cycle, climate, air quality, consumption of natural resources, and watershed characteristics. As a result of various factors, the natural resources in the HKH that have been in use for millennia are no longer being sustained. The human population in these mountain ranges is fragmented and has increased greatly during this century, which has resulted in tremendous pressure on the natural resources. It has only recently been realised that appropriate and sustainable management of these natural resources will only be possible if the communities associated with the resources participate actively in their management.

2.2 Soil

Soils are generally gravelly with a coarse to moderately coarse structure, with a good humus content with one to two per cent organic matter, and more dense in cooler and wetter places. Isolated alluvial soils are found in long narrow strips along rivers. The soils in piedmont deposits are shallow to moderately deep (20-70 cm) with 0.9 per cent organic matter and a low water-retaining capacity. Moraine deposits contain unsorted material of all sizes, and the soil is moderately deep (50-120 cm) with a moderate water-retaining capacity. Depending on the thickness of the soil, these areas can be

managed as pastures, fruit orchards, or forests. Soil erosion is widespread because of improper land use, little vegetative cover, and increased surface runoff.

2.3 Water

Pakistan receives 468 billion cu. m. of available fresh water annually. Much of this is being consumed by the growing population in downstream areas. Water consumption was 50 billion cu. m. in 1960, 118.1 billion cu. m. in 1990, and is projected to rise to 259.6 billion cu. m by 2025. The prospects of finding new sources of water in the region are negligible, and strategies need to be developed for improved efficiency and water conservation.

2.4 Forests and Forestry

The status of forests is closely linked to socioeconomic factors and other land uses. The Pakistan Himalayas contain a mix of wooded and wood deficit areas. Forests decrease from east to west and from lower to higher altitudes. About 25 per cent of the area in the active monsoon region has natural forest cover and another 25 per cent that is currently being used as grazing land is suitable for tree culture (Ahmad 1995). The HKH region of Pakistan has a dense population with a high rate of unemployment. These people are dependent on the scarce land resources and this has led to over-use of the forests. The mountain forests offer many intangible benefits in addition to the more obvious ones, and their contribution to food security, livestock production,

hydropower generation, and maintenance of environmental quality is often grossly underestimated. The role played by the forests in soil conservation, employment, regulated flow of water for downstream agricultural productivity, outdoor recreation, and maintenance of ecological balance far exceeds the direct economic benefits realised from the sale of timber and other wood products.

In the NWFP and AJK, forests are harvested by public sector corporations (the Forest Development Corporation in NWFP and the Azad Kashmir Logging & Saw Milling Corporation [AKLSMC] in AJK). The operations of these corporations are slow, inefficient, and wasteful. A total of 38.1 million cu. ft. of timber was obtained from the HKH forests in 1994-95: 10.8 million cu. ft. from Hazara; 9.1 million cu. ft. from Malakand; 6.1 million cu. ft. from AJK; 4.2 million cu. ft. from the Northern Areas; and 0.7 million cu. ft. from the Murree Hills.

In the dry areas of the mountains, forest resources are limited and usually far removed from human settlements, indicating high pressures in the past. There is an acute shortage of wood and leaves for fuelwood, shelter, and animal fodder. Pressure on natural forests, pastures, and other natural resources are threatening the fragile geo-physical environment and biodiversity of the region. The forests are being depleted because of complex social, economic, and administrative factors (Ahmad 1995).

2.5 Rangelands

There are three types of rangelands in the HKH eco-system: alpine pastures; trans-HKH grazing lands; and forest grazing lands.

In this region, pastoralism is an important land use and economic pursuit. Most of the rangelands are common village or tribal property and are not subject to regulated grazing. Coupled with nomadic grazing, the alpine pastures and other grazing grounds have been ruthlessly exploited. As a result of constant slippage of glaciers, soil erosion, mud creeps,

movement of boulders, compaction of soil, and trampling of seedlings, the land in the Hindu Kush mountains is losing its regenerative capacity. The transhumant herders, despite being major beneficiaries, make no effort to improve the depleting rangelands.

The estimated forage production in the mountain rangelands is summarised below (Muhammad 1989).

<u>Area</u>	<u>Dry Matter kg/ha</u>
Hazara (meadows)	1240
Hazara (shrub meadows)	2660
Kagan Valley	700
Khunjerab National Park	370
Bar valley	585
Gilgit	500 to 700
Siran, Kaghan, Neelum, Jhelum	200 to 3000

2.6 Wildlife and Biodiversity

To the east of the Indus, the Himalayas support 113 mammalian species, belonging to 92 genera, 24 families, and nine orders, as against Pakistan's total of 174 species. Among the birds, 525 species belonging to 242 genera, 76 families, and 22 orders are found in the Himalayas compared to Pakistan's total of 668 species. Fifteen of the 21 amphibian species reported in Pakistan, were found in the Himalayan region; as were 90 of 177 native fresh water fish species, 29 of which are endemic to the area (M. R. Mirza, personal communication).

The Himalayas include elements of four phyto-geographic regions: the Sino-Himalayan, Indian, Euro-Siberian, and Mediterranean regions. Four monotypic genera and around 400 species (7.8%) are endemic to Pakistan. Most of the endemic species are found in the Sino-Himalayan region. Almost 80 per cent of Pakistan's endemic flowering plants are confined to the Himalayas. The Kashmir Himalayas in particular have been identified as a global centre of plant diversity and endemism.

Families with more than 20 recorded endemic species include Papilionaceae (57 spp), Compositae (49 spp), Umbelliferae (34 spp), Poaceae (32 spp), and Brassicaceae (27 spp). New endemic species are still being discovered (R. Rafiq, personal communication).

Most of the areas in the Pakistan Himalayas remain unexplored, and the full range of biodiversity has yet to be studied. Flora are incomplete; and the distribution of mammals and bird species can only be inferred from extrapolations of distribution range and preferred habitats. Two main gaps were identified in the Biodiversity Assessment and Gap Analysis of the Himalayas, the first in the coverage of protected areas and the second in knowledge. The protected area coverage in the mountain ecosystem is poor, and, even within the protected areas, management is inadequate or poor.

2.7 Agriculture

The Pakistan Himalayan-Karakoram-Hindu Kush region can be divided into five agro-ecological zones.

- The **Barani** (rainfed) zone comprises the outer Himalayas or Murree Hills, and the foothills in Haripur, Attock and the adjoining areas. The main land use is rainfed agriculture with crops of wheat, millet, rice, maize, oilseeds, pulses, and fodder.
- The **Wet Mountain** zone includes the Murree (Punjab), Hazara, and Mansehra Districts (NWFP) and adjoining areas of AJK. About 25 per cent of the area is under rainfed agriculture and the remaining under different types of forest. The main crops cultivated are maize, wheat, rice, and fruit. Various species of conifers are found depending on the altitude.
- The **Northern Dry Mountain** zone encompasses the whole of Chitral, Dir, Swat, and the Tribal Areas of NWFP. Land use is mainly pastoral. Maize and wheat are cultivated under rainfed conditions on the lower slopes and in the valleys. Rice and fruit orchards are cultivated along the streambeds.

- The **Northern Moist Mountains** in AJK are similar to the Wet Mountains but agro-pastoralism dominates.
- The **Snow-Capped Mountains** support wildlife and livestock grazing on the lower fringes when snow recedes during the summer.

In the upland region, average landholdings are as small as 2.5 ha per family. Draught power is used for tillage. Cultivation is carried out on terraced fields with wheat in the winter and maize, millet, potatoes, and vegetables in the summer. Apple, walnut, apricot, peach, plum, and mulberry trees are planted along the borders of fields and in home gardens. Soil is fertilized with farmyard manure. Chemical fertilizers are used when they are easily available and farmers can afford them. Most of the farmlands in the region are irrigated by a network of channels run on gravity flow.

2.8 History of Forest Management

In the HKH mountain range, the climax species of the natural plant succession is oak and other broad-leaved species, with conifers as pre-climax. As a result of the sparse mountain population and lack of road network, these forests were not managed on scientific lines. In the absence of land settlements or demarcation of forests, the local population enjoyed the privilege of cutting down trees for timber and household fuel. The main economy in the mountain area revolved around keeping large herds of sheep, goats, and cattle. Transhumant movement of herds is still a common phenomenon with the change in seasons. At the start of winter and spring, forests and meadows along migration routes were, and are, open for nomadic grazers, as well as local communities to graze cattle. To increase fodder production, people set the forest and grazing grounds on fire. This has resulted in loss of regeneration of fire-sensitive climax species, which were replaced by fire-hardy conifer species as post-climax.

The post-climax conifer trees established themselves as forest stands of *Pinus roxburghii* (800 to 1,500 m), *Pinus wallichiana* (1,500 to

2,500 m), *Cedrus deodara* (2,500 to 2,700 m), *Abies pindrow* and *Picea morinda*, (2,700 to 3,200 m), and *Juniperus macropoda* in alpine meadows (3,200 to 3,400 m). There was no traditional silvicultural system for regeneration, but as a result of their gregarious nature and profuse seeding the conifer trees regenerated themselves.

At altitudes below 800m, the forests are mostly scrub forests of *Acacia modesta*, *Olea cuspidata*, and *Dodonaea viscosa*. These forests have been used traditionally by local villagers for livestock grazing and cutting of trees for fuelwood and small timber.

In ancient times, the local communities lived in harmony with rich forests in both the plains and the mountain areas. After the Aryan invasion, much of the land was cleared of forests for agriculture and the natives took refuge in the inaccessible hill areas. A low population and subsistence economy exerted minimal pressure on the mountain forests. The Mughals introduced a land settlement arrangement to guarantee a regular system of revenues based on taxation. Vast tracts of land were given as *jagir* to the village notables so that they would support the monarchy, maintain law and order, and collect revenue. The local fiefdoms enjoyed the privilege of owning large areas of forest from which they earned income from the sale of forest trees and by allowing grazing. But they did not follow any system of management for improvement and regeneration. There is little documented evidence of the impact of land settlement on the forests. Anecdotal evidence suggests that the Mughals had a strong interest in hunting, which meant preservation of natural game sanctuaries.

After 1850, when the British came to rule this part of the country, the forests were cut ruthlessly to earn revenue, provide support for the naval industry, and to bear the cost of the local administration. The forests were looked after by the deputy commissioners and revenue collectors of the districts. The Deputy Commissioner in Rawalpindi promulgated rules for conserving trees and brushwood in 1856.

Similarly, the Deputy Commissioner in Hazara promulgated rules for forest conservation in 1857, and at this time all forests were declared the property of the government. Looking at the plight of the forests and the pace of degradation, many groups voiced a great concern. As a result, the First Inspector General of Forests, India, was appointed in 1873 and the Indian Forest Service was established. To control logging, the first forest legislation was promulgated in 1878. The Indian Forest Act 1878 brought the major part of the forests under government control and limited rights were given to local people. This resulted in resentment. The villagers were granted more control in 1923, and a new Forest Act was promulgated in 1927.

Guzara forests remained under the control of the district administration. *Guzara* Rules for Rawalpindi and Hazara Districts were enacted in the latter part of the nineteenth century to regulate their management. According to the *Guzara* Rules, the revenue earned from resin collection from *Pinus roxburghii* and tree harvests is apportioned in percentages: 12.5 per cent to the Village *Guzara* Fund, 12.5 per cent to the Government Treasury, and the remaining 75 per cent distributed among the rightholders. According to the Book of Rights maintained by the Revenue Department, a rightholder in these forests is entitled to receive *three pine trees* for construction or repair of his house and one pine tree at the time of burial of a family member, to cut dry trees for fuelwood, and to have open access to free grazing. Despite population pressure, communal forests, village *guzara*, and *shamilat* have been catering successfully to the needs of local communities without any measures to give a rest to the areas. Hardly any programmes were developed in the past to rehabilitate these forests.

2.8.1 Traditional/Indigenous Forest Management Approaches

Oak Forest Management

Oak forests in the Dir, Swat, and Chitral districts are traditionally managed by local inhabitants for use as fodder and fuelwood and are kept

open for free grazing throughout the year. When there is snow, livestock, and especially cows, are stall-fed. In summer, cutting oak trees is totally banned (*Naga*). In winter, villagers regulate the cutting of wood and branches of oak trees by dividing the forest into blocks. However, individual livestock owners, irrespective of the ownership rights in these forests, are allowed to cut the branches they need for cattle fodder, and the remains (twigs) are used as firewood. Surplus twigs are sold as firewood by individuals within the confines of their villages. The surplus oak fodder areas are leased out for cash or kind to the nomadic grazers who migrate from the alpine pastures, a form of *Qalang*.

Shrub Forest Management

Various varieties of shrubs like *Dodonaea viscosa* and *Indigofera* spp are found throughout the Malakand Division and managed by different indigenous systems. In some villages, communities impose a ban (*Naga*) on the cutting of shrubs from hill sides for a specific period, normally three to four years, to provide a rest and allow rehabilitation of the degraded area. A certain area is kept open for cutting shrubs to meet urgent needs. A system of fines is commonly used to regulate the *Naga*. Villagers also hire the services of a person called a *Kahay* who is paid in cash or kind to ensure implementation of the *Naga* in a specified area. The period and area of *Naga*, the portion of the forest opened for shrub cutting, and the penalty for violations, are determined by the village *Jirga* (Council of Elders). Every villager, irrespective of the ownership, can cut shrubs from the permitted areas to satisfy his or her *bona fide* domestic needs, but sale outside the village is not allowed. In some villages, the individuals who cut shrubs are required to pay a nominal charge per head-load to the community to finance village welfare activities.

Traditional Grazing Management Practices in Malakand Division

There are two types of pastures in Malakand Division that are managed traditionally for grazing and grass collection: alpine pastures and lower hillsides.

Alpine pastures are found above the tree line along the hill slopes in the upper reaches of Dir, Swat, Chitral, and the Northern Areas. These areas are normally covered with snow from November to April. At the beginning of spring and summer, after the snow melts, grass comes up naturally and the areas are used as grazing grounds by the village communities and nomadic grazers. Each owner grazes his/her livestock in an area defined by traditional ownership or use rights. A month before snowfall starts, the people move back to the villages in the lower valleys. Sometimes the cattle are left unattended during the summer, and only herded together at the end of the grazing season. Occasionally, individually owned pastures are leased out to nomadic grazers (*Bakarwals*) who migrate during summer to the hilltops and pay the owners in cash or kind (called '*Qalang*').

The areas in the lower hillsides or foothills are used for grass cutting and grazing by the local communities. Restrictions called *naga*. are imposed on grass cutting in the foothills during the summer and monsoon season after the cattle have been moved to the high pastures. When the cattle start descending from the higher elevations, the owners of the areas lift the restrictions to allow grazing. Hay is harvested and stored to stall-feed the cattle during winter. After the hay harvest, the area is opened for grazing until the winter ends. The surplus grass is sold within and outside the villages.

2.8.2 Water Utilisation and Distribution System

In the high hills, there are two main types of water use.

- **Irrigation**—In villages where water is available from springs, rivers, or small streams, the communities jointly construct and maintain canals and water channels for irrigation. In general, construction materials like sand, mud, and stones, and if necessary land, are provided free of charge by the users and then held as common property. Water distribution is determined by the amount of

potentially irrigated land owned, and the amount is calculated in terms of the number of hours and days.

- **Water Mills**—When it is feasible, communities sometimes construct water mills as common property, with the land and construction materials being provided free of cost by the users. All the villagers can use the mill to grind grain, for a nominal charge (usually 1/10th of the grain) used to meet the maintenance cost of the mill, the salary of the mill operator, and community work.

2.9 The Role of Forests in the Livelihood Strategies of Mountain People

Historically, 400 to 500 years ago, the lower slopes in the mountain watersheds were heavily forested. In the last hundred years or so, tree cutting for such things as railway sleepers, mining struts, fuelwood, and construction material has accelerated the process of degradation.

Most of the upland watershed areas (moist temperate zone) are densely populated with both people and livestock. The average landholdings for a family of five to seven members is far below the subsistence level of five ha and poverty is widespread. The need for land is great, with the result that food crops are cultivated on steep slopes, and clearance of communal and private *Guzara* forests and encroachment of state forests are on the increase. Cutting trees from natural forests for fuelwood and timber is growing at the same rate as the population, 2.7 per cent per year. Improper land use practices are the major factors contributing to soil erosion in watershed areas.

More than 300,00 people in the mountain areas are directly involved in forestry operations like sowing, planting, harvesting, transporting, and marketing of timber. Women are directly involved in the collection of fuelwood, grazing of livestock, grass cutting, and the collection of wild mushrooms, fruit, and nuts. The harvest from commercial forest is an important source

of revenue for the state. According to the agreement with the forest-dependent communities, the Provincial Forest Department of NWFP pays a fixed percentage of timber sale proceeds as a royalty, 80 per cent in Dir and Chitral, and 60 per cent in Swat. The royalties are distributed equally among the male members, including children. Sometimes people agitate vociferously when there is a bureaucratic delay in the payment of royalties - a situation exploited by profit motivated forest contractors. As a result of the strong link between politicians and forest contractors, unscrupulous elements indulge in illegal trafficking of timber, sometimes even taking timber to Afghanistan to re-import to Pakistan. The tie between politicians and contractors is known as the 'Timber Mafia'.

Each household keeps livestock, mostly sheep and goats, which graze in forests and community grazing grounds. These meet the family's needs for dairy products and meat and any surplus is sold in the peri-urban areas. For centuries, nomads (Gujars from the NAs and AJK and Koochies from Afghanistan) have migrated annually from the highlands to the lowlands and back with flocks of sheep and goats that graze on alpine meadows and grazing areas of state, *Guzara*, and private forests. The raising of sheep and goats and selling and trading of animal products, forms the basis of a strong and well-established pastoral economy. The nomads pay a fee to the owners of forests and/or villagers in cash or kind for permission to graze their livestock.

2.10 Indigenous Management Institutions

The local decision-making institutions are usually composed of selected, respected members of the community. Some of the more common ones are described briefly in the following sections. The institutions play a significant role in settling conflicts and disputes. The aggrieved parties or person may ask for a meeting of the institution, at which members will consider the dispute. Once a decision has been taken by consensus, the conflicting parties are morally bound to settle the dispute. If any

of the parties does not agree with the decision, they may request an appellate body to be set up, which may include members from diverse localities and/or tribes, to consider the different views and give a final verdict. Besides resolving local conflicts, these institutions may take up any issue of prime importance that directly or indirectly affects the community as a whole, for example a tree planting campaign, regulation of grazing, distribution of water, or construction of a village mosque, school or roads.

