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## **An Anatomy of State Failures in The Forest Management in Pakistan**

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# **An Anatomy of State Failures in Forest Management in Pakistan**

## ***INTRODUCTION***

Deforestation remains one of the most intractable environmental problems of today. About one third the size of the original forest cover has disappeared so far. Despite continuous efforts by the world community to curb this process, deforestation continues unabated in most parts of the world, with serious consequences for the human livelihoods, eco systems, and global climate.

Pakistan also faces serious problem of depletion of its forest reserves. Approximately 39000 ha of forest are being cleared every year<sup>1</sup>. If deforestation continues at this pace, it is feared that Pakistan will lose most of its forest within the next thirty to forty years. Being a forest poor country, with forest occupying less than 5% of total land area<sup>2</sup>, protection of its forest resources is a vital task.

Forest management faces many challenges in Pakistan. Forests face tremendous pressure, not only from a population of 160 million people for meeting their needs<sup>3</sup> (be it only subsistence needs), but also from market forces which have seen soaring timber prices for many years now. Forest department is ill equipped to counter these challenges. It lacks human and financial resources, and relevant technical expertise.

The general perception among planners is that over population is the primary culprit behind forest degradation. Moreover, people living close to forestlands, and using it for their needs, show an imprudent behaviour towards these forests and use it in an unsustainable manner. So there is tendency among the policy makers to find ways of keeping people away from this resource, and to strengthen government's hold over it<sup>4</sup>.

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<sup>1</sup> FAO (2001).

<sup>2</sup> Total forest area of Pakistan is a mere 4.2 million ha, which is 4.8% of total land area.

<sup>3</sup> In 1998, the total wood consumption in Pakistan was 33,018 thousand cubic metres. Total wood produced was only 350 thousand cubic metres [Compendium on Environment Statistics (1998)].

<sup>4</sup> This view is reflected in the Forestry Sector Master Plan (1992). This is an operational document for the sector, prepared with assistance from the Asian Development Bank. It is considered as the first comprehensive plan for forestry sector.

This is a rather simplistic (and problematic) conception of the issue<sup>5</sup>. Firstly, these assertions are subjective opinion of the policy makers, not based on any systematic analysis. Secondly, since most of the forests<sup>6</sup> in Pakistan are state owned/managed, and responsibility for the protection/conservation of these forests rests with the state, therefore, any inquiry into the causes of forest degradation in Pakistan must analyse the state's role in it. Putting the entire burden of deforestation on 'other factors' shifts attention away from more important causes (namely, failure of government to manage forests), and leads to wrong policy conclusions. This study intends to focus attention on this important factor behind deforestation - the role of state in forest degradation in Pakistan.

## **2. FORESTRY IN PAKISTAN**

### **2.1 Geographical Coverage:**

The total forest area of Pakistan stands at 4.2 million hectares, which makes about 4.8 percent of total land area<sup>7</sup>. Forests are largely concentrated in the North West Frontier Province (NWFP), approximately 40 percent of total forest area. The rest is shared more or less equally by other provinces<sup>8</sup> (Baluchistan 14%, Punjab 14.4%, and Sindh 9.4%, Northern Areas 15.7%, Azad Jammu and Kashmir (AJK) 6.5%). Table 1 gives information about forests area and its distribution across provinces.

**Table 1: Forests Area by Province ('000 ha)**

Forest Class	AJK	Balochistan	NA	NWFP	Punjab	Sindh	Total
Forest Area	275	592	666	1684	608	399	4224
Total Area	1330	34719	7040	10174	20626	14091	87980
% Tree Cover	20.7	1.7	9.5	16.6	2.9	2.8	4.8

Source: Pakistan (1992) [Forestry Sector Master Plan]

<sup>5</sup> Especially in present day climate when deforestation is no more considered as a simple phenomenon. Contreras-Hermosilla (2000) writes, "It is a very complex combination of market failure, negative elements introduced by various policy and institutional failure, and some fundamental features of societies, such as distribution of political and economic power, and cultural factors, that lead to forest decline".

<sup>6</sup> Approximately 85% of total forests are state owned. Apart from that, state also manages most privately owned forests as well.

<sup>7</sup> This estimate is taken from the Forestry Sector Master Plan (FSMP) (1992). It combines information from various source which are: FSMP Satellite imagery interpretation for coniferous, scrub, and mangrove forests, and for irrigated plantations; Government records for riverain forest and linear plantations; FSMP's farmland tree survey, FSMP allowance for miscellaneous tree planting which is too young to be seen on satellite images. This estimate differs from earlier figure quoted by government sources which was 5.4 percent of total land area. The problem with this earlier estimate is that it considers forest area as that area declared so by the government and does not refer to actual forest cover. FSMP may not be accurate but is more reliable since it largely relies on satellite imagery to estimate forest area.

