

# The State of forests in Pakistan through a Pressure-State-Response Framework

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## Abstract

*The objective of this paper is to discuss the state of forests in Pakistan using the Pressure-State Response framework (PSR). This framework links pressures on the forestry sector-as a result of human activities-, with changes in the state (condition) of the forests. In this connection different pressures and their impacts on forestry sector are discussed. The responses of society to mitigate the pressure or to improve the conditions of forestry sector by instituting environmental and economic programmes and policies are analysed. The main finding is that the present responses are insufficient as well as poorly implemented. Legal/institutional/ and policy reforms alone are not the answer to the pressure being faced by our forestry sector today. Good laws and policies are useless without a political and administrative will to break the status quo. Further it should be realised that community participation is a must for sustainable forest management. It would make forestry an instrument of the policy rather than its objective, thus leading to achieve the sustainable livelihood and reducing the pressure on forestry sector.*

## 1. Introduction

The Pressure-State-Impact-Response (PSIR) is a convenient representation of the linkages among the pressures exerted on the environment by human activities (pressure box), the change in state of stocks or quality of the natural resource (state box), and the response to these changes as society attempts to release the pressure by instituting environmental and economic programmes and policies (response box) (OECD, 1993). The interchanges among these form a potential continuous feed-back mechanism that can be monitored and used for analyzing the success or failure of the process. The PSIR framework has been slightly modified to assess the state of forests in Pakistan.

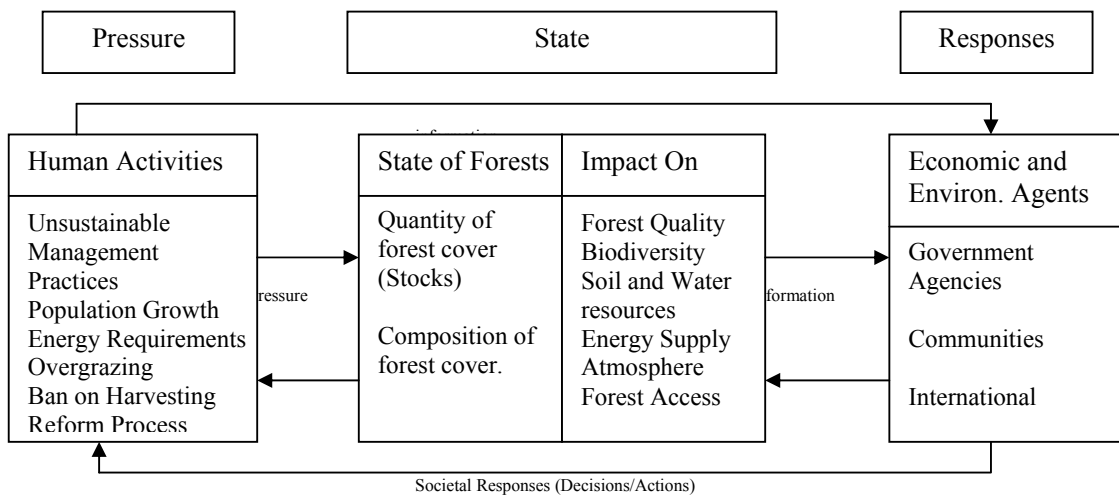


Figure 1. Pressure State Response Framework of forestry sector in Pakistan. (Take this title to the top of the figure)

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Although Pakistan has very low forest cover, yet their great variety reflects the country’s great physiographic and climatic contrasts. Pakistan’s forest and woodland types include: littoral and swamp forests; tropical dry deciduous forests; tropical thorn forests; sub-tropical broad-leaved evergreen forests; sub-tropical pine forests; Himalayan moist temperate forests; Himalayan dry temperate forests; sub-alpine forests; and alpine scrub. Over 40 percent of the forest cover is coniferous and scrub forests, on the northern hills and mountains. The balance comprises irrigated plantations and riverine forests on the Indus plains, mangroves on the Indus Delta, and tree planted on farmlands. (Take this to the top as the first para)

Considerable debate exists over the precise area under forests in Pakistan (UNCED, 1992). Partly, the problem is a definitional one, represented by a less than perfect correspondence between legally demarcated forest under the administrative control of the provincial forest departments (FD) and the situation on the ground, as it relates to both tree cover and its condition. In other words, officially designated “forest areas” while substantial tree cover may be found on lands classified differently.

Partly, forest statistics differ substantially. . . Land use data, including forest areas reported by the Forestry Sector Master Plan (FSMP) Project, 1993, with the help of satellite imagery and covering the whole of Pakistan, shows that Pakistan has 4.2 million ha covered by forests and trees, which represents 4.8 percent of the of the total land area. The Pakistan Forest Resource Institute (PFRI, 2000) questions this figure on methodological grounds. GOP figures show forest area increasing over time, from 3.46 million ha in 1990 to 3.66 million ha in 1999. IN contrast, according to the recently released FAO released report, “ State of Forests, 2001,” the total forest area of Pakistan (sum of natural forests plus forest plantation) decreased from 2.75 millionha in 1990 to 2.36 million ha in 2000. This translates into an annual rate of deforestation of –1.5% over the last ten years. . Similarly, the Asian Development Bank claims that forest cover dropped from 3.6% of the total land in 1990 to 3.2% of the total land in 1999.

Forest depletion has emerged as one of the key environmental issues for Pakistan which is accompanied with many other environmental effects such as landslide, soil erosion, floods, soil degradation, and displacement of people. Conservation of the forest resources is not only important to protect other resources such as water, soil, flora and fauna, but also to ensure the sustainable livelihoods of people who depend , directly or indirectly, on it through agriculture, animal husbandry, and logging.

The major pressures and their impacts on the condition of forests are discussed in the following sections

## **2. Pressure**

### **2.2 Unsustainable forest management practices**

During both the colonial and post independence periods, entrepreneurs took over and commercially exploited large forest tracts to satisfy the demands of a growing rural and urban population. Also, with the development of canals, thousands of hectares of riverine, scrub, and forest land in the Indus plains were cleared for agriculture. The deforestation process was

underpinned by a complex system of ownership and land tenure which led to unsustainable forest management practices and to rising tensions between landowners and right-holders and the Forest Departments. This is especially so in the case of guzara<sup>1</sup> forests in Hazara, where the affected stake-holders feel that the Hazara Forests Act, 1936, has led to the “bureaucratization” of private forests. The act was designed by the British to centralize the management of forest resources in Hazara, one of the most forest-rich areas of the NWFP. The underlying premise was that the villagers could not be trusted to look after the forests themselves, and that Government supervision was necessary. Conversely, owners and right holders objected to the red tape and delays involved in obtaining approvals of grant of trees and disbursements of their shares of sale proceeds of timber. An additional source of resentment was the actual or perceived discrimination in recognizing rights, which was attributed to an alliance between the Forest Department and the large forest tract owners.