The different types of indigenous institutions are described below.

2.10.1 Bradari

The *Bradari* system is mostly found in rural areas of Punjab Province and a few of the hilly areas of NWFP where there are small hamlets belonging to a clan with a single genealogical origin, for example Gujar, Arian, Jat, and Mughal. It is one of the simplest forms of institution.

2.10.2 Jirga

The *Jirga* system is practised in the tribal areas of NWFP and Balochistan provinces. The area of influence of the institution can extend from as little as one tribe to the whole of the province. Geographical origin is the only factor defining membership of a tribe in a *Jirga*.

Traditionally, the Pukhtoon tribes in Malakand Division, i.e., the Yousafzai, Tarkalani, and Utman Khail, settled in their own areas. These tribes are further divided into sub tribes and *khan*, each settled in a separate village with a specified village boundary. The village area is divided into *tall* on the basis of land quality. The hillsides and plains are further divided on an individual family basis for cultivation of agricultural crops. The concept of the tribe, sub tribe, *khail*, and family defines the land settlement, i.e., *tall* pieces of land belong to a

specific kinship or *khail*. These are the units that define the socioeconomic life of the individual members of Pukhtoon society. Interaction is regulated by the Pukhtoon code of life (unwritten constitution) and implemented by the head of the family, the family *mashak* or elder. Disputes within a *khail* are settled by the *Khail Masharan* (elders), those within a village by the *Kali Masharan* (village elders), and those within an area by the *Ilaqa Masharan* (elders) of the area.

The meeting of the *Masharan* or elders is called a *Jirga* (Elders Council). The *Jirga* is important for decision making and regulating the socioeconomic affairs of Pukhtoons. The joint family system determines the socioeconomic role to be played by specific family members to maintain the power and economic well-being of the family. Benefits are shared equally by all family members. The family head, usually the father or elder brother, or mother in absence of the father, ensures balance and equality among the family members irrespective of sex and actual contribution. Any disputes are resolved with equity and justice by the head of the family in consultation with other family members.

2.10.3 Parya

The *Parya* system is found in rural areas of the Punjab and AJK. Its scope is limited to a village or cluster of villages. A *Parya* is formed at the instigation of, and by the mutual consent of, the aggrieved parties. A *Parya* from one village may act as an arbiter in another village, if a particular village community so requests.

2.10.4 Panchayat

A *Panchayat* is a semi-official institution mostly found in the province of Punjab. It consists of elected members of local bodies and/or union councils. This institution may conduct summary trials and give verdicts that receive due weight even in courts of law. A *Panchayat* may take up more than one issue at a time.

3 Forest Policy and Legislation

The management of forests in Pakistan started in 1850 with the consolidation of the British Empire in the Indian sub-continent. The management was initially based on exploitation of timber, and forests were cut to supply conifer and oak timber to meet the requirements of the British naval industry. This depleted the existing forests and was criticised by various groups. As a result, the Forest Department was established in 1874 and the *first* Forest Act the Indian Chapter says the first Forest Act was in 1865 was enacted in 1878. The first Forest Policy was prepared in 1894 to guide forest management, and the resultant Indian Forest Act was enacted in 1927. After 1947, additional forest policies were announced.

Most of the forest policies in Pakistan were formulated during the forty-seven years between 1954 and 1991. They are primarily scientific, and have tended to view local people, with their uninterrupted user rights, as the prime threat to natural forests. Timber is a precious commodity in Pakistan. The prices of timber are currently twice the world average, as a result both of scarcity in the domestic supply and high import duties. There is a powerful local group, known as the 'Timber Mafia', involved in the timber industry. Despite various short-term measures and policy recommendations to minimise the negative impact of this powerful elite, they continue to be active players in logging and other commercial activities.

The main steps in policy and legislation related to forestry are shown in Table 4.

3.1 Development of Policy

The first Forest Policy in the Indian Subcontinent was formulated in 1894 and was the outcome of the normative-autocratic approach of the British administrators and foresters. This policy was still pursued even after independence (1947). Successive governments in Pakistan have issued policy statements and directives concerning the Forestry Sector from time to time, and various committees have been set up, conferences held, and reports prepared. The major events are listed below. The main steps in the development of government policy, and the principles of the present policy, are described in more detail in the following sections.

- National Forestry Conference, 1948
- Wildlife Enquiry Committee, 1969-1971
- National Forestry Committee, 1972
- National Range Management Committee, 1973
- Inter-Provincial Forestry Conference, 1974
- Agriculture Enquiry Committee, 1975
- Committee on Forest Preservation and Development, 1976
- National Commission on Agriculture, 1988
- International Seminar on Forest Policy, 1989
- Directive of the Prime Minister of October, 1992
- Directive of the Prime Minister of April 30, 1997

The deliberations of the above-mentioned national fora and directive(s) resulted in formulation of the following forest policies.

Table 4: Historical Timeline of Policy and Legislation for Forest Management

Year	Name of Policy/ Act/ Rules	Remarks
1878	Indian Forest Act, 1878	The first legislation on the management of forests in the sub-continent
1894	Indian Forest Policy	Intended to assure the local communities of the continuation of their right to use forests with minimal restrictions. It aimed to manage state forests for sustained yield.
1927	Forest Act, 1927	Replaced the Indian Forest Act, 1878. The word 'Indian' was omitted by the Government of Pakistan in 1949. The Act was promulgated to assist in carrying out the objectives of the Forest Policy of 1894.
1936	Hazara Forest Act, 1936	Replaced the Hazara Forest Regulations of 1911 (repealing Regulations No. II of 1879 and VI of 1893) and applies to Hazara District. Amended in 1974 to control encroachment of forest land. Section 53 of the Act was amended in 1986 to allow lease of wastelands for management by multipurpose co-operative societies registered under the Cooperative Societies Act, 1925.
1953	Mazri Control Act, 1953	Regulates the protection and propagation of <i>Nannorrhops ritchieana</i> in Kohat District (NWFP)
1956	National Forest Policy, 1956	Aimed to increase the forest area by reserving 10% of the area in the new canal colonisation
1962	Forest Policy Directive, 1962	Recommended the acquisition of peoples' rights to grazing and removal of forest trees, shifting of population from watershed areas, and making farm forestry the concern of Agriculture Departments
1964	Forest Act, 1964	An amendment to the Forest Act of 1927 applicable to all provinces except Hazara District in NWFP and the Tribal Areas. The amendment strengthens the provisions of the Forest Act for clearing encroachment of land in Reserved and Protected Forests.
1975	Cutting of Trees (Prohibition) Act, 1975, repealed 1991	Prohibited cutting of trees within 8 km of the international border without special permission
1964	West Pakistan Firewood and Charcoal Act, 1964	Prohibits burning of firewood and charcoal in factories, brick kilns, lime kilns, etc
1975	The Punjab Plantation Maintenance of Trees Act, 1974	Provides maintenance support for 3 trees planted on farmlands
1980	National Policy on Forest Wildlife, 1980	Short lists a number of measures to develop and manage forest and wildlife resources through public participation
1980	Forest Development Corporation NWFP Act 1977, and Forest Development Corporation Ordinance 1980	Regulate forest exploitation
1991	National Forest Policy, 1991	Aims to double the forest area in 15 years and conserve and manage the existing forest, watershed, range, and wildlife resources on a sustainable basis
1998	Draft Forestry Sector Policy	Based on an ecosystem approach at present under consideration by the Federal Government.

- Forest Policy, 1956
- Policy Directive of 1962
- Policy on Forestry and Wildlife (as a part of the National Agriculture Policy) 1980
- National Forest, Watershed, Rangeland and Wildlife Policy (as a part of Agriculture Policy), 1991
- Draft Forestry Sector Policy, 1998

3.1.1 Principles of Policy Formulation

Chapter 2, Sub Section (1) of the 1973 Constitution of Pakistan, enumerates the Principles of Policy as follows:

“The Principles set out in this Chapter shall be known as the Principles of Policy, and it is the responsibility of each organ and authority of the State, and of each person performing functions on behalf of an organ or authority of the State, to act in accordance with those Principles in so far as they relate to the functions of the organ or authority.”

All policies of the Government, including Forest Policy, draw strength and authority from these Principles of Policy enshrined in the Constitution.

3.1.2 Principles Guiding Forest Policy

The national forest policy of Pakistan is guided and influenced by the following social, economic, and environmental considerations.

- Pakistan’s mainstay is irrigated agriculture. In order to conserve water for efficient distribution and use in downstream areas, sound management of watersheds should constitute a basic objective of forest policy.
- Because of inadequate forest resources, Pakistan must concentrate on developing new plantations. Internal and external sources should be mobilised to achieve tree-planting goals.
- The country is heavily populated and faces an energy crisis. Since there is a little scope to increase the area of state forests, agroforestry programmes are of vital

concern to meet growing fuelwood requirements. An integrated approach entailing afforestation for fuelwood and fodder production together with agricultural crops on farmlands should constitute a cardinal principle.

- Forest policy should be dynamic and adjustable to any changes in the pattern of wood consumption that take place as a result of development in the country and advances in technology. Promotion of wood-based industries must form an important component of present and future plans.

3.1.3 The Process of Policy Formulation up to 1991

In 1955, the Government of Pakistan issued the first forest policy agenda, which incidentally coincided with the First Five Year Plan. The policy guidelines were provided by the Central Board of Forestry constituted in 1952. The Board consisted of representatives of Federal Ministries and Provincial Forest Departments. This Board never played an effective role in charting the course of forest policy formulation. The draft Policy 1998 proposed reconstitution of the Board to meet the enhanced scope and obligations of the Forestry Sector in the twenty-first century.

A Forest Policy Directive was issued in 1962 following the start of the Maslakh Range Management Project in Quetta (1951), the conclusion of the Indus Basin Treaty with India in 1961, and the initiation of the Mangala Watershed Management programme. The creation of Bangladesh in 1971 was followed by an acute shortage of paper, bamboo, and other wood products, including matches, in Pakistan and the diversion of considerable foreign exchange for the import of these items. A National Forest Committee comprising official and non-official members was constituted at federal level in 1972, in response to these problems. The recommendations of this committee were scrutinised by a number of technical sub-committees formed by the Ministry of Food and Agriculture. After finalisation, the recommendations were placed

before the Council of Common Interests, which is answerable to parliament and meant to formulate and regulate policies. The Council finally approved the recommendations of the Committee in 1975.

In 1977, the Office of the Inspector General of Forests of the Ministry of Food and Agriculture analysed the then prevailing situation of forests, rangelands, and wildlife resources in Pakistan. Recognition of the various pressures and constraints led to the decision to formulate a new forest policy. A consultative process was initiated with the Provincial Forest Departments which ultimately led to the preparation of a draft Forest Policy by the Pakistan Forest Institute, Peshawar, in 1978. This draft was circulated to the provinces, modified in the light of their comments, and placed before the Cabinet in January 1980. Following approval by the Cabinet, the Forest Policy was adopted as a part of the National Agriculture Policy of 1980.

In 1988, the Government constituted a National Commission on Agriculture, which also made certain recommendations on Forestry, Watershed Management, Range Management, and Wildlife. Subsequently, after a major initiative on farm forestry was started in 1985 under the Forestry Planning and Development Project, an International Seminar on Forest Policy was organized in collaboration with USAID and FAO and held at Karachi in March 1989. This seminar was well attended with representatives from all the Provincial Forest Departments, international and national NGOs, wood-based industries, and farmers' groups. Based on the recommendations of the seminar, a draft Forest Policy was prepared by the Office of the Inspector General of Forests in the Ministry of Food and Agriculture as a part of the draft Agriculture Policy, 1991. The Draft Policy was circulated at a Farmers' Conference convened under the Chairmanship of the Prime Minister and improved in the light of the recommendations made at this conference.

The Cabinet formed a sub-committee to consider the Agricultural Policy and its components, comprising the Ministers of

Finance, Industry, Commerce, and Education, the Deputy Chairman of the Planning Commission, the Federal Secretaries of the Finance and Planning Divisions, the Chairman of the Agricultural Development Bank, and senior officers of the Ministry of Food and Agriculture. The revised draft was considered by the sub-committee and a package of incentives developed for the farming community and wood-based industries. The policy was finally approved by the Federal Government and announced on 15 May 1991. The salient features of the policy were discussed in the National Assembly during the Budget session in June 1991 and it was approved by majority vote.

The objectives of the National Forests, Rangelands and Wildlife Policy (1991) were as follow.

- To meet the country's requirements for timber, fuelwood, fodder, and other products and environmental needs, by increasing the forest area from five per cent to 10 per cent in a fifteen-year period.
- To conserve the existing forests, watersheds, rangelands, and wildlife resources by sustainable utilisation, and to develop them to meet the ever-increasing demands.
- To promote social forestry programmes.
- To encourage planting of fast growing multipurpose tree species in irrigated plantations, riverine forests, and on private farmlands to meet the industrial and domestic demand.
- To conserve biological diversity and to maintain the ecological balance through conservation of natural forests, reforestation, and wildlife habitat improvement programmes.
- To contain environmental degradation in the catchment areas of rivers in order to check soil erosion and accretion of silt in water reservoirs, to regulate the water supply, to increase the lifespan of multi-purpose dams, and to mitigate floods.
- To undertake anti-desertification measures and rehabilitate waterlogged, saline, and degraded lands through vegetation treatment.

- To generate opportunities for income and self-employment for the rural populace.
- To promote non-governmental organizations (NGOs) and private voluntary organizations (PVOs) to educate the masses and to create public awareness for environmental improvement.
- **Forest Extension**—Forest extension will be strengthened to promote more tree planting on farmlands to meet the growing demand for wood. NGOs and other private organizations will be strengthened as an important link between farmers and the Forest Department's research institutions.
- **Forestry Research and Education**—Research will be strengthened in various fields, especially watershed and range management. Training in specialised fields will be improved. More women will be trained at the professional level.

The main implementation strategies envisaged as a result of the policy are summarised below.

- **Hill Forests**—Conifer forests in the public sector will be managed intensively. Multiple and integrated use are envisaged, with reliance placed on artificial restocking by seedlings of known provenance. An increase in road density from the present two metres to ten metres per hectare has been recommended for harvesting and transportation of timber. Changes in jurisdiction have been recommended to make the units more manageable.
- **Watersheds**—An inventory of watersheds will be prepared describing the susceptibility to erosion and landslides. All watershed programmes will be coordinated by the Federal Government. Incentives will be provided to private landowners to establish tree and fruit crops on land with a gradient exceeding 30 per cent.
- **Irrigated Plantations**—To develop the maximum potential of irrigated plantations, the supply of canal water and management of canals will be improved.
- **Social Forestry**—Social forestry programmes will be expanded. Seedlings will be distributed at subsidised rates. The pricing structure and marketing of wood produced on marginal and wastelands will be rationalised.
- **Rangelands**—Programmes will be undertaken for developing and improving the management of rangelands. Multipurpose tree species and high-yielding nutritious grasses will be introduced.
- **Wildlife**—Endangered flora and fauna will be protected by conserving critical ecosystems and introducing species of recovery plans. Education and awareness programmes will be prepared for peoples' participation in wildlife conservation.

3.1.4 Problems of Policy Formulation up to 1991

Up to 1991, forest policies were formulated on the recommendations of experts drawn from different fields. These policies were strong on technical considerations, but lacked the imaginative flexibility to make them work in the real situation. The cornerstone of these forest policies was the principle of conservation and traditional management of forests to meet timber and fuelwood needs. Since Pakistan has a narrow resource base, the forest policies focussed on maximum production of wood through intensive forest management: short rotations, artificial regeneration, and use of fast-growing tree species. People were considered a constraint to the sustainable management of forests. They were never involved in policy formulation, planning, or management of forests. In fact, the policies recommended acquiring the legitimate rights of people in forests, imposing harsh penalties, and conferring greater powers on forestry officials to enforce the law.

It is to the credit of these forest policies that tree planting campaigns were organized at national level in order to expand the forestry resource base in the private sector. Free or subsidised supply of tree saplings provided a big boost to establishing tree crops on farmlands. As a result of the high rate of population growth, the demand for wood increased considerably and wood began to fetch higher market prices. The increase in tree growth on farmlands, production of chipboard

and particle board, use of steel/aluminium joinery in buildings, and supply of alternative energy resources, including fossil fuels, helped to avert a woody biomass crisis in Pakistan.

Even so, these past policies lacked the dynamic vision needed to address contemporary issues. They were not able to project the future needs of wood-based products and guide the establishment of wood-based industries. Thus Pakistan remained dependent on imported wood and wood products, mostly wood pulp, and paper. The import bill reached a staggering figure, increasing from Rs 1,300 million in 1986 to Rs seven billion in 1997.

The forest policies failed to account for extra-sectoral influences and failed to develop confidence in stakeholders. The policies did not analyse the impacts of negative externalities generated in other sectors because of their non-compatible approaches. As a result of industrial expansion and urban growth, the problem of environmental pollution assumed enormous proportions. None of the past forest policies visualised the environmental problems or recommended pollution mitigation measures to offset the adverse impacts caused by other sectors or their policies.

The technocrat elite identified the local communities as the problem. This intellectual hegemony resulted in lack of consultation. Despite formulation of a number of forest policies during the last fifty years, they were conceptually static. On average, policies were changed after an interval of about ten years. During this short span of a decade, each policy lost its usefulness and relevance to deal with emerging challenges. Short-sighted and archaic approaches continued to keep out-dated issues on the policy agenda. The real issues to meet the changing needs of people, especially the natural resource dependent communities in the high hills, were neglected. The forest policies also lacked a dynamic approach for prescribing mechanisms for their implementation. As a result, the Forestry Sector continued to face lack of political commitment, chronic shortage of funds, an old and outdated administrative structure and weak application of legal instruments.

3.1.5 The Roles of Different Forest Stakeholders and Their Impact on Modern Forest Policy

Depending on the legal status of a forest, there may be several different stakeholders, for example, local communities (right holders and non-right holders), timber traders, forest departments, federal and provincial governments, the international community, and industry. The stakeholders have varied claims over forests and, different ways of achieving them. These different roles need to be taken into account when formulating a modern and dynamic forest policy. A brief description of the different stakeholders is given below.

