

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.

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:

- 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 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.