Public resistance to these control measures had manifested itself in a number of ways in the past, including cases of forest arson, and illegal felling and grazing (Gadi, 1996). Conflicts inherent in the forest land tenure system surfaced again upon the merger of the princely states of Dir, Swat and Chitral with NWFP in 1970-71. Local people immediately started agitating for recognition of their rights over government-owned forests under the 1927 Act. In 1976 it was agreed that they would be given a stipulated share (60 to 80%) of sale proceeds of timber from the area. However, disputes re-emerged when these forests began to be entered in the record-of-rights as government property, and still persist. (Suleri, forthcoming). Similar disputes regarding ownership of protected forests have arisen in the Northern Areas and Kalam. Non-recognition by Government of tribal claims of ownership in the tribal areas has been the source of tension in Balochistan also. (PLEASE TAKE THIS LAST PARA TO THE IMPACTS SECTION

### *2.1. Population Growth (Strategically, this should be taken to the top as it is an overarching influence)*

An important factor contributing to diminishing forest resources is population growth. The population of Pakistan was estimated to be 140.5 million in 2001 and continues to grow at an annual rate of 2.4% (GOP Population Census, 1998). Due to this increased population the pressure on forests and forest products is increasing. This is evident in the fact that despite a heavy rate of deforestation, 300,000 tons of wood, pulp, paper, and other by-products were imported in the year 2000-01 (CRCP, 2001). Using relevant growth parameters of demand and supply developments and excluding inaccessible areas, (25% of the total forest cover) total forest stocks, that existed in 1995, would be completely consumed sometime between the year 2015 and 2025 (PFRI, 2000).

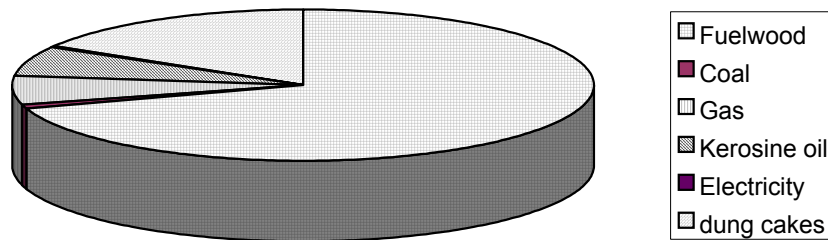
### *2.3. Energy Requirements*

Energy requirements of the growing population exert increasing pressure on forests. In all, forests provide 3.5 million cubic meters of wood which is one third of national energy requirements (GOP, 2001). More than 75 percent of all households in Pakistan rely upon wood for cooking and heating (RWEDP, 2000), with the dependence reaching 80 percent in

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<sup>1</sup> Guzara literally means “subsistence”. When forests were reserved for government ownership and management in Hazara at the time of first settlement of land ownership in 1872, sizeable patches of wooded lands close to habitations were set aside to meet the bona fide domestic needs (timber for house construction, fuelwood, fodder) of the local communities. Such forests were designated as guzara forests.

rural areas (Figure



2).

Figure 2. Different sources of fuel energy for cooking purposes.

Source: GOP, 1997. (TITLE AT THE TOP)

#### 2.4. Over Grazing

Much of the forest area is used as grazing land for livestock, whose numbers have been increasing over the years (Table 1). The pressure of livestock on forests varies with geographical region. In particular, the productive forests of the NWFP are the most exposed to over grazing by cattle, sheep, and goats (see table 2 for the growth in numbers). In the northern divisions of the NWFP, 82% of forest area is affected by over grazing and 43% of the grazing is taking place within forest stands on very steep to even precipitous slopes. posing threats to slope stability (PFRI 2000).

Table 1. Livestock population in Pakistan (000 heads)

Livestock	1992-93	1994-95	1996-97	1998-99	1999-00
Cattle	17779	17848	20802	21592	22004
Sheep	27668	29065	23668	23938	24084
Goats	40225	43764	42650	45775	47426

Source: GOP, 2000

Table 2. Change in livestock population of NWFP over 1986-1996 (000 heads)

Livestock	1986	1996	Change %
Cattle	3285	4237	29
Sheep	1599	2821	76
Goats	2899	6776	134

Source: GOP, 2000

2.5. *Ban on timber harvesting* (QUESTION: THIS WAS A PRESSURE BUT IS IT ONE NOW THAT THE BAN HAS BEEN REMOVED – THE INFERENCE IS THAT THE PRESSURE HAS BEEN REDUCED. ULTIMATELY, DON'T WE NEED TO LOOK AT PRESENT RATHER THAN PAST THREATS -- EVEN THOUGH THEY MAY HAVE CAUSED DEFORESTATION. MY OWN INCLINATION IS TO TARGET THE ACTIVITIES OF THE TIMBER MAFIA IN A GENERIC SENSE RATHER THAN TRY AND RELATE THEM TO THE BAN. IN OTHER WORDS, SUCH ACTIVITIES WERE GOING ON EVEN BEFORE THE BAN AND CONTINUE TO DO SO AFTER IT HAS BEEN REMOVED.)

The ban on commercial timber harvesting, which was imposed after the floods of 1992, remained in place for nine years. The ban was imposed with a view to protect the natural environment and to regulate atmospheric conditions. However, evidence surfaced from around 1995 onward, which reported large scale illegal timber harvesting in almost all regions of NWFP, including Malakand and Upper Swat. This highly unsustainable timber harvesting continued where there was no restriction of demarcation or work plans by forest department (DON'T UNDERSTAND THIS SENTENCE). Some even say that it increased compared to the pre-flood period (Geiser, 2000). A known fact is that lorriy-loads of timber, illegally cut in northern Pakistan, were sent to Afghanistan, to reappear in Pakistan, but now declared as Afghanistansourced.

Box-1: Timber Mafia

The glimpse of timber harvesting by timber mafia despite the ban can be had from the example of removal of illicitly cut timber in 1998. On April 28, 1998, Government of NWFP called upon the Prime Minister to lift the ban on commercial timber harvesting, and at the same time (arguing that forestry is a provincial subject) ordered the NWFP Forest Department to relax the ban from October 1998 to end of February 1999 to allow the removal of "illicitly cut timber" in the Indus Kohistan region. During the ban relaxation period about 1.4 million cubic feet timber worth billions of rupees was transported from Kohistan and Hazara under the guise of removing the windfall and dried trees. Where as a high level survey of forest department reported the presence of only 0.8 million cubic feet windfall and dried timber in Kohistan area. Which means that about 0.6 million cubic feet standing trees were chopped off and smuggled to downward country (Daily "The Nation" 14.11.1999, "Dawn" 22.12.99) in order to increase the profit which ran into millions of rupees.