- **Local Communities**—Local communities enjoyed uninterrupted usufruct rights in forests until the British Administration took over control and declared forests to be state property, leaving a small area in communal or individual ownership. People's rights were entered in a revenue record (*Wajib-ul-Arz*). Since the time of first settlement in the latter part of the 19th century, the population of right holders and non-right holders has multiplied, but the forest endowment has remained constant, leading to a manifold increase in the pressure on natural resources.
- **Forest Contractors**—Timber is a precious commodity in Pakistan. The profits from and stakes in timber sales are high. Despite various measures, policy recommendations, and government directives to minimise their influence, timber contractors and merchants continue to play an active role in logging and other commercial activities.
- **Federal Government**—Historically, the Federal Government, through the office of the Inspector General of Forests, has wielded considerable influence in defining the policy agenda; maintaining liaison with the international community; and ensuring compliance with international treaties, conventions, protocols, inter-provincial coordination, and legislation. The moratoriums on logging in 1993 and 1997, and the ban on Forest Cooperative Societies in the NWFP, were imposed by

the Federal Government. The Federal Government has also influenced the forestry sector through fiscal and trade policies on the import and export of timber, forest products, and wildlife.

- **Provincial Government**—Forests are an important source of provincial revenues, particularly for the NWFP, Punjab, AJK, and the NAs. These financial stakes have conditioned the provincial governments to consider forests as a part of the revenue stream to be increased every year. This consideration compromises the role of forest departments in prudent forest management.
- **International Community**—The international community, including donors, NGOs, and various international centres, have supported the sustainable management of forests in Pakistan. Many of their pilot initiatives have generated debate, influenced decision-making, and promoted the evolution of new strategies for the sustainable management of forests.
- **Industry and Consumers**—Wood-based industries rely heavily on a continuous supply of timber. Furniture and sports' goods' industries contribute precious foreign exchange to the national exchequer. The Federal Government has a stake in ensuring a regular supply of timber to these industries. The private sector has an obvious interest in forest rehabilitation and growth to meet the demand for wood and wood products and to control erosion, but they have not been able to exercise much influence over forest policy. Pakistan imports wood and wood products, mostly wood pulp and paper, worth Rs seven billion annually. With the ban imposed on wood harvests in natural forests, the structure of duties on the import of timber must be rationalised to meet the demand of wood-based industries and consumers. In accordance with the recommendations of the FSMP, agroforestry programmes receiving a major thrust must be linked with wood-based industries to reduce dependence on imported wood and wood products and reverse the trend of forest degradation in critical mountain areas.
- **NGOs**—The environmental movement has gained considerable momentum in Pakistan in recent years. Preparation of the National Conservation Strategy (NCS), and finalisation or preparation of the Provincial Conservation Strategies of NWFP, Punjab, and Balochistan with the technical assistance of IUCN, have provided space for the working of NGOs. The Aga Khan Rural Support Programme (AKRSP), which has successfully mobilised communities in participatory development work in the Northern Areas, included natural resource management as a key component of their income generation and poverty alleviation strategy. Public consultations in policy formulations through NGOs have become a regular feature in developing a strong public-private partnership for sustainable development.
- **Research Institutions**—The Pakistan Forest Institute (PFI), Peshawar, is the single largest institution engaged in forestry research in the country. Increased wood production and quick returns for farmers were the priority in the policy directive of 1962 and recommendations of 1975. In this context, the PFI focussed on trials and introduction of exotic species. A large number of eucalyptus species and poplar clones were planted on an experimental basis in different ecological zones of Pakistan. Despite criticism from many quarters, eucalyptus continued to remain the main choice of foresters in the plains. Cultivation of poplars has been more successful in the valleys of Peshawar, Mardan, Hazara, the Northern Areas, and Rawalakot in AJK. These trees have been planted along the borders of fields. Marketing of poplar wood is secure: Pakistan's entire match industry is based on poplar wood, and the wood is also used in sports' goods' manufacturing and scaffolding. Intensive management of hill forests was also considered as a means to increase timber production. The 1962 policy directive recommended studies to shorten rotations of coniferous forests and technical issues. *Paulownia*, another fast-growing exotic species, has been under trial in

different ecological zones of Pakistan since 1986. *Paulownia* timber is light brown and is used for making cabinets. The 1991 policy recommended consideration of social aspects, involvement of industry to strengthen research, and coordination of research with the Provincial Forestry Departments, but, in the broader sense, research parameters remained unchanged.

- **Forestry Professionals**—In view of the implementation of integrated watershed management and social forestry programmes, emphasis was placed on extension and training of farmers for participatory approaches. This required changes in the forestry curricula at both professional and technician levels. Since 1987, several forestry professionals have been trained abroad and at PFI to meet the emerging challenges and needs of farmers and wood-based industries. Through the Forestry Planning and Development Project (1985-95), nursery technology was transferred to the private sector to overcome the shortage of planting stock and to meet farmers' needs locally. A shift from regulatory to participatory forestry was introduced through various outreach functions during implementation of this project. The project made continuous efforts to establish a triangular linkage between professionals, wood producers, and wood consumers. For successful implementation of the programmes, women were trained in forestry and NGO institutions strengthened.

3.1.6 Development of Forest Policy after 1991: The Draft Forestry Sector Policy of 1998

On April 30, 1997, the Federal Cabinet of Ministers decided to develop new strategies for the conservation of forests and wildlife. As a result, the Office of the Inspector General prepared a draft Forestry Sector Policy which was circulated to all the provinces, and various ministries, agencies, and NGOs for comments. In the light of these comments, a final draft was prepared and submitted to the Cabinet for consideration. The policy recommends

integrating all the components of the Forestry Sector. The new policy is based on an ecosystem approach and multiple use of natural resources. People's participation in implementing the strategies is the strongest element of the Policy. It also emphasises land-use planning, ecological security to mitigate pollution and maintain forests as carbon and nitrogen sinks, and establishment of upland and lowland linkages and recommends institutional, legal, and financial reforms to encourage growth of the sector.

Guiding Principles

The revised Forestry Sector Policy follows the Guiding Principles adopted by the United Nations Conference on Environment and Development (UNCED) held at Rio de Janeiro in June 1992. It is also based on the national commitment made by Pakistan to implement various international conventions such as CBD, CITES, RAMSAR, Migratory Species, World Heritage, and Combatting Desertification.

From the principles enunciated in the Rio declaration, the eight policy imperatives related to forestry that have emerged are as follow.

- **Conservation**—Conservation of ecosystems, soils, water, and watersheds, safeguarding biodiversity (plant and animal genetic resources) and national heritage sites
- **Sustainability**—Sustainable management of natural resources to ensure perpetuity of tangible and intangible benefits for present and future generations
- **Basic Needs**—Ensuring the supply of goods and services, i.e., fuelwood, timber, fodder, non-wood products, and recreation.
- **Economic Needs**—Maximise domestic production to minimise reliance on imports
- **Participation**—Managing the resource through the active partnership of communities living around forests and other beneficiaries
- **Education**—Raising awareness to conserve and develop Forestry Sector resources and enhance the capacity of professionals to meet the emerging challenges with appropriate technologies

- **Research**—Strengthening technical and socioeconomic research capabilities
- **Institutions**—Strengthening of existing institutions in natural resource management, encouragement of private sector participation in forestry, and increasing public and private sector collaboration
- Promotion of social forestry and agroforestry to expand the forestry resource base

Policy Objectives

The strategic objectives focus on overcoming the sectoral constraints. The policy objectives in different areas are as follow.

- Land Use
 - Evolve a system of complementary land use under which land is only diverted to uses where it would produce more and deteriorate less
 - Phase out existing environmentally incompatible practices with sound land management in public and private sectors
- Conservation and Management
 - Watershed conservation to control soil erosion and floods, maintain the efficiency of irrigation systems, increase the productivity of land, and regulate water for sustained hydropower generation and irrigated agriculture
 - Sustainable management with community participation of existing forests (coniferous, scrub, mangrove, riverine, irrigated plantations), rangelands, critical natural ecosystems, and wildlife
- Forestation
 - Implementation of sustainable forest development programmes through regeneration, afforestation, and rehabilitation operations to optimise forest productivity by planting traditional mixed with fast-growing multipurpose tree species
 - Expansion of the forestry sector resource base
- Combatting Desertification
 - Checking desertification by stabilisation of sand dunes, soil and water conservation, and control of waterlogging, salinity, and alkalinity through vegetation treatment
 - Sustainable management of desert ecosystems for enhanced rangeland and wildlife productivity
- Biodiversity Conservation
 - Biodiversity Conservation within and outside the Protected Area Systems through community participation
- Products, Industry, Trade, and Marketing
 - Meeting the national need for timber, fuelwood, and non-wood forest products, including sport hunting, and intangible benefits such as pollution mitigation, recreation, and eco-tourism on a sustainable basis
 - Encouraging planned growth of industrial wood plantations and forest industries to reduce dependence on imported wood and wood products and efficient use of wood
 - Promote export of value-added wood products and regulate trophy hunting and trade of wild and farm-bred fauna and flora in accordance with the Convention on the International Trade of Endangered Species (CITES)
- Ecological Security
 - Protection through environmental linkages to minimise damage to the environment, mitigate pollution, and reduce the degradation of natural resources, i.e., land, water, forests, biodiversity, and wildlife
 - Expand and conserve forests and trees as carbon and nitrogen sinks

- Social Equity
 - Benefits to communities dependent on the ecosystem resource based on social equity, as a part of sustainable conservation-driven measures for recovery in vegetative cover, habitat improvement, biodiversity, wildlife species, and enhanced productivity of land
 - Developing the potential of non-wood products to meet local needs and supporting small-scale, rural-based industries to provide opportunities for self employment and off-farm income to alleviate rural poverty

Policy Implementation Strategies

To realise the policy objectives, a time series of policy measures and strategies has been proposed with short- (up to the year 2010), medium- (up to the year 2020), and long-term (up to the year 2040) actions.

Pakistan's Forestry Sector needs to be reformed to broaden its base for conservation and the sustainable utilisation of the resources, and thus contribute to the socioeconomic development of the country. The policy reforms should focus on bringing an immediate improvement in the sector. The essential elements needed for effective implementation of the policy include an appropriate organizational structure, legislation, finance, and the active participation of people and stakeholders. It is admitted that not all the policy measures and strategies identified can be implemented simultaneously. Some should be given high priority and put into operation, while others may be delayed until adequate manpower and financial support are available.

The following measures have been proposed to implement the policy.

- **Budget and Finance**—Establish a self sustainable Federal Forestry and Wildlife Trust Fund starting with a Rs five billion allocation from the government. Allocate 10 per cent of the duty/taxes/fees levied on

power generation, import and export of wood, wood products, and wildlife, including their inter-provincial movement, and levy a 10 per cent charge on industries/shipping lines and similar polluting the environment beyond the safe limit, or threatening forests and biodiversity. These taxes and pollution charges will be deposited in the Federal Forestry and Wildlife Trust Fund for development of the sector.

- **Organization**—Reorganize and integrate the Forest and Wildlife Departments to realise the policy objectives, and strengthen and integrate the institutional structure both qualitatively and quantitatively.
- **Legislation and Tenure**—Ecology is defined as living organisms interacting with their external environment. Forests, rangelands, and wildlife are the logical entities of the environment. These components have serious trans-boundary effects, both international and provincial, with dimensions pertaining to water, hydropower generation, agricultural productivity, timber and wildlife trade, wood-based industries, wildlife, biodiversity, and the environment. For a national commitment, these components must be placed on the Concurrent List of Federal Subjects. The existing forestry legislation, enacted a long time ago, needs to be amended to meet the emerging challenges and prevent environmental degradation. Uniformity is the cardinal principle for integrated resource management and will lend credence and consistency to policy goals and the realisation of objectives through the proposed series of policy measures, strategies, and actions.
- **Education and Training**—Human resource development and career planning are important for performance, recognition, and incentives to individuals, and the growth of the sector. Thus human resource development cells should be set up at federal and provincial levels for forestry professionals, researchers, educationists, technicians, farmers, and NGOs, without gender bias, for the improvement and development of the Forestry Sector.
- **Research**—The Pakistan Forest Institute (PFI), Peshawar, has the potential to

become a centre of excellence for the entire region in the field of research. With the changing national and global trends, new research disciplines like environment and biodiversity conservation, biosafety, and biotechnology should be introduced at PFI and the Zoological Survey Department. Provincial research organizations will also be supported in undertaking research in particular ecological zones.

- **Data Base Management**—The information revolution is affecting forestry sector planning tremendously. The Provincial Forest and Wildlife Departments and the PFI at Peshawar have no systematic approach for the refinement of policy strategies in accordance with national aspirations. For the development of the sector, it is proposed that a network be established for forestry sector data base management.
- **Planning**—Until recently, the primary emphasis in forestry sector planning was on assessing forests for timber resources and formulating strategies for wood production to meet domestic and industrial requirements. Its scope has been expanded more recently to address the causes of deforestation, needs for reforestation, rural energy, the contribution of forests to food security, biodiversity conservation, mitigation of pollution, and other global environmental issues through participatory planning.
- **Land Use Planning**—Upland watersheds have become critically degraded as a result of misuse of land. The establishment of Federal and Provincial Land Use Advisory Boards has been proposed. Representatives from different sectors, including the Soil Survey of Pakistan, will be included on the panels of the Land Use Advisory Boards.
- **Incentives**—The private sector should be encouraged to develop industries based on wood, especially wood pulp and paper mills, by such means as the provision of credit facilities, tax exemptions for the establishment of wood-based and non-wood forest industries and import of machinery, and practising corporate forestry. A reduction in duty and/or tax exemption has been proposed to encourage the export of value-added forest products.
- **Information Campaigns**—Massive information and awareness campaigns will have to be organized to promote natural resource conservation. The potential of the mass media needs to be fully exploited. The introduction of elementary forestry in the curricula of primary and secondary schools will be considered.
- **Coordination**—Forestry sector policy and programmes are closely linked with agriculture, environment, energy, mining, trade, industry, public works, and social development, and the government should establish a binding consensus between these on policies. This may require a few legislative measures to be adopted to ensure that all government interventions remain structured to achieve sustainable management of forests and restoration of ecological balance together with environmental amelioration.
- **Policy Review and Impact Assessment**—The PFI at Peshawar, and the National Council of Conservation of Wildlife and the Zoological Survey Department, under the administrative control of the Inspector General of Forests, will develop cells to keep under constant review sectoral policies like economic growth, alleviation of poverty, agriculture, energy, environment, land ownership, and land use. The Office of the Inspector General of Forests will use these analyses for refinement of Forestry Sector Policy, for integrated planning at the federal and provincial levels, and to advise the government

3.2 Legal Framework

Legislation can achieve its objectives if it is promotional in character, is based on local customs and traditions, and is enforced by an adequate and effective infrastructure. Formerly, primary forest legislation was drawn up by the Federal Government, even when forestry was a provincial responsibility. The 1973 Constitution of Pakistan, through articles 32 and 37 (i), requires the promotion of local government and the decentralization of government administration. This means that forestry and related renewable natural resources and wildlife are a provincial responsibility.

“According to Article 37 (i) of the Constitution, the State ought to decentralize Government administration so as to facilitate expeditious disposal of its business to meet the convenience and requirements of the public. Moreover, items nine and 11 of the Concurrent Legislative List spell out clearly that the Federal Government is not competent to legislate on contracts relating to agricultural land or transfer of agricultural land. Item 37 of the Federal Legislative List further supports the view that legislative power of the Federation would not extend to property situated in a province that is always subject to provincial legislation. It follows, therefore, that the law of the place where land is situated, whether such land be with or without tree cover, will apply to such land. Consequently, a province alone has the constitutional power to legislate on land and forestry within its territory.” Hussain et al. (1993)

The word ‘forestry’ does not appear as an item in either the Federal Legislative List or the Concurrent List. Hence, a province alone has the residuary power to make laws concerning forestry, pursuant to Article 142(c) of the Constitution which says:

“A Provincial Assembly shall, and Majlis-e-Shoora (Parliament) shall not, have power to make laws with respect to any matter not enumerated in either the Federal Legislative List or the Concurrent List.”

3.2.1 Major Forest Legislation

The major forest legislation is found under the following.

- **Common Principal Legislation**—This includes the main laws and acts made by the Federal and the provincial Governments.
- **Primary Provincial Legislation**—This includes basic provincial statutes that rarely need revision.
- **Secondary Provincial Legislation**—This includes legislation on topics derived from or dependent on primary or principal statutes, like rates of duty and compensation, that may need frequent revision.

The Common Principal Legislation related to forestry consists of the following.

The Forest Act of 1927

The Indian Forest Act of 1879 was replaced by the Indian Forest Act of 1927 (Act No. XVI of 1927). After independence, this act was called the Pakistan Forest Act of 1927. It is a most comprehensive piece of legislation and applies to the provinces of Punjab, Sindh, NWFP, Balochistan, and the Northern Areas. The Act was promulgated to assist in carrying out the objectives of the 1894 National Forest Policy. The act

- laid down detailed procedures for constituting and managing different kinds of forests like Reserved and Protected Forests;
- restricted certain actions in or around public and community forests;
- prescribed the duties of the public and public servants in relation to forests; and
- prescribed penalties for infringing rules.

The North West Frontier Province, Hazara Forest Act of 1936

This Act was intended to consolidate and amend the laws relating to Reserved Forests and wastelands in Hazara district. The Act

- provides acquisition of rights in or over Reserved Forests;
- prohibits certain acts like causing fires, cutting trees, brushwood, or grass, quarrying stones, cultivating land, and constructing buildings in Reserved Forests and wastelands;
- allows wastelands to be protected to control soil erosion in catchment basins;
- regulates transport of timber; and
- prescribes the duties of public servants and spells out punishments for infringing the rules.