2.6. *Issue of Royalties* (THIS SHOULD BE FOLDED INTO THE PREVIOUS SECTION AS IT IS RELATED TO IT)

Royalty payment to the local right-holders stopped too as a result of the timber harvesting ban. Illegal harvesting, though, continued, but no royalties were deducted for the state or the locals. In addition, royalty payments are still due for timber cut in the pre-ban period<sup>2</sup>. This situation encouraged the local communities to get compensated by using the forest resources unsustainably. On top of it due to delayed disbursements, many right-holders agreed to sell their royalty rights to the contractors/ local elites on much less value than the actual value of the royalty share. It did not only lead to a lack of ownership (and interest) of local communities in forest resources but also reduce the local pressure of communities on illegal harvesting.

*2.7. Forest Sector Reforms* (IT IS A BIT OF A CONTRADICTION IN TERMS TO CITE REFORMS AS A PRESSURE WHEN THEIR PURPOSE IS TO ADDRESS THE KIND OF PRESSURES SHOWN ABOVE. THIS SHOULD BE TAKEN TO THE “RESPONSES” SECTION, WHERE YOU CAN STILL HIGHLIGHT THE INADEQUACIES. ANOTHER SOURCE OF PRESSURE YOU CAN MENTION IS LAND-USE CHANGES – CONVERTING FOREST TO AGRICULTURAL LAND. I’M SURE THERE IS DATA LYING AROUND WHICH SUPPORTS THIS.)

The forest sector reform is an attempt to redefine the rules of game regarding forest use and forest resources management in NWFP. One vision for the forest sector reforms was to create platforms for the interaction of various stakeholders. However, these reforms are largely perceived as “external agenda”, “donor driven” and top-down by majority of the stakeholders including the forest department officials (Suleri, forthcoming). Asian Development Bank got assessed the impacts of its interventions in forestry sector in Pakistan and it was reported that the benefits of these interventions accrued to the big land owners and local elite. Thus leaving the marginalized and landless people with no option other than to use the forest resources unsustainably (Suleri, forthcoming).

**3. State** (YOU CAN BRING A LARGE CHUNK OF THE INTRO HERE AND BLEND IT WITH THE TEXT HERE AS THERE ARE CONSIDERABLE OVERLAPS. THE KEY ASPECTS YOU COULD ADDRESS HERE ARE DEFORESTATION, QUALITY AND COMPOSITION. THIS WOULD BOTH ENCOMPASS AND SUBSUME THE “FOREST COVER” CONTROVERSY, BY YOUR POINTING OUT THE UNDERLYING STRUCTURAL PROBLEMS – REDUCED BIODIVERSITY POTENTIAL AND QUALITY. I FULLY UNDERSTAND HOW DIFFICULT THE STATE-IMPACT SEPARATION IS IN THE CASE OF FORESTRY. HOWEVER, IT CAN BE DONE ON THE BASIS OF SOMEWHAT ROUGH CRITERIA,

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<sup>2</sup> It is a serious issue in Dir and Kohistan.

NAMELY DIFFERENTIATING BETWEEN THE PHYSICAL (NAMELY DEFORESTATION) AND THE SOCIO-ECONOMIC AND ECOLOGICAL (IMPORTS, BIODIVERSITY, ATMOSPHERE). ALSO, SEPARATE OUT THE PRESSURES FROM THE STATE/IMPACTS.

According to the FAO’s Forest Resources Assessment Project, 2000, 3.1 percent surface area of Pakistan is under forests (Table 3)<sup>3</sup>. The per capita forest area is well below the world average of 1 percent. In terms of its contribution to GDP forest sector contributions have declined from 0.33 percent in 1989-90 to 0.07 in 1999-00 (Figure 3). Due to lack of any precise figures on area under forests, it is difficult to reflect the current stocks of forests in Pakistan. However, PFRI (2000) that covered four divisions and 21 Districts of NWFP reflect the trends of the state of productive forests in NWFP<sup>4</sup>. In PFRI study area only a relatively small area of 21 percent has sufficiently high crown coverage of more than 50 percent. Only 28 percent (191,672 ha) of the total PFRI forest area is located on sites below the 2000m-altitude level of which only 18 percent (36,135 ha) is in a fairly good condition (PFRI, 2000).

It was also reported that the largest part of the timber volume was concentrated in old trees with high diameters growing in the uneven-aged or in mature forest stands in high altitudes. Nearly all of the stands containing high volumes were located above 2000m and most of these stands were hardly accessible. Only 12 percent of all surveyed forest stands were found on flat to only fairly steep terrain and are –from an accessibility point of view- suitable for intensive or social forest management with the primary objective of wood production. The forests in the PFRI areas are subject to a continuous process of degradation. The percentage of areas with deep soil is decreasing with declining crown coverage. Simultaneously, the proportion of areas where only rocks are found are increasing. Being less exposed to human interference and maintaining their natural structure the conditions are significantly better for the high-hill forest region (PFRI, 2000).

Table 3. Forest Resources 2000

Land Area <sup>5</sup> (000 ha)	Total Forest (000 ha)  (natural forests + forest plantation)	Percentage of land area (%)	Wood volume <sup>6</sup> in forests (m <sup>3</sup> /ha)	Wood biomass <sup>7</sup> in forests (t/ha)
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<sup>3</sup> The same figure is reported by The World Bank Group (<http://www.worldbank.org/data/>) as well as by The Asian Development Bank.

<sup>4</sup> Of the country’s four provinces NWFP has the largest area of productive forests.

<sup>5</sup> The land area figure refers to the total area of a country, excluding areas under inland water bodies.

<sup>6</sup> Wood volume refers to total volume over bark of living trees above 10 cm diameter at breast height.

<sup>7</sup> Biomass refers to above-ground mass of the woody part (stem, bark, branches, twigs) of trees (alive or dead).

77087	2361	3.1	22	27
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Source: State of forests 2001, FAO

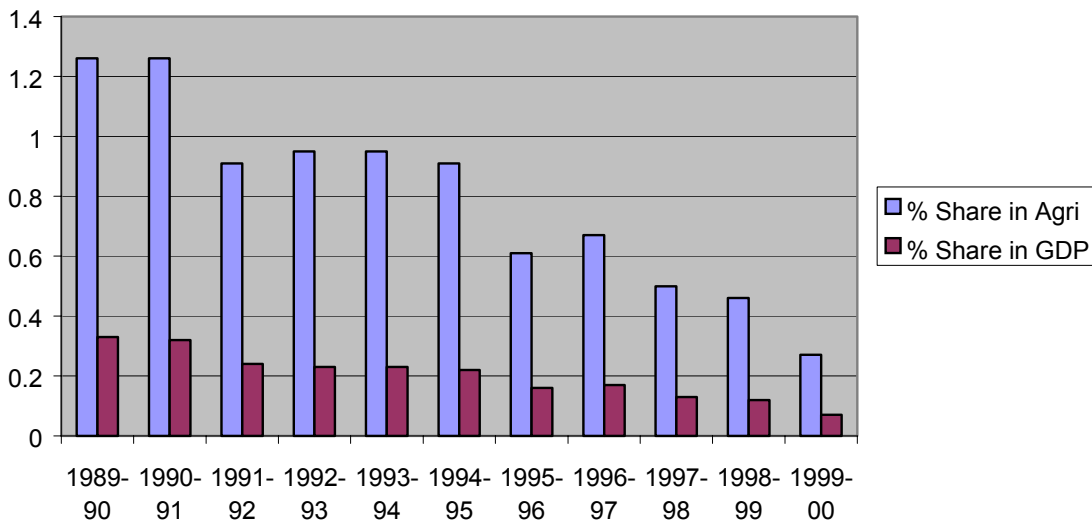


Figure 3. Share of forestry in value added of agriculture sector (Base= 1980-81)

Source: GOP, 2000.

The rangelands<sup>8</sup> of the country are subject to serious overgrazing. 80% of the total 4.8 million ha of rangelands in NWFP have been classified as degraded. Widespread free grazing has led to a large imbalance between the carrying capacities and stocking densities of rangelands. For instance rangelands in Hazara Division of NWFP, known to be capable of supporting 548,000 adult animals were stocking 1.6 million animals or nearly three times capacity in 1995 (ADB, 1995). (DEGRADED GRAZING LAND REPRESENTS A STATE, THE IMBLANCE REPRESENTS A PRESSURE . BY THE SAME TOKEN, IF YOU ARE SAYING GRAZING LANDS ARE DEGRADED, SHOW ITS MEASURE (QUANTITATIVELY) RATHER THAN INFERRING IT VIA THE IMBALANCE – AS YOU HAVE DONE IN THE CASE OF DEFORESTATION)

Similarly state of fuelwood in the national energy balance also remains very crucial. Fuelwood continue to be the major source of household energy in Pakistan. Ninety percent of rural population and 60 percent of the urban population use fuelwood for their household needs. The trees on 29 million ha of rangelands and the 330 million trees on 19.3 million ha of farmlands contribute greatly to meeting the fuelwood demand in Pakistan (RWEDP,

<sup>8</sup>Rangelands include forest lands producing forage.

2000). However, our resources are highly insufficient to meet the wood and wood product demands thus import of wood and wood products have become a salient feature of our trade. The value of such imports increased from Rs. 2627 million in 1989-90 to 4551 in 1996-97 (Figure 4) which is a burden on our debt ridden economy. Our import volume for wood and wood products was US\$ 137.040 million in the year 2000 (Figure 5 and Table 4).

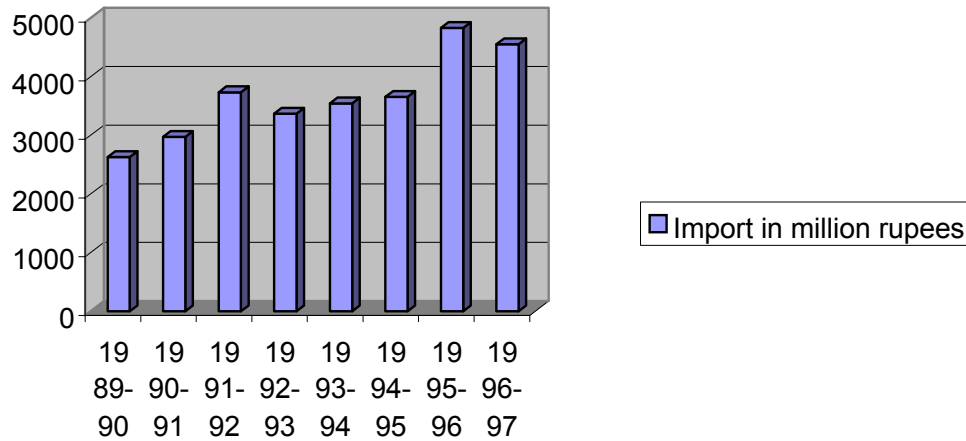


Figure 4: Import of wood and wood product from 1989-90 to 1996-97  
Source: Government of Pakistan, 1998

Import Value: US \$137,040,000

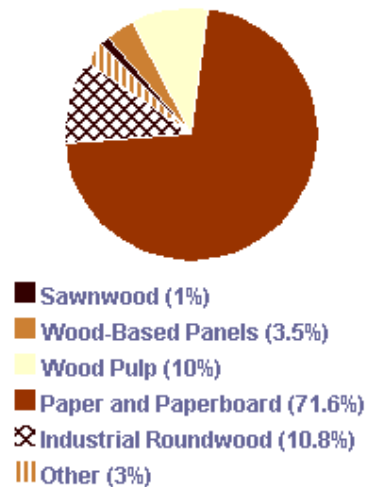


Figure 5. Wood and wood product import in Pakistan during year 2000.

Source: [http://www.fao.org/forestry/fo/country/index.jsp?lang\\_id=1&geo\\_id=36](http://www.fao.org/forestry/fo/country/index.jsp?lang_id=1&geo_id=36)

Table 4. Production, trade and consumption of forest products, 1998

Fuelwood			Industrial roundwood			Sawnwood			Wood-based panels			Pulp for paper			Paper and paper board		
000m <sup>3</sup>			000m <sup>3</sup>			000m <sup>3</sup>			000m <sup>3</sup>			000 tonnes			000 tonnes		
P	I	C	P	I	C	P	I	C	P	I	C	P	I	C	P	I	C
30715	0	30715	2329	135	2462	1051	53	1104	109	18	127	199	36	235	513	135	648

Key: P= Production, I= import, C= Consumption

Source: FAO State of Forests 2001.

#### 4. Impacts

The forests in Pakistan have three important functions: protection of natural environment, regulation of atmospheric conditions, and production of goods. All three can be ensured by maintaining a balance between sustainable production and sustainable consumption of the forests. Present trend of indiscriminate consumption of forest resources is unsustainable.. This fact is evident from PFRI report that says; “The use of wood to meet firewood consumption in PFRI study area exceeded sustainable supplies by about 4 million m<sup>3</sup> annually. If the harvesting continued unabated at the rate assessed in 1995, wood stocks would get completely consumed between the year 2015 and 2025 (PFRI, 2000)”. This is not all, it is further reported that wood utilization is not restricted to easily accessible sites, but is practiced nearly everywhere. 45% of the wood utilization is done on places definitely unsuitable for this purpose with very negative effects on the structures of these forests (PFRI, 2000). SDPI conducted a study for ADB quite recently and it was observed that in most cases, trees with smaller diameters are harvested because of ease in transportation. This causes an abnormal age class distribution within the stands and directly leads to bole damage or indirectly promotes the spreading of diseases (Suleri, forthcoming). The ongoing trend of deforestation is having a negative impact not only on production and protection functions of the forest but also on the sustainable livelihood of those who live in and around the forests. (THIS IS REPETITIVE AND A

#### *4.1. Impact on forest stocks*

There are two major impacts of various human activities (pressures) on forest stocks in Pakistan. The first impact is deforestation or reduction in quantity, while the second impact is forest degradation which embodies changing qualitative composition and age structure of the forest stocks. The data and estimates from independent sources show that the growing stocks of forests have decreased over the period. The World Bank Sources report an annual deforestation rate of 1.1 percent. FAO statistics reveal an annual deforestation rate of 1.5 percent, whereas ADB reports that deforestation rate for different regions of NWFP (the main hub of productive forests) ranges from 1.4 percent to 8.8 percent per year (WB, 2001; FAO, 2001; ADB, 2001).