The Punjab Land Preservation (Chos) Act of 1900

This act (Act II of 1900) was drawn up to stop excessive erosion as a result of misuse of

private lands in the Punjab foothills (the *chos* are streams flowing through or from the Siwalik mountain range). In 1963, this Act was applied to all the provinces except the Tribal Areas. It

- authorised regulation or prohibition of tree cutting, cultivation of land, stone quarrying, and transporting forest produce;
- required landowners in certain cases to undertake anti-erosion work at their own cost, but provided cash compensation in some cases; and
- spelled out penalties for breach of regulations.

Although this was a useful act it is seldom used these days. It has lost some relevance because the government is now encouraging soil conservation work and tree planting by subsidising rather than by coercion.

The Kohat Mazri Control Act of 1953

This Act (Act No. III of 1954) applies to Kohat in NWFP. The provisions of the Act regulate the management of the *Mazri* dwarf palm (*Nannorhops ritchiana*).

The Forest (West Pakistan Amendment) Act of 1964

This amendment to the 1927 Forest Act (West Pakistan Act No. VII of 1964) applies to all the provinces apart from Hazara district in NWFP and the Tribal Areas. The amendment made it easier to recover encroached land in Reserved and Protected forests, but it had little effect.

The West Pakistan Firewood and Charcoal (Restriction Act) of 1964

This Act (West Pakistan Act No. XI of 1964) covers all the provinces except the Tribal Areas. It restricts the burning of firewood and charcoal in factories, brick kilns, and lime kilns. Its purpose was to reduce the use of firewood and stabilise its price. The Act has been effective. Coal has replaced firewood as the main source of energy.

The West Pakistan Goats (Restriction) Ordinance of 1959

The ordinance allows restrictions to be imposed on the grazing and movement of goats. Infringement of rules will be treated under the Code of Criminal Procedure, 1898.

3.2.2 General Law

Pakistan's law applies to forests in a general way. For example, theft of forest produce can be dealt with under the Pakistan Penal Code in the same way as theft of any other property.

3.2.3 Rules

There are a large number of 'Rules' related to the activities of public servants, and the use of forests and forest products. The most important are as follow.

- Rules Prescribing the General Powers of Forest Officers under Section 76 of Act XVI of 1927

All forest officers are empowered to exercise all powers under the Act and rules made under it. The Divisional Forest Officers shall exercise powers given under sections 21, 26, 45, 61, 82, 46, 47, and 50. All forest officers when specially authorised are empowered to act under sections 26 and 33.

- Powers to Compound Offences under Section 68 of Act XVI of 1927

All forest officers not below the rank of forester are invested with powers described in Section 68 of Act XVI of 1927.

- Powers to Compell the Attendance of Witnesses, to Issue Search Warrants, and to Record Evidence under Section 72 of Act XVI of 1927. Forest officers are invested with powers under Section 72 (b), (c), and (d) of Act XVI of 1927.
- General Rules regarding Shooting, Hunting and Fishing in Reserved and Protected

Forests under Section 26 (i) and Section 32 (j) of Act XVI of 1927

The Conservator of Forests may declare part or whole of a Protected or Reserved forest closed for shooting, hunting, and fishing for a particular period.

- Rules to Regulate the Shooting of Urial in Reserved and Protected forests in the Attock, Jhelum, Shahpur, and Mianwali Districts under Sections 26 (i), 32 (j) and Section 76 (d) of Act XVI of 1927

Shooting, trapping, or killing of urial is prohibited between September 1st and October 14th except under license.

- Rules to Regulate the Hunting and Shooting of, and Setting of Traps or Snares for, the Capture of Small Game in the Punjab under Clause (j) of Section 32 and Clause (d) of Section 76 (d) of the Forest Act, 1927

These rules are called the 'Punjab Forests Small Game Rules, 1939'. They apply to all Reserved and Protected forests of every class in the Punjab.

- Rules Regulating the Launching, Collection and Rafting of Timber, and the Registration of Timber Property Marks, under Section 41 of Act XVI of 1927

These rules relate to drift timber of deodar, kail, chir, spruce, and silver fir only.

- Rules under Section 41(f) and (g) of Act XVI of 1927 for the Prevention and Removal of any Obstruction in the Rivers

These rules pertain to drift timber and permission to erect a boom, weir, or irrigation band.

- Rules Regarding the Collection of Drift Timber and Payments of Salvage Fees under section 51 of Act XVI of 1927

The Divisional Forest Officer instead of collecting timber himself under Section 45

of Act XVI of 1927 may grant permission to the owner or owners to collect such timber.

- Rules Prescribing the Areas within which all Unmarked Timber shall be deemed to be the Property of the Government, under section 45 of Act XVI of 1927

A direct distance of five miles from either bank of the rivers Jhelum, Chenab, Ravi, Sutlej, and Indus within the territory of Pakistan are the prescribed operational areas under section 45 of Act XVI of 1927.

- Rules on *Guzara* Lands, or Forest and Wastelands of the Murree and Kahuta *Tehsil(s)*, other than Reserved and Protected Forests under Section 76 (c) of Act XVI of 1927

These rules protect *Guzara* forests and wastelands and regulate tree cutting and grazing of areas under the control of the civil administration.

- Rules Under the Punjab Forest (Sale of Timber) Act of 1913

These rules prescribe procedures to establish and regulate the sale of timber by private individuals.

3.2.4 The Main Features and Impact of Forest Legislation

The salient features of the present forestry legislation are as follow.

- The essential objective of all forest legislation has been to provide strong legal support to the public service for conserving and protecting public forests from human and animal damage. To some extent the law also provides policing responsibilities, such as the power of arrest to forest officers. Until recently, this objective was met successfully.
- Besides other regulatory laws, all provinces have legislation to prevent forest fires. Strong legislation exists to stop, check, and regulate the cutting, removal, and transit of specific tree species and forest produce.

- Legal restrictions have been placed on cutting and removing trees and wood from private lands in some areas. These restrictions make it more difficult to claim wood cut illegally from government forests as personal property. Tree cutting is also prohibited along international borders and in other areas to prevent erosion.
- All forestry laws and rules are of a regulatory and administrative nature and are not related to scientific management of forests. No law provides for legal safeguards against over-exploitation.
- There is no effective legal cover of private forestry, and the law has done little to encourage forestry in the private sector. Some laws might have had an adverse impact by restricting the cutting of trees on private lands.
- The main contribution of forestry legislation has been to create the permanent public forest reserves needed for protection of the environment and watershed values and for wood production. The law has helped prevent or delay the devastation of forests, which are already too meagre.
- The law recognises rights and sets definite rules on how rights may be exercised. This has helped to maintain peace and order in village communities. Without such legal arrangements and clear demarcation of areas for exercising rights, chaos would have ensued leading to rapid forest destruction.
- The law provides some help and relief from undue suffering and hardship. It also invites people's participation by offering rewards to prevent forest offences.
- Forest legislation has been most effective in supporting the management of Reserved forests, and has been ineffective in supporting the management of community and *Guzara* forests.

3.2.5 Legislation Issues, Efficacy, and Constraints

In recent years, legislation has lost much of its power to support forest policy and management. Contrary to the past, people are less ready to accept harsh legal restrictions and

radical changes in their customary use rights in forests. Consequently, enforcement of forest laws and rules has become very difficult. Efficacy of forest laws is further undermined by the following.

- Matters relating to forest offence cases are held in comparatively low esteem by magistrates and law-enforcing agencies. Forest offence cases are kept pending for long periods which leaves forest offenders undeterred.
- Forest personnel empowered to charge and arrest the offenders sometimes misuse these powers. This invites public contempt of the law and incites further violation.

All the major forest Acts and Rules applicable in Pakistan are a British legacy. The laws have not been amended to accommodate changes at local and national level. At the time of their enactment, the prices of timber, which were extremely low, might have been adequate, but this is no longer the case.

The punitive provisions pertaining to offences like illicit cutting of trees, illegal transport of forest produce, and alteration in forest boundaries are lenient and out-dated, especially with regard to offences relating to timber and firewood.

There is no provision in the Acts to recover the value of trees felled or of timber extracted illegally from forests. A maximum compensation of Rs 50/- is recoverable, which is less than the price of 40 kg of firewood. Similarly, there is no provision for confiscation of vehicles employed in commission of an offence.

Many forest laws have lost their purpose and usefulness. Others clash with non-forestry legislation, like the laws on mines and minerals and corporate laws on regional development. Such situations cause local and inter-departmental conflicts. Laws need updating and revision to encourage peoples' participation.

The provisions for Reserved Forests are more stringent but still not adequate. Recovering

compensation for damage done to forest property is at the discretion of the trial court. This discretion is seldom exercised.

New legislation will be required to support new policy programmes on land use and preservation of ecosystems and biodiversity.

3.3 Community and Private Forestry

There has been increasing recognition of the need to involve local communities in the management of forest resources if policies are to be implemented effectively. Over the years various attempts have been made to find alternatives to government management of forests. The first experiment in participatory management of community forests took place in 1936 when Bhurban *Guzara* Forest in the Murree Hills was given to the rightholders for management. The rightholders demarcated the area according to the agricultural lands that existed in the revenue estate. Instead of managing the forests jointly, however, they cut the trees and started cultivating agricultural crops—the result of land hunger, the need for food crops, and poverty below the subsistence level. Thus Bhurban *Guzara* Forest disappeared. After the failure of the participatory management experiment in Bhurban *Guzara*, people continued to meet their requirement for fuelwood and timber from the Protected Forests and through illegal removal of trees from the Reserved Forests. In the 1960s, oil cooking stoves were provided free to relieve the pressure on state forests, and since the 1970s the Punjab Forest Department has supplied fuelwood from irrigated plantations to the residents of six areas, including Bhurban, at subsidised rates.

The second major government initiative was the introduction of management of the *Guzara* forests in Hazara province of NWFP by local cooperative societies, an initiative that also failed for a variety of reasons.

Since the 1980s, a number of other innovative approaches have been tried out by various forestry projects. These have successfully demonstrated the usefulness of participatory

management of forest resources and the expansion of forest resources on farmlands through the development of village organizations and NGOs.

Some of these different approaches to community participation are described in the following sections.

3.3.1 The *Guzara* Forests in Hazara, NWFP

The *Guzara* (communal) Forests are owned either by communities or by individuals. Their management has been under state control and was always a cause of disagreement between the owners and the state. In 1950, control of the *Guzara* of Hazara Civil Division, which cover 1,349,000 ha, was transferred from the District Administration to the Forest Department of NWFP for scientific management. The 1956 policy recommended sound management of *Guzara* Forests through legislation and technical and financial assistance by the government. The Forest Department charged 20 per cent of the proceeds of timber sales from these forests as a management charge.

The owners of *Guzara* Forests were dissatisfied with the conservative control of the Forest Department as it failed to protect the forests. The failure of the Forest Department was attributed to overgrazing of forests by nomadic grazers, the escalating demands of forest dependent communities, and encroachment by village communities for cultivation of agricultural crops.

The Government of NWFP Agricultural Enquiry Committee, 1975, recommended management of these forests through owners' cooperative societies with technical assistance from the Forest Department. It further recommended that harvesting of forests be entrusted to public sector logging corporations. The Agricultural Enquiry Committee's recommendations were that:

“Cooperative societies should be enabled to administer their forests in accordance with a forest management

plan duly approved by the Forest Department. The Department will not interfere in the day to day to administration of the forests, but will ensure through periodic inspection that the provisions of the forest management plans are observed.

The Forest Cooperative Societies' (FCS) experiment was initiated in 1980 under the Cooperative Act, 1925. The 1981 Rule 6 of the Hazara Management of Wastelands' (Guzara) Rules, 1950, was amended to empower members of Multipurpose Forest Cooperative Societies to manage their common property resources. A total of 18 Forest Protection and Multipurpose Cooperative Societies had been established by 1983, and 31 by 1992. As a result of the strong influence of Guzara owners, forest contractors, and politicians, proper land use was ignored. The societies emphasised exploitation of the forests to earn maximum revenue, to be shared by the communities and individuals, without respect for the principles of sustainability and long-term securement of the resource. The rules stipulated that two per cent of the earnings from timber sales were to be set aside for the development of the forests, but the societies' management paid little heed to allocating even this small amount. After forest harvests, the villagers encroached on the forest lands to cultivate agricultural crops. This accelerated soil erosion and contributed to serious environmental problems, including the disastrous floods of 1992 and 1993—attributed mainly to indiscriminate forest harvesting. Instead of a visible improvement in forest density, the forests were depleted beyond repair. The continued institutional resistance, the politicisation of the FCS and domination by a few influential owners, the lack of financial transparency for operations and development, and the disastrous environmental impact led the Federal Government to ban the FCS in 1993. A three-year moratorium was imposed on commercial logging. The operational activities of the FCS were suspended, and control of the Guzara Forests reverted to the Forest Department.

3.3.2 Participatory Forest Programmes and Projects

Since the 1980s, a variety of upland watershed programmes and projects have been developed with the intention of securing the downstream water supply, limiting the problems caused by erosion and siltation, and alleviating rural poverty by involving local communities and motivating them to plant fruit trees to diversify their economy, restore watershed values, and rehabilitate and protect the watershed areas. The sustainability of these programmes depends on the ability to foster participation of the mountain communities. The programmes are trying out various innovative approaches to community participation. Village organizations have been developed and NGOs strengthened under an area development approach, with community participation in decision making, resource management, and implementation of project strategies. In the NWFP and NAs, royalties of 60 per cent to 80 per cent are being distributed as an incentive to conserve Protected and Community Forests. Village organizations require skill, but if run properly they are able to mobilise and accumulate capital on a sustainable basis.

The forestry curricula at both professional and technician levels were revised to enable foresters to train farmers and undertake outreach activities. This approach brought a shift in attitude of forest departments from a regulatory to a participatory function. Efforts were made to involve women in the implementation of various project activities. The village organizations have trained female staff in different disciplines to approach women on issues concerning resource management and the improvement of their family's standard of living. Farmers, including women, were trained in various disciplines such as establishing nurseries and sericulture. Local communities were motivated to plant fruit trees to diversify their economy.

Land tenure and common property rights are the main factors that determine the use and management of resources. Insecurity of tenure

reduces the time horizon of tenants. Most tenants find the proposition of raising trees on farmlands untenable because they may not be able to stay long enough to derive the benefit when the trees reach maturity. Property rights play an important role in the successful functioning of the social institutions designed to improve the management of the natural resources on which the mountain communities are dependent. The different programmes had different approaches to the problem of property rights. The most innovative are those based on common property rights. A common property regime is one that “consists of a defined group of authorised users, a well-defined resource that the group will manage, and a set of institutional arrangements that define each of the above as well as the rules of use for the resource in question” (Bromley 1987). The major different types of property rights dealt with in the different programmes are summarised in the Table 5.

- to revegetate denuded hillsides and marginal farmlands on a sustainable basis;
- to develop an extension approach for field activities; and
- to stimulate institutionalisation of the extension approach at local level and within the NWFP Forest Department.

The project activities comprise afforestation, range management, tree improvement, extension, involvement of women, and training. Village Development Committees have been developed to facilitate the active involvement of local communities in village land-use planning and the preparation of village action plans. This means that participatory development activities have started at the village level. As a result of successful testing, this methodology has taken root in the institutional approach of the NWFP Government.

Kalam Integrated Development Project

The main features of eight different projects considered to be relatively successful are summarised in the following.

Malakand/Dir Social Forestry Project

The Malakand/Dir Social Forestry Project (MSFP) was started in Malakand Agency (NWFP) in 1987-88 for an initial period of five years, and it entered its second phase of activities in 1992-93. The project aims to improve the standard of living of the local population by increasing the productivity of hillsides and marginal farmlands. The long-term objectives are:

The Kalam Integrated Development Project (KIDP) started in 1981 and covers the two *tehsil(s)* of Kalam and Behrain in the north of Swat (NWFP). The project covers 30,000 ha and 171,000 people. The project has been implemented in three phases, the last of which will be completed by the end of 1998. It aims to improve the socioeconomic conditions of the local population through participation in forestry, agriculture, and village development. Although the project started as a forestry project, it adopted an integrated approach by addressing the development of agriculture and range resources. Mechanised harvesting of timber has been introduced to minimise wood losses and

Table 5: Major Types of Property Rights Dealt with by Different Programme

Property Regime	Conditions
State Property	Individuals are bound to observe the rules and conditions for use as determined by the government managing agency, e.g., SFDP.
Private Property	Individuals have the right to undertake socially acceptable uses only, e.g., KIDP and SWMP.
Common Property	The owners' management group has the right to exclude non-members, and the non-members have to abide by the exclusion, e.g., MSFP and AKRSP.
Open Access	The owners and users' group is not defined. The resource is 'open-access' and benefit is available to all individuals, e.g., MSFP.

disturbance of soil. Women are traditionally engaged in fuelwood gathering, grazing of livestock, and grass cutting. As a result of the conservative society, it was quite difficult for forest officials to approach this important segment of the population and involve them in the conservation of the natural resources. Village Organizations (VOs) were formed to approach women and to reduce the gender bias by actively involving men and women in village-level planning and decision-making. These organizations enabled effective 'village barriers' to be formed to protect forests against the illegal removal of trees.

Siran Forest Development Project

The Siran Forest Development Project (SFDP) is located in the Siran Valley of Hazara Civil Division, NWFP. The project is an extension of the earlier Kaghan Intensive Forest Management Project. The project covers 170,000 ha of the 181,000 ha in the Siran watershed area. The problems identified in the area include the high rate of population growth, improper land-use practices, low levels of productivity of food and fodder, and exploitation of forests for timber, firewood, and grazing. The project envisages involving people in forest planning, nature conservation, road planning, timber harvesting, afforestation, cooperative extension, and social forestry. Development of participatory VOs and introduction of Joint Forest Management (JFM) are the innovative approaches being introduced to involve local communities in the sustainable management of forests. It will take a considerable time before the experiment in JFM can be evaluated.

The Aga Khan Rural Support Programme

Aga Khan Rural Support Programme (AKRSP) is an NGO that started work in 1982 in the Northern Areas of Pakistan. It covers three districts: Gilgit, Baltistan, and Chitral. More than 1,500 Village Organizations (VOs) and 1,000 Women's Organizations (WOs) have been formed. The AKRSP aims at capacity building of local communities to enable them to identify and use opportunities to solve their problems and to implement development programmes leading to

increased income, improvement in health, education, and living conditions, and to sustained productivity of land. A strong component of the programme is its focus on the active involvement of women's organizations. The basic concept of the AKRSP approach is using VOs to plan and implement village-level projects.

The Suketar Watershed Management Project

The Suketar Watershed Management Project (SWMP) covers 30,820 ha in the Bhimber and Samani *Tehsil* of Mirpur District, AJK: 9,520 ha of government forest (31%), 4331 ha of cultivated land (14%), and 16,944 ha of wasteland and *shamilat* (common village lands) (55%), with 41,551 people and 59,000 head of cattle. This is a typical eroded area. People are dependent on sub-tropical types of vegetation for fuelwood and fodder. The project aims to reverse the process of land degradation and soil erosion by involving local communities in structural and vegetation activities aimed at the sustainable production of food, fodder, timber, and fuelwood. Extension and demonstration activities are the main motivational tools being used to ensure successful implementation of the project.

Himalayan Wildlife Project

The Himalayan Wildlife Project (HWP) aims at improving the protection of the Deosai Plains in the Northern Areas. The project has received funding from the GEF/UNDP Small Grants Programme, and technical assistance from the US Fish and Wildlife Service, and the Krugar National Park and Wildlife Service, South Africa. Local communities are closely involved with the Northern Areas Parks and Wildlife Department, and the District Management in Skardu. The activities of the project are centred on strengthening park management systems, conservation advice, and studying the Himalayan Brown Bear.

Himalayan Jungle Project

The Himalayan Jungle Project (HJP) covers 1,300 sq. km. (130,000 ha) in the Palas Valley of Kohistan District (NWFP). This area is one of

the most important sites of biological diversity in Pakistan and is recognised as a global biodiversity 'hot spot'. Palas Valley is one of the least disturbed and largest tracts of temperate forest in the Western Himalayas. Since 1991, the HJP has been implementing a participatory programme in Palas, focussing on environmentally sound sustainable development to alleviate local poverty and conserve the Western Tragopan, a beautiful pheasant on the verge of extinction. The HJP has approached its objective through a number of integrated participatory programmes in agricultural development, rehabilitation of rural infrastructure, forestry management, biodiversity conservation, environmental awareness, and health. The project aimed at minimising pressure on forests by increasing cash incomes, diversifying agriculture, and increasing agricultural productivity.

Khunjerab Village Organization

A syndicate of five village organizations located along the Karakoram Highway in the upper Hunza Valley started a programme, the Khunjerab Village Organization (KVO), to conserve wildlife in the Buffer Zone of the Khunjerab National Park. The KVO volunteers protect the wildlife from illegal hunting. Trophy-

sized ibex are offered to sport hunters. The community receives 75 per cent of the trophy-hunting fee, and 25 per cent is deposited in the government exchequer.

Summary

The eight 'successful' forestry and wildlife projects have different strengths and limitations. The eight projects were evaluated in terms of a matrix of features derived from the pioneering work of Conway (1985), which identified equity, stability, sustainability, and productivity as the basic features of any successful approach to sustainable forest management. The results are shown in Table 6.

Some of the particular strengths and weaknesses identified were the following. The members of the village development committees' organizations (VDOs) formed by the MSFP to manage participatory interventions are rightholders. Because non-rightholders are excluded, the project has not always been able to generate broad-based participation over longer periods of time. (Low equity is positively correlated with low sustainability). In addition, the VDCs sometimes lack the vision needed to transform them into multi-purpose organizations. The

Table 6: Performance Assessment Matrix

Project	Forest Tenure	Contribution to				
		Equity	Stability	Sustainability	Productivity	Policy
MSFP KIDP	Private Protected	medium high	medium high	medium high	very high high	high (social forestry) high (integrated development)
SFDP	Reserved	very high	very high	high	high	high (joint forest management)
AKRSP	Communal	very high	very high	very high	very high	high (community development)
SWMP HWP (Deosai plains)	<i>Shamilat</i> Communal	high high	very high high	high high	high high	high (social forestry) high (community development)
HJP (Palas Valley)	Communal/ Protected	very high	very high	high	high	high (community development)
KVO (Hunza Valley)	Communal	very high	very high	high	high	high (joint forest management)

revised SFDP and the revised Tarbela Watershed Management Project NWFP introduced a new concept for Joint Forest Management through the development of Village Organizations (VOs). However, considerable work is needed to define the property rights and clarify tenure for the integrated management of the resources. Property rights and tenure have been clearly defined in areas under the AKRSP, and this ensures productivity and equity. Equitable distribution of benefits guarantees people's interest in the preservation and sustainable management of common property resources. The village organizations and local NGOs are quite effective as they draw moral and cultural support from social organizations like the *Jirga* in the NWFP. However, the members of *Jirga* are well-to-do notables. Although they enjoy rights in common property resources and in the Protected Forests, they also have a pronounced political alignment: and promoting a principle of equity is likely to be incompatible with the safeguarding of their own interests.

The results generated by these projects will need to be carefully nurtured if the halting of deforestation is to be maintained and replaced by sustainable management of resources. Policy in Pakistan tends to be 'episodic', changing every five years or so, and thus often unable to properly achieve the results of long-term projects. Through the awareness campaigns launched with the assistance of these NGOs, mountain dwelling rural communities have started realising the importance for their survival of the conservation of forests and other natural resources. Policy-makers have also learned some lessons: for example the importance of involving village communities and the benefits of social and agroforestry. The positive results achieved have convinced policy-makers to institutionalise these initiatives and develop appropriate recommendations for future development projects. The contemporary policy documents, i.e., the 1991 policy and the 1998 Draft Policy, identify participatory forest management and social forestry as the best way to conserve existing forests and ensure sustainable growth of private tree plantations on farmlands and common property resources.

3.4 The Impact of Forest Policies

The 1894 Forest Policy had as its sole objective the managing of state-owned forests for public benefit by regulating, and curtailing the rights and privileges of people living around the forests. It provided basic guidelines to classify, manage, and protect forests for timber production and to meet the domestic and agricultural needs of local people. The policy also allowed permanent agriculture on forest land where intense demand justified this. Policy granting more control to villagers was implemented very carefully, and it came to a halt during World War II (1939-45).

After independence in 1947, Pakistan inherited a meagre forest area of about three million ha. There was tremendous pressure on the natural forests in the mountains. An objective assessment was made of the forestry situation and the conclusion drawn that only those forests under state control had been adequately protected, whereas those under private ownership had been mismanaged for short-term commercial gains. Thus the Forest Department concluded that private forests should revert to government control. The 1955, 1962, 1975, 1980, and 1991 policy statements/regulations laid stress on increasing tree growth on farmlands and degraded forest lands in the high rainfall watersheds. To protect critical watersheds, the 1962 policy recommended shifting people from the mountains to the plains, but this was impossible to implement as a result of the social, cultural, and economic ramifications.

The 1955 policy recommended sound management of private and community-owned *Guzara* forests. Between 1981 and 1992 management of many of these forests was transferred from the Forest Department (NWFP) to forest cooperative societies. But the participatory initiative backfired, proper land use was ignored, the forests were degraded, and a ban was imposed on the cooperative societies by the Federal Government in 1993.

Forest policy from 1956 onwards has supported tree planting by farming communities on their

lands. Farmers were provided with incentives to raise tree plantations to reduce pressure on state forests. The 1962 and 1980 policies focussed on the introduction of fast-growing species to increase wood production and provide a quick return to farmers, with an emphasis on exotic species like poplar and eucalyptus. As a result, 90 per cent of fuelwood and 45 per cent of timber needs are now met from farmlands.

The 1991 Policy recognised the important role of communities in the management of communal forests and the expansion of forestry resources, and the need to support this approach through extension and incentives. It recommended the development of village organizations and the involvement of NGOs in participatory forest management. In practice, however, although the policy tried to build a rationale for the management of community forests, the status quo in the sector was maintained. The policy failed to perceive the impact of the attitudes of the right holders, communities, and the Timber Mafia. The draft policy 1998 recommends a number of initiatives based on the policies and strategies adopted during the implementation of various development projects and ecosystem approaches. It recommends Joint Forest Management as well as participatory forestry, watershed management, range management, and wildlife management.

The legal instruments continue to be mainly regulatory although the 1981 amendment to the Forest Act empowered members of Multipurpose Forest Cooperative Societies to manage their common property resources.

3.4.1 Management of Public Forests

Management of public forests has always been the focus of all forest policies. The 1956 policy recommended that forestry should be accorded a high priority in the national development plans. As it was the first policy after independence in 1947, it recommended classification of forests based on their utility and defining clear objectives for management, and emphasised the need for management plans to ensure sustained yields.

The forests have always been considered as a source of revenue for the state, and the policy of 1956 recommended that the forests should contribute to the economic development of the country. To further the cause, the policy directive of 1962 recommended that forests be managed as commercial farms with emphasis on maximising forest yields. It was not until 1991 that policy recommended the integrated use of forest resources in conformity with watershed management, range management, and wildlife conservation.

The draft Forestry Sector Policy 1998, under consideration by the government, is based on an ecosystem approach. It tries to integrate all the components of the forestry sector; including forests, watersheds, rangelands, and wildlife. It recommends revolutionary service reforms and improvement in the legal instruments, and it addresses ways of overcoming financial constraints on a sustainable basis to ensure conservation and management of all components, expansion of the resource base, and production of forest products. The draft policy emphasises participatory or joint forest management of public forests, and community participation in the management of watersheds, rangelands, and wildlife resources.

Traditionally, coniferous forests in the Himalayas, Karakoram, and Hindu-Kush Mountains are worked through natural regeneration. Prior to independence, the population of right holders was small, and it was easy to enforce the prevailing laws. Thus there was no need to support regeneration of forests through the application of various silvicultural systems like selection and shelterwood. During the last fifty years, the population has increased tremendously with an annual average growth rate of 2.7 per cent. This has been accompanied by an increase in usufruct rights in forests, together with an escalating demand for forest products in urban markets. Regeneration of hill forests, especially of fir, spruce, and oak, has become a critical issue. Forests have become further depleted as a result of persistence of the old style of management, keeping the local population at a distance and failing to involve them in decisions.

The problem of natural regeneration is also attributed in technical terms to conservative selection felling which does not open the forest canopy sufficiently wide to create the light and temperature conditions needed to germinate seeds. In addition, unabated grazing of domestic livestock prevents regeneration even if other conditions are favourable. Over the years, fir trees have to a great extent lost their regenerative capacity. Species of commercial importance like cedar, blue pine, and chir pine have been favoured over fir and spruce and, as a result, the number of many associate species such as *Taxus baccata*, *Quercus dialatata* and *Q. incana* have declined.

The 1956 policy recognised the problem of natural regeneration and recommended fencing of forests. As a result of financial constraints, it was not possible to erect and maintain barbed wire fences, and the regeneration areas could not be protected from grazing, cutting of young pole trees and small timber, and forest fires. It takes a considerable time to establish coniferous forests through natural regeneration—25-30 years for *Pinus roxburghii* under the Uniform System or Punjab Shelterwood System—so the 1975 and 1991 Forest Policies emphasised artificial regeneration using high quality, nursery-raised planting stock.

In the high hills, natural regeneration is supplemented with coniferous species (*Pinus roxburghii*, *P. wallichiana*, *Cedrus deodara*) and broad-leaved species (*Ailanthus*, *Robinia pseudoacacia*, *Juglans regia*) raised in poly tubes. *Quercus incana* and *Q. dialatata* cut by the right holders for fuelwood are not propagated because they grow slowly. There is an acute need to establish storage facilities for germplasms and to generate enough commercial interest for the conservation and propagation of vulnerable species. The molecular biological laboratory at PFI, Peshawar should perform research and genetic engineering to chart and improve the growth pattern of some of the most vulnerable forest species. Both of these are recommended in the draft Forestry Sector Policy 1998. The indigenous flora are highly important and there is a need for conservation of biodiversity,

wildlife, and the erection of social fences. The awareness and motivation of forest dependent communities in the high hills must be increased so that human intervention can be stopped until regeneration has been established and indigenous flora and fauna restored for the common good of the right holders in particular and society in general.

3.4.2 Management of Private Forests

There is a large acreage of private forests in the HKH mountains which is managed by the Forest Department on behalf of the owners. The owners of these forests feel alienated and have lost interest to the extent that forest protection has become a real problem. To resolve the problem in 1981, the government of NWFP decided to involve forest owners in the management of these forests on an experimental basis. Multipurpose Forest Cooperative Societies were established in Mansehra District and Forest Harvesting Societies in Kohistan District of Hazara Division. The decision was made in haste and opened the door for destruction of forests by the community members in collusion with various unscrupulous elements. This experiment led to encroachment of forest lands for agriculture on unrecommended steep slopes. As a result, the intensity of soil erosion and frequency of landslides increased to the detriment of both upland and lowland economies.

3.4.3 Forest Cooperatives

Forest cooperatives were set-up in Hazara (NWFP) for management of *Guzara* Forests after transferring their control from the Forest Department. For this purpose, Rule 6, of Hazara Management of Wastelands (*Guzara*) Rules, 1950 was amended and a notification was issued by the government on June 24, 1981, which reads as follows.

“In exercise of the powers conferred by Section 53 of the Hazara Forest Act, 1936 (NWFP Act VI of 1937) the Government of NWFP is pleased to direct that in the Hazara Management of wastelands (Guzara) Rules, 1950, the

following further amendments shall be made namely:

Amendment

After rule 6, the following new rule shall be inserted, namely:

“6A. (1) The conservator may, with the prior approval of the provincial Government transfer on leases on such terms and conditions as may be specified, the management of any wasteland, for a specified period or periods, to a Forest Production and Multipurpose Cooperative Society, registered as such under the Cooperative Societies’ Act, 1925.

(2) Where any wasteland is transferred under sub-rule (1), the provisions of rules seven to 24 of these rules, or any other rule that may be specified by the Conservator shall not apply to the area or areas so transferred during the currency of the lease period”.

This amendment in the law facilitated the establishment of Multipurpose Forest Cooperative Societies with the following short-, medium-, and long-term objectives.

Short-term Objectives

- Organize 15-18 cooperative societies of forest owners in three years
- Make inventories of 10,000-12,000 acres of forests in three years and prepare management plans for each area
- Train 10-12 key-members of the forest cooperatives each year at the Pakistan Rural Development Academy/Cooperative Training College
- Transfer management of 10,000-12,000 acres of Guzara forests to the Forest Cooperatives in three years

Medium Term Objectives

- Exploit forests through an intensive management system to provide optimum

financial benefits to the owners in the shortest possible time

- Manage Guzara forests on a cooperative basis to
 - create a sense of ownership;
 - reduce illicit cutting of trees in Guzara forests;
 - simplify procedures; and
 - promote cooperation among the community members.

Long Term Objectives

- To increase production of timber, firewood, and forage from forests and rangelands and raise productivity of agricultural lands
- To create a spirit of self reliance in the farming community and to assist in developing local infrastructure
- To obtain the voluntary involvement of the masses in development activities
- To motivate rural communities to develop mutual trust and a spirit of self help
- To evolve an operational strategy for the management of all wastelands in Hazara through cooperative institutions of landowners and in consonance with the accepted principles of forest conservancy.

The cooperative societies established under the Cooperative Act were governed by their own bye-laws. The societies were entitled to receive funds from Cooperative Banks and other financial institutions for financing operational activities. For this purpose, a Cooperative Federation was also set up to supervise and oversee the activities of the societies. The societies were required under bye-laws to pay one per cent of their total timber sale proceeds to the federation and carry out development activities, i.e., road construction, establishment of nurseries, re-forestation, and planting of non-forest areas. The timber sale proceeds were apportioned in the following manner.

- Owner's share	60 per cent
- Exploitation cost	20 per cent
- Development fund	20 per cent

If the forest exploitation cost exceeded 20 per cent, the excess was required to be adjusted

from the owner's share and a balanced amount distributed among the owners according to the revenue record. This resulted in over-harvesting of the *Guzara* Forests for the greater financial benefit of the owners. The executive committees were not interested in allocating even one per cent of the timber sale proceeds for development funds and reforestation of the harvested forest areas. In view of the land hunger in the mountains, communities tended to encroach upon forest areas after tree harvests for cultivation of agricultural crops - a flagrant departure in land use.

There were complaints of bad governance by the cooperative societies. As a result of landslides, erosion, and the heavy floods in 1992 and 1993, the cooperative societies were suspended under the directive of the Federal Government in 1993. The management of *Guzara* forests has reverted to the Forest Department, NWFP. Under development projects, communities are now being actively involved in management and decision making through Joint Forest Management and operational Village Organizations and local NGOs.

3.4.4 Forest Harvesting Societies

Forest Harvesting Societies were concerned only with harvesting activities like felling, conversion of logs or sleepers (scants), and carriage from forest to roadside and from roadside to market where government and owners shared the timber in ratios of 20:80 or 40:60.

3.4.5 Public Sector Corporations

Public sector corporations were established for the development of forestry in NWFP and AJK: the NWFP Forest Development Corporation (FDC) and the Azad Kashmir Logging and Saw Milling Corporation (AKLASC). According to the legal statutes, they perform the following functions.

- Economic and scientific exploitation of forests

- Sale of forest produce
- Establishment of primary wood processing units
- Regeneration of areas to be specified by the government
- Performance of such other functions as may be assigned to them by the government

These corporations were provided with operating capital and additional facilities like the ability to retain 10-20 per cent of profits, to borrow money from local and foreign banks against government sureties, and to secure grants from donor organizations in the form of equipment, logging machinery, and foreign experts.

3.4.6 Afforestation on Hill Slopes

Afforestation of barren hill slopes has been initiated in Hazara, Malakand, and AJK since the early 1980s under watershed management programmes. Farmers were motivated and encouraged to terrace their agricultural fields, plant fruit and forest trees, construct check dams and silt traps, and improve pasture lands. For this they were paid 50 per cent wages in cash and 50 per cent in kind, i.e., food stamps for sugar, tea, powdered milk, wheat, butter oil, and pulses. The programme was well received by poor hill farmers, because it provided a better yield from agriculture, fruit trees, employment, and enough food and feed for their livestock. The project served the national interest by increasing tree growth, preventing soil erosion, regulating stream flow, improving wildlife habitats, and stabilising the environment.