#### *4.2. Impact on biodiversity*

Another conspicuous impact of deforestation is on the flora and fauna. Deforestation leads to loss in habitat, breeding places, and food sources of different animals. It also adversely impacts on ecosystem diversity, resulting into loss of genetic diversity and species diversity. Various plant species (four monotypic genera and 400 species) are endemic in Pakistan (SOE, forthcoming). Several more are considered threatened as a result of deforestation and increasing pressure on their use. The deforestation is not only a threat for flora, but fauna is also being adversely affected. Loss of pastures results in reduction in population of rodents, rabbits, and other herbivores (grazing animals), thus eventually the population of carnivores (meat eaters) who use herbivores as their food source is decreased. Out of 167 mammal species, three are endemic and there are a number of endemic and near-endemic sub-species. Similarly, reduction in mangrove forests adversely impact the aquatic species such as green turtle, various species of fish, and preying birds. Out of 172 listed species of reptiles and amphibians, 40 species are endemic. The same trend is true for birds and arthropods.

#### *4.3. Impact on soil and water usage*

The negative consequences of uncontrolled forest exploitation are ever more obvious. They include serious soil erosion and sedimentation, desertification of once-productive upland areas, the silting up of waterways in the plains (making them more prone to flooding), and marked scarcities of fuelwood and building timber (creating an economic burden on low-income communities). A thin canopy of trees with virtually no regeneration, sever erosion, and low organic matter content of soil, characterize most of the degraded forest of NWFP and northern areas of Pakistan. The occurrence of floods and landslides as a result of deforestation has affected not only the degradation of land but also human lives and property.

On top of it, there is also a serious damage to irrigation networks, crops, and transportation and communication systems and utilities due to floods. The decline in tree cover has already resulted in a large reduction in watershed and reservoir efficiency. Except for a small headpond with daily storage capacity, Pakistan's important Warsak Reservoir - built in 1960 - is now completely silted up. The water's silt burden has caused serious wear on all rotating parts of the reservoir's hydroelectric generating station, and the main powerhouse structure is suffering from alkali-aggregate reaction (WAPDA, 1994). Efforts at watershed management should lengthen the life of more recent projects, such as the Mangla and Tarbella Reservoirs; yet reports indicate that, even in these cases sedimentation is occurring at a rate which could render them inoperative in as little as thirty five years.

#### *4.4. Impact on energy supply*

The above mentioned processes have major implications for the availability of water for irrigation and power generation. Indeed, some experts predict large deficits of water and electricity in the future, with considerable impact on agriculture and the economy. According to the World Bank, while less than 10 percent of Pakistan's hydroelectric potential has actually been exploited, further development is heavily constrained by silting (Imran and Barnes, 1990). Nevertheless, projected stagnation in growth of supplies of natural gas Pakistan's chief energy source by the year 2026 (Beg, 2000) - is likely to heighten demand for electricity. Energy supplies are unable to meet the energy demands and the country has already experienced serious loadshedding due to electricity shortfalls<sup>9</sup>.

#### *4.5. Impact on the atmosphere*

The burning of forest fuelwood has changed the local atmosphere, particularly in rural areas of the country where fuelwood is the main source of cooking and heating. Due to burning fuelwood and deforestation, the concentration of carbon dioxide (CO<sub>2</sub>) in the atmosphere has increased. The increase in CO<sub>2</sub> in the atmosphere has added to the greenhouse effect and, as a result, the amount of radiant energy has also increased, thereby warming the local climate. The burning of fuelwood has also estimated considerable amount of other pollutants such as TSP, HC, NO<sub>2</sub>, and SO<sub>2</sub> into the atmosphere (SOE, forthcoming).

#### *4.6. Impact on forest access*

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<sup>9</sup> Loadshedding occurs when managers of an electricity grid deliberately reduce the flow of electricity to some parts of the grid because total electricity demands across the grid exceed total supply.

As a result of deforestation, the distance travelled by rural people to reach the forest has increased considerably. In order to meet their fuelwood requirements and to graze their cattle, people living around forests in NWFP and northern areas of Pakistan are forced to use also remote and very steep areas, where most of the well-stocked forests remain, despite apparent transport hazards. Most of the time fuel wood collection is the responsibility of the women and children. Thus deforestation is putting their lives in risk and making their day to day life difficult.

## 5. Responses

Pakistan's forest policies are tied to its British colonial past. At the time of independence, the policies, procedures, and structures that administered the new nation's forests were largely left intact. For decades, the only reference point for dealing with new problems has been referring to the 1927 Forest Act. Over the past half century, however, the population of Pakistan has nearly quadrupled. Today demands of the nation's forest resources are expanding rapidly, with almost 2.5 percent population growth and 4.2 percent industrial expansion. Pakistan now recognizes that there is a large group of stakeholders that need to be involved in forest policy development and management. In this context it is trying to bring the necessary changes in its policies of natural resources management.

### *5.1. Forestry Sector Legislation:*

It is a proven fact that none of the policy initiative, or the policy in itself can be successful and effective without a legal cover. Government of Pakistan introduced various legislations from time to time to govern the forestry sector. Important legislations governing forestry sector in Pakistan are enlisted below.

#### a) Statutes<sup>10</sup>

1. Balochistan Forest Regulation 1890
2. Balochistan Wildlife Protection Act 1974
3. Cattle Trespass Act 1871
4. Cutting of Trees (Prohibition) Act 1975
5. Forest Act 1927

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<sup>10</sup> Statutes: A law expressly enacted by Federal Government.

6. Islamabad (Preservation of Landscape) Ordinance 1966
7. Kohat Mazri Control Act 1953
8. Land Reforms Act 1977
- 9.
10. NWFP (Conservation and Exploitation of Certain Forests in Hazara Division) Ordinance 1980
11. NWFP (Sale and Sawing of Timber) Act 1996
12. NWFP Forest Development Corporation Ordinance 1980
13. NWFP Forestry Commission Act 1999
14. NWFP Hazara Forest Act 1936
15. NWFP Protection of Trees and Brushwood Act 1949
16. NWFP Wildlife (Protection, Preservation, Conservation and Management) Act 1975
17. Pakistan Environmental Protection Act 1997
- 18.
- 19.
20. Punjab Development of Damaged Areas Act 1952
21. Punjab Forest (Sale of Timber) Act 1913
22. Punjab Wildlife (Protection, Preservation, Conservation and Management) Act 1974
23. Sindh Wildlife Protection Ordinance 1972
- 24.
25. West Pakistan Firewood and Charcoal (Restriction) Act 1964
26. West Pakistan Goats (Restriction) Ordinance 1959
27. Draft NWFP Forest Ordinance
28. Draft Punjab Forest Act
29. Draft Balochistan Forest Act
30. Draft Azad Jammu and Kashmir Forestry Act

b) Rules<sup>11</sup>

1. Hazara Management of Waste-lands (Guzara) Rules 1950
2. Hazara Protected Forests (Community Participation) Rules 1996
3. Hazara Reserved Forests (Community Participation) Rules 1997
4. NWFP Forest Produce River Transport Rules
5. NWFP Forest Produce Transport Rules 1975

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<sup>11</sup> Under the provision of an act/ordinance, rules are made for the elaboration of that specific act/ordinance.