3.4.7 Information for Forest Policy, Management and Planning

Information, and analysis of past forest policies, is essential for future management and planning. Unfortunately, this aspect has never received adequate attention. Past policies were symptomatic in character. The need for a sound database for planning and monitoring was first mentioned in the 1991 Forest Policy. The information available on the environmental

aspects and social values of the various components of the forestry sector is inadequate for strategic planning and management of the resource. The draft Forestry Sector Policy 1998 emphasises the importance of establishing a data base system for periodically monitoring the health and condition of forests using GIS facilities. The data are needed to facilitate ecological security and to calculate pollution charges on the 'polluter pays principle' to maintain forests as carbon and nitrogen sinks.

3.4.8 Increase in Forest Area

Pakistan is situated in the arid zone (north of the Tropic of Cancer), with a skewed distribution pattern of rainfall as an inherent characteristic. There is a limited artificial water supply through a 36,000 km long canal network system in the plains which is mainly meant for cultivation of food and fibre crops. The forest area, which covers less than five per cent of the country's geographical area, is far below the growing needs of the 137 million population. Pakistan is a wood deficit country and relies heavily on imports of wood and wood products; mostly wood pulp and paper. Inadequate supply of wood as a raw material has been the major factor contributing to the poor growth of wood-based industries. Various forest policies have focussed on increasing the area of forest to overcome the shortage of timber.

The policy of 1956 recommended that 10 per cent of land in new canal colonies should be reserved for establishing irrigated plantations in the public sector. The 1962 policy directive recommended that state lands and land strips along canals, roads, and railways should be transferred to the Forest Departments for afforestation. Subsequent policies no longer contain such recommendations, because it became obvious that forest plantations could not be established without allocation of irrigation water, and the only feasible option was to promote agroforestry on irrigated farms and degraded lands in the high rainfall watersheds of the Himalayas.

According to the sectoral analysis made in the draft Forestry Sector Policy 1998, attainment

of the Policy's objectives will support the sustainable development of Pakistan by striking a balance between environment and economic development. On the environmental front, the policy will enable the country to protect and conserve valuable soil and water resources and fulfill international commitments in environmental management and biodiversity conservation. On the economic front, the policy will enable the country to expand forest cover in order to meet more than fifty per cent of household energy needs, to increase wood production to meet demand requirements, and to increase farmers' income.

The potential quantifiable impacts of the draft policy 1998 show that by year 2010 the forest cover will increase from 4.50 million ha to 6.64 million ha (48%); by 2020 to 9.36 million ha (108%); and by 2040 to 14.98 million ha (233%). Similarly, wood production will increase from 14.4 million cu. m. to 27.1 million cu. m. in 2010; 50.7 million cu. m. in 2020; and 107.4 million cu. m. in 2040. The annual family income of farmers will increase on average by Rs 4,000 based on 1998 prices.

3.4.9 Expansion of the Forestry Resource Base

Expansion of the forestry resource base in the private sector was considered to be the only viable option to narrow the gap between the supply and demand of wood and wood products. Tree planting campaigns, held twice a year in the spring and monsoon seasons, started as far back as the mid fifties and are continuing with great vigour and zeal. During these campaigns, saplings are provided free of cost or at highly subsidised rates. The 1956 policy recommended extensive public support through education, awareness, extension, and encouragement to establish compact plantations through farmers' cooperatives.

The 1962 policy directive also recommended the supply of saplings at nominal rates. The tree planting activity on farmlands gained considerable momentum. In the province of Punjab, a law prescribing a minimum number of three trees per acre was enacted in 1974. This

regulatory instrument has lost its purpose; as a result of the high price of wood farmers themselves are interested in planting trees on farmlands to increase their farm income. The 1962 policy also recommended institutionalising farm forestry by making it one of the functions of the department of agriculture. But this provision could not be implemented because of the divergent approaches of the disciplines of agriculture and forestry, and the lack of a balance for managing the different kinds of crops competing for food, space, and light. The policy further recommended union councils to plant trees around homesteads, government buildings, along district council roads, and in other appropriate places. The thrust to plant trees under social forestry and watershed management programmes also continued in the 1980 policy.

While providing good guidelines, the 1991 policy suggested some programmes that are almost impossible to undertake. For example, a two-fold increase in the existing forest area in 15 years requires undertaking afforestation over at least four million hectares at an estimated cost of Rs 40 billion with an annual expenditure of Rs 2,700 million.

The 1991 policy emphasised conserving the natural hill forests. However, the action plan for the policy recommended intensive management, harvesting, increasing road density, and mechanising forest operations. Tree harvests continued without adequate release of funds for reforestation at the same time as the usufruct rights of mountain dwellers increased.

Pakistan is faced with a dilemma: to conserve its forest wealth for a balanced ecology; or to manage forests for a balanced economy. The

income from forests makes a substantial contribution to the revenues of the NWFP and AJK Governments. But the nation is more interested in conserving forests for their environmental functions. The devastating floods of 1992 were attributed to loss of forest cover. And the costs resulting from soil erosion, accretion of silt in water reservoirs and water delivery systems for irrigated agriculture, and flood damage, exceed Rs. 2.5 billion annually.

In 1993, in response to the devastating floods, and to reverse the trend of watershed degradation and ensure food security and environmental stability, the Federal Government imposed a three-year moratorium on commercial timber harvests through a directive. This moratorium was extended for a further three years until 1999. However, these *ad hoc* policy decisions were not accompanied by rationalisation of import duties on timber to meet the growing needs of the country. And adequate funds were not provided to establish tree plantations in the public and private sectors to overcome the shortage of timber in the future. In addition, the production targets for coniferous timber as projected in the Forestry Sector Master Plan and the Eighth Five Year Plan (1993-98) were affected adversely.

The draft Forestry Sector Policy 1998 resolves to undertake afforestation, promote tree planting on farmlands, combat desertification through biological amelioration, and conserve the existing forests as carbon and nitrogen sinks. It also aims to achieve self-reliance in forest products through the establishment of wood-based industry. To achieve these objectives, the policy recommends the establishment of a Forestry and Wildlife Trust Fund to overcome the chronic shortage of finance, in addition to service and legislative reforms.

4 Forestry and the Five Year Plans

The annual release of funds in various development plans is shown in Table 7.

Table 7 shows that there has been a gradual decline in the release of funds for the forestry sector. Forestry gets about 10 per cent of the total development budget allocated for the agricultural sector, less than 0.5 per cent of the funds for the national Annual Development Programme. The proposed allocation of forestry development funds for the Eighth Plan (1993-98) is Rs 4,015 million against a release of Rs 529 million annually up to 1997.

4.1 The Ninth Five Year Plan (1998-2002)

The Ninth Five-Year Plan initiatives for forestry are essentially based on the Policy Objectives of 1991, until the draft Forestry Sector Policy 1998 is approved by the government. However, the plan approach is based on participatory forestry to expand the forestry resource base, produce an adequate quantity of raw material for growth of a wood-based industry, and

reduce dependence on imported wood and wood products.

4.1.1 Approach

Forestry plays an important role in the sustainability of Pakistan's agrarian economy, which is dependent on environmental stability, water regulation for irrigated agriculture, and cheap generation of hydropower. The population of 137 million, which is growing at a rate of 2.7 per cent per year, is facing an acute shortage of agricultural and forest products. The pressure on Pakistan's meagre forest resources is leading to degradation of watersheds, accelerated soil erosion, accretion of silt in the multipurpose dams of Tarbela and Mangala, and a high frequency of floods. These together with the depletion of rangelands mean that the gap between supply and demand of both agricultural and forest products is likely to grow larger in coming years.

Pakistan is heavily dependent on imported products, raw as well as value added. Pakistan

Table 7: Provision/Release of Funds in Five-Year Plans

Plan	Provision	Release	Ratio Provision to Release
1st (1955-59)	39	35	1.1:1
2nd (1960-65)	87	72	1.2:1
3 rd (1965-70)	140	92	1.5:1
4 th (1970-78)	216	212	1.0:1
5 th (1978-83)	1223	629	1.9:1
6 th (1983-88)	1571	749	2.1:1
7th (1988-93)	1962	946	2.1:1
*8 th (1993-98)	4015	2647	1.5:1

*Data for 8th Plan are available up to 1996-97.

Source: Ninth Five Year Plan Document (1997).

imports wood and wood products exceeding Rs seven billion annually, the bulk of which is spent on wood pulp, paper, and paper products. It will require a strategic leap forward to change from import substitution to self-sufficiency and industrialisation driven programmes.

There has been a growth in urbanisation and industrialisation without regard to environmental issues such as air and water quality. The impact of climate change, and potential disruption to life-support systems, require that forestry programmes be prioritised in accordance with the recommendations of the Forestry Sector Master Plan (1992). Although awareness of the need to reduce the size of the population is increasing, natural resources continue to bear an ever-increasing burden to meet timber, fuelwood, and grazing needs.

During the term of the Ninth Five-Year Plan, greater emphasis needs to be laid on the involvement of the private sector in tree planting on farmlands, and on community participation in the management of state forests. The growth of a wood-based industry will assure the marketability of farm-grown wood, and better prices for wood and farmland planting will contribute to alleviation of rural poverty and the conservation of natural forests. Incentives to and setting up of wood-based industries, and rationalisation of the import duty structure on timber, will contribute to saving the country's dwindling forests and reducing dependence on imported wood and wood products.

In the Eighth Five-Year Plan, the emphasis was on awareness, advocacy, institutional development, and the legal framework for the forestry sub-sector. Although awareness raising and implementation of projects of demonstrative value led to a breakthrough in attitudes towards planting trees on farmlands and conserving existing forests, progress in the area of institutional and legal reforms was abysmally low. These qualitative indicators spell out the extent of consolidation of work carried out in the past. It will be a guiding principle of the Ninth Five Year Plan to undertake enabling institutional and legislative

reforms for capacity building to meet the emerging challenges faced by the forestry sector in the twenty-first century.

4.1.2 Objectives of the Ninth Five Year Plan

The Ninth Five-Year Plan will focus on the following set of actions.

- Public sector development programmes will indicate their environmental soundness.
- The private sector, which is a market framework, will be guided indirectly by policy incentives (disincentives), environmental considerations, pollution mitigation options, and conservation of natural resources.
- Legal and institutional reforms will be carried out in the forestry sector.
- Maintenance and improvement of watersheds will receive due priority.
- Property rights in rangelands and marginal lands will be clearly defined to prevent over-exploitation of the resource.
- International conventions to which Pakistan is a signatory will be implemented in letter and spirit.
- Community participation will be given a concrete shape.

4.1.3 Ninth Five Year Plan Strategy

The strategy to achieve the objectives of the Ninth Five Year Plan are based on the programmes identified in the Forestry Sector Master Plan (FSMP) document (1992-2017). The main theme in implementing these programmes revolves around the concept of collaborative or joint management, which seeks to mobilise local communities for conservation and sustainable development of natural resources like watersheds, forests, rangelands, and wildlife. The collaborative management regime would reform institutional arrangements for managing natural resources and secure the livelihoods of the local population by bringing together the diverse skills and capacities of various stakeholders in a flexible process subject to constant review.

Success of the Ninth Five-Year Plan for the Forestry Sector will be based on qualitative indicators. A review of the Forest Policy, institutional and legislative reforms, the resolution of sectoral and inter-sectoral conflicts, and community-based development will have to be undertaken to ensure sustainable use of the natural resources on a long-term basis.

The physical targets of the Ninth Five-Year Plan are based on the priority programmes listed in the FSMP. They are summarised in Table 8.

4.1.4 Wood Production Estimates

During the term of the Ninth Five-Year Plan, the capacity of the private sector will be enhanced considerably through various initiatives for increased wood production on farmlands. The gap between supply and demand will continue to be met through the import of wood and wood products following rationalisation of the structure of the import duties for timber. As a result of the ban (1993-99) imposed on timber harvests in natural forests, 80 per cent of which are dispersed in the mountain ranges of the HKH, the demand for timber will be met from farmlands. Wood production from farmlands is expected to register a substantial increase as a result of various social

forestry projects that have been implemented over the last 15 years. Wood production in the lowlands will have a direct impact on high hill forests and on the people engaged in transport of wood from areas of surplus to areas of deficit. It will also have transboundary effects on the exploitation of forests in Afghanistan, which has been affected by the moratorium placed on the commercial harvest of natural forests in Pakistan.

4.1.5 Financial Estimates

The total estimated outlay for forestry, watershed, range management, and wildlife during the term of the Ninth Five-Year Plan is Rs 28,436 million (Table 9).

The overall annual release of funds for the forestry sector during the 5th and 6th plan periods was Rs 138 million, for the 7th Plan Rs 190 million, and for the 8th (projected) Rs 529 million (Ninth Five-Year Plan document). It will be difficult to achieve a ten-fold increase to implement the policy objective. The policy may also underrate the difficulty of finding additional areas for afforestation in the public sector and the constraints resulting from aridity, water availability, and financial limitations.

Table 8: Physical Targets for the Forestry Sector in the Ninth Five-Year Plan

Programmes	Units	Punjab	Sindh	NWFP	Baloch istan	NAs	AJK	Total
Watersheds	000 ha/no	5	-	181	5	5	73	279
Coniferous	000 ha	40	-	215	25	35	85	400
Irrigated plantations	000 ha	15	5	-	-	-	-	20
Afforestation in riverine forests	000 ha	5	17	-	-	-	-	22
Afforestation in mangrove forests	000 ha	-	15	-	-	-	-	15
Amenity planting/linear	000 ha	10	5	6	-	-	-	21
Farmland planting	000 ha	116	57	54	9	2	-	238
Range management projects	No	5	1	2	2	-	-	10
Sand-dune stabilisation	000 ha	-	-	-	5	-	-	5
Nursery establishment	000 ha	1750	300	1600	50	110	110	3920
Sapling distribution	million	350	100	370	20	20	100	960
Sericulture cocoons	kg	25000	-	30000	-	5000	-	60000

Source: Ninth Five-Year Plan

Table 9: Estimated Costs (Rs million)							
Programmes	Punjab	Sindh	NWFP	Balochistan	NAs	AJK	Total
Watersheds	1,865.37	-	7,432.92	800.00	25.42	300.00	10,423.71
Conifer Forests	-	-	1,670.50	-	0.06	186.00	1,856.55
Irrigated Plantations	2,814.61	1,020.00	-	-	40.97	-	3,875.58
Riverain Forests	66.68	180.00	15.62	-	-	-	262.29
Mangrove Forests	-	96.00	-	-	-	-	96.00
Amenity/Linear Plantations	3,432.89	50.40	20.87	41.00	-	-	3,545.16
Famland Planting	543.17	303.00	1,411.60	-	88.29	-	2,346.06
Range Management	83.10	20.00	205.80	51.00	-	650.00	1,009.90
Sand-dune Stabilisation	-	-	143.37	40.00	-	-	183.37
Wildlife	960.18	80.00	879.57	373.00	47.23	-	2,339.98
Administration	160.00	14.00	357.60	8.00	22.00	120.00	681.60
Education & Training	60.20	20.00	215.00	-	25.00	120.00	440.20
Research	23.00	32.00	30.00	-	-	48.00	133.00
Sericulture	15.00	20.00	-	17.00	-	-	52.00
Nursery	-	-	15.32	13.00	41.83	50.00	120.14
Federal	-	-	-	-	-	-	875.98
a. Ministry of E.L.G & RD	-	-	-	-	-	-	48.36
Watersheds	-	-	-	-	-	-	-
Administration	-	-	-	-	-	-	-
b. PFI - Research & Education	10,024.20	1,835.40	12,398.15	1,343.00	290.79	1,474.00	28,435.95

5 Other Issues in Natural Resource Management

5.1 Watershed Management

Soil and water conservation is a serious problem in the high rainfall area of the Himalaya-Karakoram-Hindu Kush mountains. The 1956 policy recommended coercive measures to control land use. Construction of multipurpose dams, started in the 1960s, brought home the need for watershed management programmes. Since then, watershed management has been an integral component of forest policies. Afforestation and planting of fruit trees, and construction of engineering structures, were recommended and implemented under various projects. During the early sixties, a pilot watershed project was initiated in the Murree Hills and Gallies of Hazara Civil Division. Hill farmers were provided with incentives and subsidies to use fuel-efficient cooking stoves and kerosene to reduce wood consumption. Fruit tree saplings (apples, pears, apricots, peaches, plums, and persimmons) were distributed free of cost to discourage cultivation of agricultural crops on steep slopes and help farmers diversify and increase the income from their small landholdings. Initiatives on grazing management and fodder cultivation were ignored, however. This pilot watershed project also lacked any concept of community participation through village organizations or NGOs. The forestry officials involved in the project were not trained in participatory approaches or for out-reach functions.

In the 1980s, the concept of community participation in watershed activities gained ground. The importance of Village Organizations (VOs) and NGOs for successful implementation of projects, and their role in

the protection of forests, soil conservation, wildlife management, tree planting, and cultivation of orchards as components of an area development package, were recognised in a series of projects especially in the NWFP, NAs, and AJK. The projects included the Malakand Social Forestry Project, the Kaghan Integrated Development Project, the Tarbela Watershed Management Project, and the Aga Khan Rural Support Programme. The services of VOs and NGOs have been used effectively in participatory planning and implementation of community-based programmes.

5.2 Range Management

Management of rangelands was first mentioned in a policy directive in 1962. The policy recognised grazing in forest areas as an important land use and recommended development of fodder resources, feed lots, range research, and extension. Little headway has been achieved in participatory or social ranges, mainly because of unregulated grazing by nomads and the dependence of the mountain communities on keeping large herds of livestock. The situation was further aggravated by the influx of 30 million Afghan refugees and their livestock herds into the alpine pastures and lower altitudes. This led to further degradation of the natural ecology of the Himalayan-Karakoram-Hindu Kush mountain ranges, resulting in further deterioration of rangeland productivity.

5.3 Forests and People

One of the objectives prescribed in Forest Working Plans is to meet the needs of the mountain communities and especially the right

holders, for fuelwood, timber for house construction, grazing, and grass. However, the provisions of the working plans are regulated in a manner that deprives local communities of their legal rights in the forests. The policy directive of 1962 recommended acquisition of the rights of local people by the government and shifting of local people from critical upland watershed areas to the plains and other centrally located villages. This provision of the policy was too harsh to be implemented. People who had been living in the mountain areas since time immemorial were unwilling to move, and the necessary financial resources were also lacking.

The 1956 policy recommended far greater control of land use for soil conservation. The 1962 policy directive recommended enhancement of penalties under the Forest Act, 1927, and demanded magisterial powers for forest officers. This policy also recommended legislative measures prescribing planting of a minimum of three trees by farmers on their lands. The 1991 policy recommended legislative measures for the management of rangelands. Instead of involving people in the management of forests, these policies recommended greater control over people through legislation. The only policy recommendation that can be considered as 'people friendly' is that of 1975, which emphasised awareness raising and recommended the use of negative legal measures only as a last resort.

5.4 Logging and Utilisation

Sale of standing trees through contracts was the rule until the 1970s in the high hill forests of the Punjab, NWFP, and AJK. This practice persists in the NAs as a result of the inaccessible terrain. The contractors used to obtain contracts at unaffordable prices in a cut-throat bidding process, and as a result often indulged in the unethical practice of cutting unmarked trees. The 1956 policy recommended abolishing the contractual system of standing sale of trees. The problem persisted and the recommendation was again made in the 1962 policy directive. However, it was not until 1975 that the provinces initiated departmental logging. In

NWFP and AJK the task of logging was entrusted to state corporations (FDC in NWFP and AKLASC in AJK). The 1991 policy recommended that logging should continue to be limited to public sector through these corporations and departmental felling.

The logging methods are crude. Because of the difficult terrain and low road density, especially in the Northern Areas, timber cannot be extracted in log-form. The logs are converted to scantlings by hand tools resulting in wood wastage and poor quality of the product. Realising this, all forest policies have recommended implementation of improved logging methods. The policies of 1955 and after recommended improvements in harvesting methods. The Kalam Integrated Project in NWFP addressed this issue and successfully demonstrated the benefits of improved logging and harvesting practices. The project also demonstrated the use of aerial ropeways and skyline-cranes for timber extraction. Based on this experience, the 1991 policy recommended adoption and replication of this technology and recommended exemptions of tariffs on the import of equipment needed for skyline-cranes.

The draft Policy of 1998 recommends mechanisation of logging operations in addition to development of a harvesting code to preserve watershed values. The strategies include rationalisation of import duties on timber to help conserve the natural forests dispersed in the HKH mountain ranges.

5.5 Wildlife

Wildlife is an integral component of forest ecosystems, and the 1956 policy recommended protection of wildlife and conservation of their habitats. The 1991 policy paid greater attention to the protection of the wildlife resource through a number of recommendations, including recovery plans for endangered species and raising awareness. The IUCN and WWF-Pakistan have launched collaborative programmes in fifteen valleys of the NWFP, Northern Areas, and Deosai Plain like the Himalayan Jungle Project in the Palas Valley. Communities have been involved in the

conservation of wildlife through various incentives. Trophy hunting has been introduced as one measure for conserving and propagating wildlife in the Himalayas and Hindu Kush mountain ranges.

In recent years, trophy hunting of ibex has been allowed to foreign hunters at a rate of US \$3,000. Seventy per cent of the trophy-hunting fee goes to the Village Wildlife Conservation Fund and 25 per cent to the Provincial Government exchequer. The export of trophy hunts is regulated under the CITES regulations at Federal level by the National Council for Conservation of Wildlife and the Ministry of Commerce. The conservation of wildlife and other development activities are financed out of the village fund. This methodology for involving communities has yielded positive results as shown by the increase in the population of ibex. During the 10th CITES Conference of Parties held in Harare in 1997, Pakistan obtained an annual quota for export of trophies of ten markhor (*Capra falconeri*), which is one of the Appendix-1 species. Using the analogy of ibex conservation, the HKH communities expressed their desire and willingness to protect Markhor and their habitat and to secure trophy hunting permits for the economic improvement of rural communities in the remote hill tracts. If this trend in community participation in conservation of wildlife persists, the status of markhor will be down-listed from Appendix-I to Appendix-II.

5.6 Upland-Lowland Linkages

The uplands and lowlands have a vibrant organic link. The basis of this link is provided by the differences in the natural resource endowments of the HKH mountain ranges and the plains of the Indus Basin, and their productive potential and opportunities for exchange. Bio-physical environments in uplands impose constraints as a result of the high degree of inaccessibility, fragility, marginality, and even diversity. During the winter snows and summer monsoons, the mountain areas can be isolated for many days because of avalanches, glacial movement,

landslides, and rolling boulders. As a result, mountain communities acquire the status of marginal entities in their economies and their interactions with mainstream urban dwellers in the plains.

The uplands of the Himalayan-Hindu Kush mountain ranges produce raw material for the mainstream lowland communities where the bulk of the population is either engaged in irrigated agriculture or employed in agro-based industry. Over-exploitation of natural resources like timber, water, and biodiversity benefits the downstream areas, but no compensation is paid to the mountain dwellers. Even the petty trading of mountain products like herbs, seeds, fruit, and mushrooms is constrained by poor means of communication, perishability, and the low bargaining capabilities of people operating in a buyers' market that is characterised by under-pricing. In contrast, the resource and commodity flows from plains to uplands have always been small and selective, making this linkage virtually a one-way process.

As a result of the skewed relationship between the upstream and downstream economies, and the constant sacrifices of the mountain communities, the magnitude of negative impacts has been accentuated. These inequitable linkages have become a focus of attention as a result of the flooding that has become a normal feature since 1992. The damage inflicted by floods in the form of destruction of agricultural crops, infrastructure, life, and property has been estimated at Rs 2.5 billion annually.

5.6.1 Economic Flow Matrix

In view of the vast diversity of biophysical and socioeconomic circumstances and the inaccessibility of mountain areas, any attempt to determine economic flows is a great challenge. Table 9 provides a broad idea of the economic linkages between the HKH mountains and the downstream areas. The different categories are described further in the following sections.

Table 9: Upland-Lowland Economic Linkages

Categories	Traded Commodities & Service Flows	Managed/Semi Managed Natural Resource Flows	Human Resource Flows	Social and Public Sector Investment Flows
Major items	Fruits, herbs, mushrooms, and others	Irrigation water	Seasonal migration of mountain labour	Cash or kind
Relief/subsidy				Flows to mountains
Investment	- Timber/forest products - Hydropower - Tourism	Nutrient and environmental resources/ services from mountains	Management of tourists/external interventions	Welfare

5.6.2 Traded Commodities, Service Flows, and Natural Resource Flows

Traded commodities, service, and natural resource flows include: (a) special mountain products like fruits, herbs, vegetables, and mushrooms with which mountains are naturally endowed; (b) timber and other forest products as the major items of trade in urban centres in the plains; (c) ecotourism, the major high-value service provided by upland communities without securing extraordinary gains; (d) flow of water and nutrients to downstream lowlands, which is as eternal as the mountains, and harnessing of water flow by human activity to regulate water for irrigated agriculture by constructing dams at Tarbela and Mangala; and (e) production and export of hydropower from the highlands to the lowlands, without direct involvement of mountain communities.

Semi-managed natural resource flows from the HKH mountain ranges include: invisible environmental services or gains in terms of groundwater recharge, soil nutrients, biodiversity, silt-free water flows, and the physical security of downstream farmlands, which is directly related to the preservation of watershed values by the mountain dwellers. For want of proper computation and lack of pricing, the cost of these services and the efforts of mountain communities, especially in the high monsoon zone, remain uncompensated. The gains of the downstream beneficiaries are never shared by the upland people.

5.6.3 Human Resource Flows

The HKH region in Pakistan offers a unique opportunity for the affluent class of people living in urban and peri-urban areas in the plains to escape to hill resorts during the harsh summer. In the absence of alternative sources of income in mountainous areas, men migrate from the mountains to the lowland areas to seek employment. This seasonal migration creates a temporary labour scarcity that adds to mountain women's burdens. The nomadic grazers also descend along with their livestock herds to pass the winter at lower altitudes. Every year, 80,000 livestock trek from the Neelum Valley (AJK) to the Potowar plateau in winter and journey back at the beginning of the spring season. These human resource flows between high and low altitudes keep the mountain economy vibrant.

The gains in the mountain economy could be enhanced substantially, if the requisite integrated approach were adopted. It is essential to alter the circumstances that force out-migration by creating local opportunities for gainful employment through infrastructural development, development of local resource-based micro-enterprises, expansion of the hotel industry; improvement of local skills for the development of cottage industries, and increasing the capability to benefit from these changes. The tourist flow encourages local communities, and especially women, to develop cottage industries and improve their skills in the distribution of goods and services so that they can augment their earnings and command higher wages.

5.6.4 Social and Investment Flows

The major economic flows from the plains of the Indus Basin and lower altitudes to the uplands of the HKH are: (i) cash and kind supplies in the form of welfare relief and subsidies, and (ii) public sector development funds. Despite an increase in investments, the flows are much lower than the economic flows from the mountains to the plains. As a result, the uplands, besides strengthening the downstream economies, continue to suffer from the permanent malaise of under-investment and resultant escalation of poverty and under-development.

Public sector development also remains confined to those mountain areas and locations where

irrigation and hydropower projects, mining activities, tourism, and horticultural potential are harnessed to meet the needs of urban populations and the priorities of lowland areas. Even when development interventions in the uplands are free of lowland bias, the design and implementation mechanism of the development projects lack a mountain perspective on such things as fragility and diversity. This reduces the relevance and effectiveness of investment in the upland mountain region.

To rectify the situation, utmost priority must be given to development investment and design strategies with a mountain perspective. Gradual elimination of under-investment should also be a priority.

6 Human Resource Development

Professional forestry education is imparted at the Pakistan Forest Institute, Peshawar. The Directorate of Forestry Education and Training is supported by its own faculty members and senior research scientists at PFI. Occasionally field officers also deliver lectures. Excellent teaching facilities are available which include a laboratory and hostels for men and women. In addition to degree courses, in-service specialised courses are also organized at the institute.

6.1 Forestry Education and Training

In Pakistan, the purpose of forest education is to provide a steady flow of trained manpower to the Forest Departments, other government organizations (including NGOs), and wood-based industries. Forestry education can be acquired only in specialised institutions. Apart from classroom teaching, forestry education involves practical field training, which includes extensive tours of forests in different ecological zones and study of various wood-based industries. Thus forestry education is comparatively expensive. A limited number of students are enrolled in these institutions and their training expenses, including tuition fees and allowances, are borne by the sponsoring agencies.

6.1.1 *The Pakistan Forest Institute, Peshawar*

The Pakistan Forest Institute (PFI), Peshawar is a national institute attached to the Federal Ministry of Environment, Local Government,

and Rural Development. It was established in 1947 and since then has fulfilled the forestry training and research needs of the Provincial Governments and other organizations. The institute has five divisions including the Forest Education Division. The other divisions are mainly engaged in forestry research, but provide valuable support to the Forest Education Division.

The PFI offers two courses of two years duration, the BSc. Forestry and the MSc. Forestry. The faculty of education at PFI (Forest College) is affiliated to the University of Peshawar for conducting examinations and awarding degrees. Subject to fulfilling the prescribed qualifications, admission in the courses is granted without gender bias. Generally, the following are admitted to receive professional forestry education at the PFI, Peshawar:

- those already in government forest service;
- probationers nominated by the government and private agencies;
- persons selected through competitive examinations by the Pakistan Forest Institute for its requirements;
- nominees of foreign governments and international organizations; and
- a limited number of self-financed individuals fulfilling the requirements for government nominees.

Following successful completion of the two-year course, BSc. (Forestry) and MSc. (Forestry) graduates are usually employed by their

sponsoring organizations. Over the years, the education faculty of the PFI has gradually expanded. In order to meet the emerging challenges, especially in participatory forestry, it will have to train professional foresters for their role outside their departments. For this purpose, specialised courses are also offered to develop a broader, more socially-oriented outlook and expertise in forestry professionals.

6.1.2 The University of Agriculture, Faisalabad (UAF)

The University of Agriculture, Faisalabad, established its Department of Forestry, Range Management and Wildlife in 1977, offering a degree with a major in forestry. At present, it offers a four-year course leading to MSc. (Hons') Agriculture (with a BSc. (Hons) agriculture after two years) with a major in forestry. The forestry curricula are well integrated with agriculture. However, the classroom facilities are rudimentary, the teaching faculty is incomplete, and the department has only a small library of about 400 books. The forestry content has been increased, but its depth and breadth needs considerable improvement. As a result of stiff competition from the PFI, few students enroll each year. Provincial Forest Departments are not happy to recruit the graduates from Faisalabad University as a result of the apparent weaknesses in certain disciplines.

6.1.3 The Punjab Forest Research Institute (PFRI), Gatwala

The Punjab Forest Research Institute located near Faisalabad provides in-service training for forestry technicians and professionals in agroforestry as well as performing research.

6.1.4 The Punjab Wildlife Research Institute, Gatwala

The Punjab Wildlife Research Institute located near Faisalabad provides in-service training for forestry and wildlife technicians and wildlife professionals as well as performing research.

6.1.5 Provincial Forestry Schools

The education and training of Foresters and Forest Guards is conducted by the Provincial Forest Departments in their forestry schools. The training duration for foresters is one year and for Forest Guards six months. Certificates are awarded to the nominees of the departments and organizations on successful completion of training. The list of forestry schools is provided in Table 10.

Balochistan and the Northern Areas do not have forest schools and their nominees receive training at the forest schools of other provinces.

6.1.6 Forestry Training

The courses leading to BSc. Forestry and MSc. Forestry have a large number of applied science and forestry subjects. Although most of the subjects are the same, they are taught in greater depth at MSc. Forestry level. Forestry education and training programmes are designed to produce professionals and technicians. There are four levels of training which correspond to the entry-level needs of forest departments and other organizations. The levels are shown in Table 11.

The subjects are taught to MSc. Forestry and BSc Forestry students at the PFI, Peshawar, are shown in Table 12.

Table 10: List of Forestry Schools in Pakistan

Name of School	Location	Province
Punjab Forest School	Ghoragali (Murree Hills)	Punjab
Punjab Forest School	Bahawalpur	Punjab
Sarhad Forest School	Thai (Abbottabad)	NWFP
Miani Forest School	Hyderabad	Sindh
Azad Kashmir Forest School.	Muzaffarabad	AJK

Table 11: Levels of Entry for Forestry Training Programmes

Training Programme	Pre-requisites	Training Period	Employment Level	Responsibility
<u>Professional</u> MSc. Forestry	BSc./BSc. Forestry	Two years	Sub-Divisional/ Divisional Forest Officer	Protection and management of Forest Division (BPS-17) comprising 4-6 Forest Ranges and supervision of Range Forest Officers
BSc. Forestry	FSc.	Two years	Range Forest Officer	Protection & management of forests in a Forest (BPS-16) Range, comprising 4-6 Forest Blocks and direct supervision of Foresters and Forest Guards
<u>Technician</u> Certificate (Forester)	Matriculation	One Year	Forester	Protection of Forest Blocks (BPS-5), comprising 4-6 Forest Beats, and supervision of Forest Guards and labour
Certificate	Matriculation	Six Months	Forest Guard	Protection and direct supervision of Forest Beats (smallest administration units) (BPS-2)

6.1.7 Participatory Forestry Education

In the past, estate management and law enforcement were the only concerns of forest departments. Therefore, forestry education dealt with forest protection in detail, and included basic silviculture and elementary forest management. In the policy statements of 1955, 1962, and 1980, the emphasis on technical forestry grew steadily and new disciplines were gradually added to forestry education as well as to the responsibilities of forest departments. These included watershed management, range management, logging and engineering, social forestry, and a small course on wildlife, fisheries, countryside recreation, sociology, and public administration. With the shift from traditional protection forestry to participatory forestry during 1985-95, forest education at the PFI, Peshawar, and forestry schools has undergone considerable changes. The present syllabi of the BSc. Forestry and MSc. Forestry courses taught at PFI, Peshawar, reflect this (Table 12).

6.1.8 Specialisation in Forestry Education

The following specialisations in forestry education have been introduced at the level of MSc. Forestry at the PFI, Peshawar.

- Logging Engineering
- Watershed Management
- Social Forestry
- Range Management

Specialisation in the subjects listed above requires replacement of related subjects in the MSc. Forestry programme. The subjects to be substituted in the MSc. programme are listed in Table 13.

While specialising, the students are required to conduct a research study and write a short thesis in the field of their specialisation, as well as to prepare a management plan for a forest with emphasis on logging and forest road construction.

Table 12: Curricula for Forestry Degrees	
MSc.(Forestry)	BSc. (Forestry)
Forestry Subjects	
<ul style="list-style-type: none"> • General Silviculture • Species' Silviculture & Silviculture Systems • Forest Management & Forest Working Plans • Forest Mensuration • Forest Economics and Valuation • Forest Protection • Forest Statistics & Research Methods • Forest Utilisation 	<ol style="list-style-type: none"> 1. General Silviculture 2. Species' Silviculture & Silviculture Systems 3. Forest Management & Forest Working Scheme. 4. Forest Mensuration 5. Forest Economics 6. Forest Protection 7. Forest Statistics 8. Forest Utilisation
Participatory Subjects	
<ul style="list-style-type: none"> • Watershed Management • Range Management • Farm Forestry 	
Subsidiary Subjects	
<ul style="list-style-type: none"> • Forest Botany including Pathology • Forest Zoology & Entomology • Recreation & Park Management • Forest Engineering • Survey and Drawing, • Soil Science • Soil Conservation & Land Management • Forest Law & Policy • Forest Mathematics 	<ol style="list-style-type: none"> 9. Forest Botany including Pathology 10. Forest Zoology and Entomology 11. Recreation & Park Management 12. Forest Engineering 13. Survey and Drawing 14. Soil Conservation 15. Forest Law & Policy 16. Forest Mathematics
Accessory Subjects	
<ul style="list-style-type: none"> • Fish and Wildlife • Geology • Photogrammetry & Photo Interpretation. • First Aid, Public Health & Hygiene • Sociology & Public Administration 	<ol style="list-style-type: none"> 17. Fish and Wildlife 18. Geology 19. Photogrammetry 20. First Aid, Public Health & Hygiene 21. Forest Accounts & Procedure 22. Islamic Studies 23. Pakistan Studies 24. Sociology & Public Administration
Sources: PFI, Peshawar, and Forestry Sector Master Plan	

6.1.9 Public Awareness for Participatory Forestry

Public awareness about forest conservation and development is limited, but this is changing rapidly. The IUCN, WWF-Pakistan, Margalla Save the Hill Society, Pakistan Tobacco Company, and various NGOs have generated considerable interest in the conservation of existing forests and the need to undertake tree planting. Tree planting campaigns are organized

twice a year during the spring and monsoon seasons throughout the country. Messages from the President and the Prime Minister of Pakistan are telecast to motivate the public, and especially farming and student communities, for their wholehearted participation in the nation-wide tree planting programme. The Provincial Forest Departments make special arrangements to distribute planting stock at subsidised rates as well as providing advisory services. On average, 240 million saplings are planted every year.