8. Draft NWFP Forests Management (Community Participation) Rules
9. Draft NWFP Protected Forests Management Rules
10. Draft NWFP Management of Wasteland (Guzara) Rules
11. Draft NWFP Forest Produce Transport Rules
12. Draft NWFP Forest Produce River Transport Rules.

It is pertinent to mention here that existing laws are punitive in nature, and while providing penalties for contravention of their provisions, do not contain incentives for compliance. The draft NWFP Forest Ordinance also does not contain any such incentives, which are recommended in the NCS, FSMP, and forest policies of the Punjab and NWFP. Until 1996, the legislations governing forestry sector were meant for policing the forests. They viewed people as the prime threat to the forests, and have attempted to exclude groups other than government from decision-making. The concept of community participation was introduced in forestry laws for the first time in 1996 through the Hazara Community Participation Rules which provide for Joint Forest Management (JFM) of protected forests. Similar rules for reserved forests were prescribed in 1997.

### *5.2. Strategic Plans and Policies*

In response to increasing pressure on forest resources, government chalked out different strategic plans and policies both at national as well as provincial levels. Some of the government plans and policies on forest resource development are as follow.

- ❖ The Pakistan National Conservation Strategy (NCS), approved in 1992, recognizes the need for the Provincial Forest Departments to associate local people in protection and management of forests. Indeed, community participation is a vital element of NCS implementation in all the 3 core programme areas relating to the forest sector — supporting forestry and plantations; protecting watersheds; and restoring rangelands and improving livestock quality.
- ❖ The Sarhad Provincial Conservation Strategy (SPCS) and the Balochistan Conservation Strategy (BCS) also recommend community-based management of forests (GONWFP, 1996).
- ❖ The Forestry Sector Master Plan (FSMP) (1992 – 2017) calls for greater participation of local people at every level of planning, as well as an extended role for the private sector. It also recommends that the existing Forest Act 1927 be updated and revised to make it less prohibitive and punitive, and more participatory. It suggests that new provincial legislation be enacted to encourage people’s participation in policy formulation and management of forest rangelands and watersheds (GOP, 1993).
- ❖ The Perspective Plan 2001-2011 adopts community participation through decentralization as one of the overriding principles governing the proposed strategy to tackle problems of deforestation and damaged ecosystems. The plan reaffirms Government’s commitment to continued implementation of the FSMP, and mentions forests as one of the areas on which conservation efforts will be focused.
- ❖ The National Environmental Action Plan, approved by the Pakistan Environmental Protection Council in 2001 also provides for participation of the private sector, NGOs and citizens groups in execution of projects at the local level.

- ❖ After the floods of 1992, Timber harvesting ban was imposed to provide interim relief to the forests and allow the forest department to develop alternate, safe, and sustainable harvesting system. In this connection a PFRI study was conducted in northern NWFP to provide maps and basic data on the distribution and condition of the forest resources in NWFP (PFRI, 2000).
- ❖ The draft National Forest Policy mentions improved livelihoods of the people as its fundamental goal. The policy calls for involvement of local communities in implementation of projects, management of forests and protected areas, protection and sustainable management of mangrove and riverine forests, and implementation of social forestry programmes.
- ❖ The Punjab Forest Policy Statement 1999 states the Provincial Government's intention to involve stakeholders in management of forests and watersheds and to encourage private sector investment in forests through joint forest management, joint ventures, long-term leases and suitable incentives.
- ❖ The NWFP Forest Policy 2001 includes the participation of local communities and promotion of private sector investment among its cardinal principles. The policy also recommends revision of forestry legislation to provide for joint forest management.

### *5.3. Major Community Forestry Initiatives*

In the recent history of forestry in NWFP, a range of innovative projects began to shape thinking and create precedence for action. These projects have generated a lot of interest in alternative approaches to forest management, which may provide models for increasing sustainability and productivity in future. Some of the results have already been reflected in policy. Social forestry is a case in point. All contemporary policy documents, at least in principle, now identify social forestry as a key means to achieve sustainable forest management (SFM) (Ahmed and Mahmood, 1998).

#### a) Kalam Integrated Development Project (KIDP)

KIDP was started in 1981 with Swiss assistance, and its fourth phase came to an end in 1998. The main aim of the project was to “improve the socio-economic conditions of the population in the project area (Kalam and Behrain) through people's participation in forestry, agriculture and village development, taking into consideration the ecological, social, economic and institutional sustainability of all means and activities at all levels”. This project developed a new approach to timber harvesting in protected forests by training local people to work as small contractor crews for the FD. As a result, not only better timber output and less forest damage, but also improved local income generation was expected. In addition, KIDP fostered afforestation in protected forests. A key part of the project was the formation of community-based organizations (CBOs) thus helping the communities to organize themselves for collective action. The effectiveness of “people's check-posts” established by communities to check illegal extraction of timber under KIDP gave the communities a sense of ownership in natural resource management and a confidence that collaborative approach works. Due to the timber ban, however, the small contractor system had to be stopped (Geiser, personal correspondence).

b) The Malakand and Dir Social Forestry Project (SFPMD)

SFPMD was started in 1987 with Dutch assistance and operated up to 1997. The project sought to reforest the denuded hillside and marginal farm lands, raise the standard of living of local communities, and build the extension capacity of the local forestry agency. The activity focused primarily on private and communal property. A key part of the project was the village land-use planning process (VLUP), involving step-by-step approach for preparing an action plan. Project planners focused on participatory planning and community consensus building (method now being accepted by DFFW). It is widely accepted that the project has fostered great capacity and confidence among the provincial forest department staff to implement social forestry strategies (Poffenberger, 2000).

c). The Siran Forest Development Project (SFDP)

GTZ initiated this social forestry project for natural resource management (NRM) on self-help promotion in NWFP in 1992. Project was aimed at the participation of local communities along with FD officials and social forestry project staff to form joint forest management committees (JFMCs) to ensure forest protection and regeneration. JFMCs comprised user groups, interest groups, and forest department officials. SFDP is the first project in Pakistan to implement joint forest management (JFM) in Pakistan. Under JFM local people in the vicinity of state-owned forests are involved in the management of forests. This is backed by legal rules. FD shares powers with local people who are granted access to state forests to harvest specified forest products (firewood, timber, fodder, and medicinal plants). Before preparing joint management plans, needs of the people were assessed and responsibilities were divided among the community and FD through an agreement. It was the success of the SFDP, that encouraged the government to introduce Hazara Protected Forest Rules, 1996. The project was closed by the donors because the Government was not willing to make the required governance and institutional changes which were required to achieve the real participation of local communities at grassroots level.