Table 13: Specialised Subjects in Forestry Courses	
Subjects included in the Specialisation Course	Subjects omitted in lieu of Specialisation Courses
A. Forest Products and Engineering (since 1981)	
1. Wood working & saw milling	1. Mycology and Forest Pathology
2. Applied Mechanics	2. Forest Zoology & Entomology
3. Work Study & Labour Science	3. Plant Taxonomy
4. Machinery in Forestry	4. Fish and Wildlife Management
5. Special Considerations in Road Design & Construction	5. Range Management
6. Tree Harvesting & Transportation	6. Watershed Management
7. Wood Structure & Identification	7. Forest Genetics
8. Composite Wood Products & Adhesives	8. Recreation & Park Management
9. Wood Testing & Processing	9. Soil-Plant-Water Relationships
B. Watershed Management (since 1985)	
10. Forest Meteorology	10. Forest Genetics
11. Forest & Range Hydrology	11. Forest Protection
12. Design of Soil Conservation Works	12. Forest Protection
13. Watershed Planning & Analysis	13. Soil-Plant-Water Relationship
C. Farm and Energy Forestry (since 1987)	
14. Energy as a Forest Product	14. Forest Recreation & Park Management
15. Agro-forestry Systems.	15. Fish & Wildlife Management
16. Farm & Energy Forestry Management	16. Photogrammetry & Photo-interpretation
Source: PFI, Peshawar	

Apart from Provincial Forest Departments, there are a few government agencies and private organizations that are also concerned with forestry education and training in their spheres of operation and influence. These include the following.

- Aga Khan Rural Support Programme (AKRSP)
- NWFP Forest Development Corporation (FDC)
- Azad Kashmir Logging and Sawmilling Corporation (AKLASC)
- Mangala and Tarbela Watershed Wing of WAPDA (Water and Power Development Authority)
- Social Forestry Projects for production of fuelwood and small timber
- Pakistan Agricultural Research Council (PARC)
- Sindh Arid Zone Development Authority (SAZDA)
- Arid Zone Research Institute, Quetta (Balochistan)
- Paper and Pulp Industry

- Sports Goods Industry of Pakistan

There are a number of participatory forestry projects sponsored by various international agencies. The important components of these projects include setting up of Village Organizations and Women's Organizations, and farmers' training. The existing training facilities in the Pakistan Forest Institute, Forestry Schools, and Provincial Forest Departments have been strengthened and expanded through these projects. Some of the most important projects are as follow.

- Tarbela Watershed Management Project, sponsored by the World Food Programme and KFW (Kreditanstalt Für Wiederaufbau, Germany)
- Kalam Integrated Development Project, sponsored by the Swiss Government
- Siran Valley Integrated Watershed Management Project, sponsored by the German Government
- Malakand Social Forestry Project, assisted by the Dutch Government

- Forestry Sector Development Project, Punjab, sponsored by the World Bank
- Forestry Sector Development Project, NWFP, sponsored by the Asian Development Bank, ICIMOD, IUCN, ILO, and WFP

6.2 Trends in Human Resource Development

Professional forestry education and training are influenced by:

- traditional general education in the country; and
- the quantitative and qualitative demand of the forestry sector.

The importance of a sector can be assessed on the basis of its economic role, or its social contribution to human subsistence and welfare, or both. The higher the importance of a sector, the greater the requirements for trained manpower. This is equally so for forestry. Currently, forestry is a low priority sector in Pakistan, but its importance is likely to increase as a result of increased recognition of the role in economic and ecological terms. The Provincial Forest Departments recognise the future dependence on farmers growing trees on their lands. The department's aim to develop the strategies and talent needed to motivate and assist the farming community, to establish linkages between growers and wood-based industries, and to improve the market-oriented forestry environment.

6.2.1 Review of Curricula

Curricula are placing increasing emphasis on agroforestry and commercial forestry, with

importance given to the management of rangeland, watersheds, and wildlife. Forestry students are closely integrated with those of agriculture, rural sociology, economics, marketing, and related subjects. This qualifies them to become social foresters and extension workers and able to reach farmers and entrepreneurs effectively. The curricula for professional education at the PFI, Peshawar, are reviewed periodically and taken up with the Syndicate of Studies at the University of Peshawar. At present, the curricula are under review.

At the annual review of forestry research and education at PFI, the Chief Conservators of Forests of the Provincial Forest Departments discuss in detail the performance of the forestry graduates in the field. The faculty is apprised of any need to improve the contents of the curricula to train professionals. The forestry researchers at PFI and other research organizations and universities, who are also engaged in teaching students, are aware of and have access to the latest knowledge in the fields of their specialisation. In addition, the forestry researchers are involved in collaborative research with various national and international organizations. They are enabled to attend international seminars, workshops, and meetings to update their knowledge and share their experience with other scientists.

The curricula for forestry schools is reviewed and revised by the Provincial Forest Departments according to the manpower needs. Since the forestry schools are not affiliated with the Secondary Boards of Education, it takes considerable time to review the curricula. Revised curricula were adopted for these schools in 1994.

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Part 2

**Institutional Change Process in the North West Frontier
Province, Forest Department, Pakistan**

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1 Background

Pakistan suffers from far more severe forest product scarcity than most other countries. Its natural forest assets are very small, covering less than five per cent of the total land area. The forest and woodland area per person is one of the world's lowest, at one thirtieth of a hectare, and most forests are slow growing. Yet Pakistan's demands on its forests are high and getting higher. The population is growing at three per cent per year, and industrial growth is about six per cent, thus the demands for wood for construction, fuelwood, and water from watershed areas are increasing.

Despite this very disturbing situation with regard to forest resources, the forestry sector in Pakistan has not been able to adjust to cope with the challenges. It remains one of the most distinctive remnants of the colonial era. The forestry departments that were created in the nineteenth century in the provinces (there is no federal department) continue to be centralized in their management operations, insular in outlook, and bureaucratic in nature.

The administrative machinery is geared towards revenue generation for the state, with a strong focus on timber harvesting from the natural forests, and placing government control above local needs. Service to the people is not a concern; rather people are treated as a threat to the resource and have been alienated through

persistent policing efforts. The forest departments continue to be top-down, authoritative, and hierarchical 'line' organizations. In such a system, orders come from the top and everyone below runs to implement them.

These attributes may have been appropriate for the objectives of imperial Britain, but they are not necessarily helpful to democratic Pakistan. Not a single management review of the forest departments has been undertaken since the 1850s. With slight modifications, the pattern of line and staff functions still persists as it was then.

Most forest policies, until recently, have viewed people as the prime threat to forests. The forest departments maintain an outmoded forestry legislation and administration and present many loopholes that can be exploited by influential individuals - like members of the 'Timber Mafia' - who are stripping the remaining forests. The immediate losers are the rural people whose livelihoods suffer. The longer term loser is the nation as a whole as the natural forest asset is not used to its optimal renewable capacity; critical watersheds are degraded, leading to soil erosion, flooding and drought; biodiversity is lost, diminishing cultural and tourism value; and - critically - conflicts between local groups grow, leading to all types of social and economic problems.

2 Formulation of Provincial Forestry Policy

The Forest Department of the North-West Frontier Province (NWFP), like the departments in other provinces, does not have its own formal provincial forest policy. Although, according to the constitution of the Islamic Republic of Pakistan, forestry is a provincial subject, no attempt has been made to formulate a forest policy specific to the conditions of the province. As a result, the department relies on the policy directives issued from time to time by the Federal Government. In the past, these policy directives neither evolved in consultation with stakeholders, nor were there any mechanisms for ensuring implementation, monitoring, or impact evaluation. The most serious flaw with such policies has been the complete ignorance of even the constituencies most influential in their implementation. It was assumed by the foresters who formulated the policies that approval by the Cabinet of the Government of Pakistan was sufficient to ensure implementation.

When the institutional reform process was initiated in 1995, the vacuum resulting from the lack of a formal provincial forest policy was clearly noted. A policy dialogue was initiated and a draft policy document finalised through a consultative process. This took almost three years. This people-centred forest policy document is now being processed for approval by the provincial government. With the formulation of formal provincial forest policy, the stage has now been set for an institutional reform process in general, and legislative reforms in particular.

2.1 Legislative Reform

The forest laws in Pakistan date back to the 19th century and are a narration of forest offences and the punishments provided for them. These legal instruments were inherited from the British (the colonial masters) and focus on state control over a greater part of the forests and alienation of local people through policing. The policing efforts of the Forest Department have seldom succeeded in protecting the forests - rather they have earned mistrust and confrontation with local communities and defamation for the department staff. At the same time, these laws do not oblige the government to regenerate effectively, and forests have been depleted through cutting in the name of 'sustained yield' forestry.

As a result of these problems, a need was felt to replace the outdated and outmoded legislation with new legislation that has a focus on participatory approaches and empowerment of local communities. Accordingly, as a part of the institutional reform process, a completely new Forest Act has been drafted in line with the principles set out in the new forest policy. The new legislation will allow communities to play their part in joint forest management, reinforcing a trend that reduces governmental control and reinstates participatory mechanisms and rules. The goal of the new legislation is to make participatory and joint forest management an integral part of forest management, replacing the current authoritative approach. While drafting this Act, guidance has also been taken from the new Forest Act of Nepal, 1993.

3 The Reform Process

Thus the positive aspect is that the 1990s marked a watershed in the history of forestry in Pakistan when the Forest Department in NWFP initiated an institutional reform process with the formulation of a people-centred forest policy for the province. Further activities include initiation of forestry legislation reforms, formulation of a proposal for the establishment of a Forestry Commission, establishment of a consultative forum - a forestry round table, and establishment of an Institutional Transformation Cell (ITC) to pursue the process of institutional reorganization and reform in a consultative manner.

3.1 Mission Statement of the Forest Department

An interesting feature of the forest departments in Pakistan is that they lack mission statements. At the start of forest conservation in the eighteenth century, when the colonial masters laid the foundations of the forest service in the sub-continent, the mission was simple: *'Conserve the forests to provide timber for building cantonments and railway tracks and to earn revenue for the state'*. Although the situation has completely changed since then, the same principle is still being followed, despite the fact that there is persistent opposition from the people living in and around the forests. The punitive policing approach followed by the foresters in protecting the forests has become completely redundant.

In the Sarhad Provincial Province Conservation Strategy (SPCS) an attempt has been made to

redefine the mission statement for the department. This has been adopted in the new NWFP forest policy with the following words:

"To achieve sustainable well-being of the forests of NWFP for the benefit of communities residing around them in particular, and of the people of NWFP of Pakistan and the world in general."

This clearly recognises people living around the forests to be part of the forest ecosystem, and recognises that their well-being is closely linked to the well-being of the forests. It implies that future efforts towards the sustainable development of the forest ecosystem must devote the same attention to the socioeconomic development of the local people. The mission statement will be further elaborated during the course of institutional reform.

3.2 Identification of the Need to Reform

The need for a reform process in the forestry sector was identified in a number of studies including the Forestry Sector Master Plan (FSMP), the Sarhad Provincial Conservation Strategy (SPCS), a feasibility study for the Asian Development Bank (ADB) funded Forestry Sector Project (FSP) in NWFP, a GTZ study to evaluate the performance of the Forestry Cooperatives, and the Forest Development Corporation (FDC) in NWFP. All these studies, in general, and the SPCS in particular, have held organizational and structural failures responsible for the persistent decline and

deterioration of forest resources. The GTZ study suggested specific structural and functional adjustments in the department of forestry; and ADB funding for the Forestry Sector Project was linked to government commitment to the reform process.

3.3 Institutional Arrangements for Reform

A Task Force (TF) on institutional reform of the Department of Forestry, Fisheries, and Wildlife (DFFW) was established to pursue the reform process at the departmental level. Its task is to clarify details and implement institutional reforms in a phased manner as part of a time-limited action plan. Further, a Steering Committee (SC) was established, headed by the Additional Chief Secretary (ACS) to the Government of NWFP, to provide policy, direction, and support to the reform process at the government level. Both these institutions meet regularly to pursue the reform process in a systematic manner. Proposals and recommendations are first finalised at the Task Force level through a consultative process. In addition to the formal meetings of its members, broader consultations with stakeholders are also arranged on specific topics and issues. The recommendations of the Task Force are examined, deliberated upon, and finally approved by the Steering Committee through a consultative process.

3.4 Institutional Transformation Cell

There is, however, resistance to the reform process within the agency. This institutional resistance to change, or institutional inertia, is a natural process, particularly for an organization that is following to the letter the management objectives established in the colonial era (the nineteenth century) when the department was created. There is a strong need to manage this resistance through a process of dialogue and consensus building.

In order to overcome the resistance to reform, an Institutional Transformation Cell (ITC) has

been established to conceptualise various components of the reform process and to build consensus with various stakeholders. The ITC works together with the TF, which acts as a filter before components reach the Steering Committee for final approval. Thus a three-tiered institutional mechanism has been set up to pursue the reform process in a systematic manner. The TF and the SC are part-time institutions, whereas the ITC works full time on the institutional reform process.

3.5 Collaborative Efforts

One distinctive feature of the reform process is that it is being pursued through the collaborative efforts of the Government of NWFP, the Forest Department, The World Conservation Union (IUCN), Pakistan, the Forestry Sector Donors' Coordination Group (FSDGC), and various NGOs, notably SUNGI. All these stakeholders are represented in the TF and the SC. Other stakeholders are also consulted in discussions.

3.6 Forestry Commission

Widespread interference in the appointment, posting, transfer, and promotion of the personnel of the forestry departments has rendered these departments completely subservient to the personal stake of a few influential people. The Forest Cooperative Societies' fraud provided a dramatic example of the effects of this. The fraud continued for fourteen years, grossly depleting about 30,000 acres of *Guzara* (private) forests in NWFP, while the forest department stood by completely paralysed. Similarly, the yields prescribed in a number of working plans have been grossly violated under the influence of politicians.

In order to remedy the situation, the GTZ study to evaluate the performance of the forestry cooperatives and the Forest Development Corporation (FDC), recommended the establishment of a Forestry Commission, which could act as a filter between forest management, the administration, and political decision-making processes. A draft Bill to establish a three

member forestry commission has been formulated and is now being processed for formal approval by the Provincial Cabinet.

3.7 Forestry Round Table

A forestry round table has been set up to provide a forum for the stakeholders in forestry. It has more than 50 members, comprising representatives from a wide range of groups and institutions such as the the forest department, forest owners, forest users, NGOs, journalists, industrialists, educationalists, and contractors. The round table will be a kind of assembly in which stakeholders can voice their concerns and express their opinions on issues related to natural resources. It will be a unique experience for the foresters to sit together with the stakeholders and debate the *pros* and *cons* of their decisions and actions on the management of natural resources.

3.8 Reorganization of the Forest Department

With the establishment of a forest policy and institutions like the Forestry Round Table and the ITC, the stage is now set to start discussing the important but complicated and sensitive issue of actual reorganization of the department. The broad features of the reformed forest department are indicated in the GTZ study. These features have been further elaborated by capacity building consultants for the Forestry Project. Essentially, the reform involves reorganizing the department into a line and staff organization, reducing administrative jurisdictions, introducing different chains of command, and encouraging functional integration, decentralization and devolution, and a balance in gender.

In essence, reorganization will entail changing the culture of the department, with a shift from authoritative to participatory management and from top-down to bottom-up decision-making and planning processes. This will take a long time and will only be possible through training, sensitisation, and an extensive information campaign addressing all segments of the

stakeholders' groups and of society. Arrangements for large-scale training to encourage attitudinal changes have already been started in the Forestry Sector Project.

3.9 Forestry Education

A specially designed forestry education system was one of the three pillars (the forest department and forest law being the others) of the forestry administration system established in British India to further the goals of the colonial government. This system aimed at producing 'generalists' in forestry who could protect and manage the resource through coercive policing methods. An essential feature of this education system is the limitation of access to nominees of the forest departments only. There is no form of forestry education open to members of the public. Thus the education system can at best be described as 'pre-service training'. This applies to both professional and technician level training, the former imparted in the Pakistan Forest Institute and the latter in Forestry Schools.

The outcome of this 'closed' educational system has been that specialisations have been unable to develop, and the discipline could not become popular with ordinary people. This has led to a lack of public support or lobby for the foresters. This unique system of forestry education, practised nowhere else in the world except to some extent in India, is still being religiously upheld in Pakistan 50 years after independence.

Forestry education at the Pakistan Forest Institute and the Forestry Schools leaves a deep imprint on forest functionaries. Throughout their lives, they continue to believe what they were taught at these institutions unless they pursue advanced education abroad.

The forestry education system lays the foundation for the forestry institutions in the country, thus if the intention to introduce long-term and sustainable reform of the forest department is serious, it will be imperative to reform the education system. This important

point was recognised at the time when the basic parameters and components of the reform process were defined. Arrangements to reform forestry education have been stipulated within the capacity building component of the Forestry Sector Project.

4 Conclusions

A process to reform the NWFP Forestry Department has been initiated in a consultative and collaborative manner. Efforts are under way to define the broad parameters and clarify the essential institutional arrangements for implementation. The process is complex, it will take a long time to complete and persistence and patience will be required. The reform process will need to be pursued in a phased manner. A too rapid attempt at change could

render the efforts futile, particularly if all issues are not addressed fully. Fragmented, incomplete, and half-hearted efforts will be counterproductive. It is a difficult process to reform a static institution that is more than a century old. Institutional resistance to change is only natural. All these factors necessitate long-term commitment and will at the highest level – and these will be essential for the success of the process.

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