*5.4. Forestry Projects implemented by provincial forest departments*

To ease out pressure on Pakistan forestry sector, quite a few projects were initiated mainly with the help of Asian Development Bank as well as The World Bank. Some of the important projects include:

a) NWFP Forestry Sector Project (NWFP FSP)

The FSP commenced in 1996 with the help of a loan from ADB while the Government of Netherlands provided a grant for consultancy, capacity building and farm forestry. The NWFP government also contributed. Various FSP components has to address the institutional capacity of the DFFW, legal reforms for social forestry, resource mapping and management planning, physical development work including afforestation/reforestation, rehabilitation of rangelands, and farm forestry. It also aims to provide/upgrade physical office facilities and community infrastructure schemes (ADB, 1995).

b) Punjab Forest Sector Development Project (PFSDP)

The Punjab Forest Sector Development Project was initiated in 1995 with assistance of the World Bank. The project included expansion of farm forestry throughout Punjab, rehabilitation and improved management of existing forest resources including scrub forests and range-lands of the Pothwar and Thal areas; and transfer of forest nurseries to the private sector and elimination of seedling subsidies (World Bank website).

c) Sindh Forestry Development Project (SFDP)

The ADB sanctioned the Sindh Forestry Development Project in 1992 with the objectives of: (1) increasing output of fuelwood and small timber resources; (2) strengthening existing institutions through training and research; and (3) rehabilitating degraded forests and intensifying management of forest resources. The project placed strong emphasis on social forestry, providing assistance to selected rural communities and farmers in the form of seed and seedlings, technical advice, and training for raising nurseries. The project also envisaged that the feasibility would be explored of (1) leasing out selected state forest lands (riverine or irrigated plantations) to farmers, and (2) joint ventures between the Forest Department and private sector companies, particularly industrial wood-based industries (ADB website).

### *5.5. Reforestation*

Expanded reforestation remained a national priority in the new forest policy initiatives. During spring and monsoon seasons of 2000, 149.9 million saplings (Spring 94.6 and Monsoon 55.3 million) were planted against the target of 196 million saplings (GOP 2001). The shortfall of 46.1 million saplings has been attributed to reduce allocation of funds, removal of subsidy on planting stock in Punjab, lack of adequate nursery stock and adverse climatic factors.

### *5.6. Institutional Reforms*

To ensure the effectiveness of the participatory and sustainable natural resource management process, in NWFP forestry sector project, the field interventions were to be supported by institutional reforms in provincial forest department (FD). In the course of 1999 FSP made some moves with institutional reforms<sup>12</sup> (Hussain and Khan, 2000). FSP, together with the Institutional Transformation Cell (ITC), a joint Dutch-Swiss-assisted project, devised a set-up to improve decision making and ownership of the institutional reforms in FD, making use of existing experiences and proposals generated by other projects. Thematic working groups were established which developed a number of proposals between March and June 1999. The proposals were submitted to an internal department Support Group chaired by the Secretary of department of forestry, fisheries, and wildlife (DFFW). Decisions surpassing the competence of DFFW were referred to the Steering Committee chaired by the Additional Chief Secretary. At the same time the new forest policy was prepared and adapted in 1999. Moreover, the new forest act was drafted, a forum the provincial Forestry Round Table was set up, and recently members of the Forest Commission were nominated.

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<sup>12</sup> This paragraph is aimed to record the sequence of events as they occurred and does not discuss the merits and de-merits of these institutional reforms.

### 5.7. Pakistan's signature on international conventions and treaties

Pakistan has signed various international conventions and treaties related to the conservation of forests and biodiversity, as shown in the Table 5.

Table 5. International Conventions and Treaties Related to the Conservation of Forests and Biodiversity

Convention	Major Objectives	Major Obligations
Convention on Biological Diversity	Ensure conservation and sustainable use of biological resources	Prepare and implement national strategies for the conservation of biodiversity.
The Framework Convention on Climatic Change	Stabilising greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic (human-induced) interference with the climate system	The Convention is based on sharing the burdens of coping with climate change.
Convention to Combat Desertification	Combat desertification	Prepare national action plan and implement programmes for poverty alleviation.
Convention on the International Trade in Endangered Species of Wild Fauna and Flora	Protect and regulate the trade in wild fauna and flora and their products	Protect all species threatened legally and regulate trade.
Convention on Wetlands of International Importance especially Waterfowl Habitat	Prevent the loss of wetlands	Conservation and sustainable use of migratory stocks of wildfowl.
World Heritage Convention	Protection of world heritage	Conserve and protect the places declared as world heritage.

## 6. Analysis

The societal responses of Pakistan to mitigate the impacts of different pressure factors on forestry sector cannot be underestimated. However, if good strategies, plans and policies

alone were the criteria for success, the forestry sector in Pakistan would have developed by leaps and bounds. One has to admit that it is the effective implementation of the recommendations contained in these strategies, plans and policies that has been lacking in the past, and it is this aspect which the Federal and Provincial Governments must address in future.

The Forests Act 1927 has effectively served its primary purpose of protecting and conserving government forests. However, along with the NWFP Hazara Forest Act 1936 it is punitive in nature and does not provide any incentives for compliance with its provisions. Moreover non-involvement of stakeholders in management has fostered apathy, even dissatisfaction. Feelings are even stronger among owners and right-holders in guzara forests, who dislike what they consider to be excessive “bureaucratic” controls. The things have not changed in the proposed NWFP Forest Ordinance which is as punitive in nature as the previous laws are. Moreover, provision of existing laws relating to resource access and tenure, particularly the reserved/protected/guzara/ forest system and recognition and exercise of private rights in such forests, have been retained. In view of the importance of the issues involved, it is strongly recommended that detailed evaluation studies be conducted on the efficacy of existing forest land tenure system as well as on impact of the moratorium on timber harvesting.

On planning front our government agencies still look at FSMP as a reference point. Here it must be kept in mind that FSMP presumption was very much for increasing government capacity. It is not an operational planning document. PFRI study that was conducted with improved ground resolution satellite images and an intensive terrestrial inventory, have already challenged the accuracy of data and statistics provided in the earlier studies about forestry resources in NWFP. There is a sheer need to reassess the area under forest cover in Pakistan utilising the latest technology and accompanied with intensive terrestrial inventory. Otherwise any future planning based on the Government of Pakistan’s current claim that forest cover in Pakistan is increasing would not be successful.

In 1995 “GTZ study” of the forest sector recommended the creation of the Forest Commission. The Commission was to be supported by the Forestry Round Table. To kick off the process the GoNWFP constituted a high level Forestry Steering Committee that came up with the first Action Plan in February 1996. Contrary to the primary objective of creating effective platforms for the interface between the key stakeholders i.e. Forest Commission and Forestry Round Table the FSP transferred the control of the process into the folds of the Forest Department under the pretext of ownership. This move took the process away from its key objectives and as a result the Forest Policy, though sounding progressive, remains a piece of paper with the Forest Department that continues to enjoy power and control over the forestry resources. This is the reason that the NWFP forest policy more or less perceived as a “donor driven.

New Forest Ordinance is in draft stage, and is widely criticised for maintaining the powers of forest department. Civil society groups have serious reservations about the draft ordinance. They term the whole process of ordinance preparation as a non-consultative one and oppose FD staff being designated in the ordinance as a uniform force bearing arms, and the perceived enhancement of their police powers, on the grounds that this goes against the intent of the forest policy that enshrines the principles of participatory social forestry. They also object to the proposed discretionary powers of forest officers to revoke a community-based organization/JFM agreement, on the grounds that it would result in uncertainty and insecurity

among different JFMCs/CBOs (Suleri, forthcoming). Government of NWFP tried to ignore these objections and was in a hurry to promulgate this ordinance before 10<sup>th</sup> September 2001, when an ADB review mission was due. It indicates that when it comes to responding to the pressure on forestry sector versus responding to the pressure of donors and international lending institutes, the later gets first priority from our government agencies.

Regarding different forestry projects, one can assess the problem at the implementation end. NWFP FSP is being assisted by ADB with a loan of US\$ 26.95 million. However, according to the ADB review mission of March 2001, an overall physical progress of 20 percent has been achieved against elapsed loan period of 76% (Suleri, forthcoming). Final results of the PFSDP are also not very encouraging and most of the stakeholders are dissatisfied with the project interventions (Punjab Economic Research Institute, 2001, Impact Evaluation of Punjab Forest Sector Development Project). Similarly in SFDP, the most innovative element of the project- provision of credit on a pilot basis for private sector participation in development of reserved forests- was dropped at the time of mid term review of the project in 1996.

Reforestation is the major focus of many projects and plantation is considered as the success criteria of reforestation campaigns. Most of the times the target achievement is assessed on the basis of number of saplings planted in a particular year and no consideration is given to the post plantation survival rate (say one year after plantation).

Different community based forestry projects lack post project sustainability. Participatory and integrated approaches to forest management tend not to be sustainable in the absence of an enabling institutional environment. In general, federal, provincial and local level institutions are not sensitised to community concerns, both at the policy and implementation levels. At the very outset, forest officials are reluctant to concede their powers which refers to their capacity to influence the outcome of social processes. They lack confidence in the ability of “untrained locals” to manage their resources. The attempts to safeguard department prerogatives also preclude integrated approaches to conservation and the culture of corruption and collusion- which is antithetical to conservation- has become deeply ingrained.

The ongoing institutional reform process in NWFP forest department which is meant to cater these enabling environments is also being criticised by different stakeholders. Many stakeholders do realise the importance of -Forestry Commission, Forestry Round Tables, Forestry Steering Committee but are critical to the procedures adopted and the working of these institutions. Moreover the FD has conveniently avoided in forging an effective linkage between the Devolution of power plan and the Sectoral Reform Process that was underway much before the inception of the Devolution plan of current government itself. One was expecting that FD would take a lead in bringing in the learning of the reform process into the devolution itself through the platform of FSP. Rather than being proactive unfortunately the FD by choice remained reactive to date for obvious reasons of protecting their power base to the maximum possible extent. They have been successful in remaining at the Provincial level and decentralizing the most impotent functions to the district level. With a departmental mindset that is opposed to any kind of collaborative management principles, it would be naive to expect from the FD to live the reform process in true spirit.

On international level, Pakistan is signatory to many treaties and conventions related to the conservation of forests and biodiversity. However, most of the time our negotiators ratify the

treaties without understanding their implications and very little efforts are made at official level to implement those treaties in true spirit.

## 7. Conclusion

The analysis of situation presented in previous sections has made it easy to assess the impact of societal responses to different pressures on forestry sector in Pakistan (Figure 1). Table 6, reflects that most of the responses are either insufficient or not implemented properly and the state of forests in Pakistan is continuously deteriorating. So much so, that the reform process initiated in NWFP itself is exerting the pressure on forestry resources as independent studies have shown that this project is accruing its benefits to the notables and privileged among the community members thus forcing the marginalized and poor sections to exploit the forest resources unsustainably. Hence one can conclude that different legal/institutional/ and policy reforms taken from time to time, alone are not the answer to the pressures being faced by our forestry sector today. “Good” laws and policies would enable the action to be taken, but political and administrative will to take requisite action is a must. The will would be created by an attitudinal change- perhaps even a change of mind-set- in the officials who are the actual implementers of forest policies and laws. To help strengthen political will, it is also necessary to motivate people to cooperate in realizing the objectives of forestry sector plans, policies and laws. This in turn can be achieved through adopting a participatory bottom-to top approach which would enhance involvement of all sections of society in sustainable forest management. There is a need to generate large-scale employment in the forestry sector through involving people in forest management, protection, plantation, harvesting, and transportation. Concomitantly, supplementary incomes can be generated for rural farm families through community, leasehold, and private forestry. In this context, it should be realized that generation of income and employment are more important than government revenue alone and forestry should be an instrument of sustainable forest management policy rather than its objective otherwise the pressure of human activities on Pakistan forest sector would keep on building and according PFRI estimates one would find that between year 2015-2025 there would be no forests left in Pakistan

Table 6. An assessment of societal responses to different pressure factors on Pakistan forestry sector.

<b>Pressure</b>	<b>Response</b>	<b>Result</b>	<b>Recommendations</b>
Unsustainable management practices	Laws	None of the laws were able to address the problems of forest land-tenure system or issues of royalties for a sustainable management of forestry resources.	To address this issue in new legislation.
Population Growth	Different policies and planning	None of the policy initiative was successful in checking the rapid depletion of forest resources	Policies are designed on a false assumption that forest cover is increasing. There is a need to reassess the area under forest cover. On top of it one need to

			break the status quo in implementing agencies.
Energy Requirements	Different laws and policies	Fuelwood is still the major fuel used for cooking and heating purposes	Promotion of cheap and easily available alternative fuels and sources of energy. Promotion of farm forestry.
Overgrazing	Laws and policies	No improvement	Sustainable management of rangelands. Promotion of farm forestry.
Ban on Harvesting	Laws	increase in illegal logging	Impact assessment of this policy.
Reform Process	Policies and planning, laws	Stakeholders are not satisfied, benefits are not equally distributed	enhance transparency by promoting participation and consultative in the process.

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