<sup>8</sup> Azad Jammu and Kashmir (AJK) and Northern Areas do not have the status of province. AJK is a separate state with its own administration; Northern areas are tribal areas under the administrative control of the Government of Pakistan.

Main forest types are coniferous and scrub forests. However, economically coniferous forests are more important as they provide the nation with the bulk of timber, about 60% of total timber comes from these forests. They also serve an important function of protecting the northern upland watersheds. Scrub forests mostly cater to the fuel-wood needs. Farmland trees<sup>9</sup> are the next important feature of forestry sector. Although, at present, they form a smaller portion of total forests, but productivity wise they are outstripping other forest types, accounting for almost 53% of total forest growth [Pakistan (1992)].

## 2.2 Administrative Set up

Forestry administration is decentralized to a large extent. Provinces are responsible for “planning and implementation of forest and range management programmes” (FSMP 1992). Long-term policy, however, is a federal responsibility. The sector comes under the jurisdiction of Ministry of Environment, Local Government and Rural Development at the federal level. Provinces have separate minister for forestry. Each province has a forest department which is responsible for the administration of the sector.

Forest Departments were created around 1870 by the colonial administration. They had the mandate of demarcating and preserving the forests and of earning revenues for the state from timber production. Much has changed in terms of their job assignment since then. Now they are responsible for wildlife and biodiversity protection as well, but for all practical purposes, their focus is still on forest protection, forest harvesting, revenue collection, reforestation, and soil and water conservation. Forest Department administers its daily affairs on the basis of forest working plans. These are medium term (10-20 years) planning documents.

All forests are exploited on the basis of sustained yield model. Two types of management systems prevail at present. Forests located at higher elevations (moist temperate forests) are managed under the selection system, based on long rotations of 100-120 years and regeneration periods of 20-30 years<sup>10</sup>. Forests at lower elevations (sub-tropical forests) are managed under uniform shelter-wood system in which canopy is opened up uniformly over an area. Forest Department working plans prescribe the annual cut. In NWFP all harvesting and sale of wood is the responsibility of another public agency- Forest Development Corporation (FDC). FDC contracts out part of the operation to private contractors, which includes harvesting operations and transportation of timber to roadside<sup>11</sup>.

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<sup>9</sup>Farmland trees refer to trees grown on private farms, either in rows on agricultural farms or as block plantations.

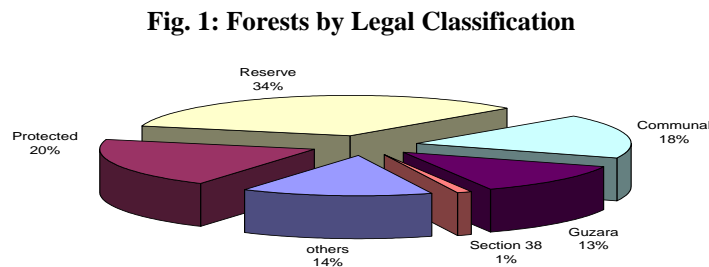
<sup>10</sup>This system evolved out of necessity because a permanent cover had to be kept on steep slopes.

<sup>11</sup>Before the creation of FDC in 1977, FD used to sell standing volume of trees to private contractors. The contractors could then cut more trees than those marked by the FD. Reports of large illegal removal of trees led to discontinuation of this practice in 1973.

The government relies on forest legislation to enact its policies. The principal legislation is the Forest Ordinance 2002<sup>12</sup>. The forest legislation in Pakistan is regulatory and punitive in nature. Its main function has been to prevent and punish abuse of public forests. Forest law is considered to be the main tool in the hands of the forest service to ensure rational behaviour of people towards national forests (Ashraf 1992)<sup>13</sup>.

### 2.3 Legal Classification

Forests are mostly government property in Pakistan<sup>14</sup>. According to legal classification, forests are divided between public forests (state-owned) and private forests (non-state). The main categories of public forests are Reserve Forests and Protected Forests, while Guzara Forests constitute the main part of private forests<sup>15</sup>. These legal forest categories differ in terms of the rights granted to the local people. Following is a brief account of different legal classes of forests<sup>16</sup>.



Source: Pakistan (2005) [State of Environment Report]

**Public Forests** come under the jurisdiction of provincial forest departments that manage and control these forests. The major legal classes are Reserved Forests, Protected Forests, and State forests. **Reserve Forests**<sup>17</sup> occur in the provinces of Punjab, Sindh, and NWFP. These forests are almost free of private rights. The rights, granted as

<sup>12</sup> Prior to this ordinance, the Forest Act of 1927 was the principal law regulating forestry.

<sup>13</sup> Enactment of forest legislation in the form of principal laws and acts used to be the subject of federal government. In 1973, the president of Pakistan authorized the governors of the provinces to make adaptations of federal law under the constitution (notification no. S.R.O 1328(1) 73, dated September 1973). The provinces thus have full powers now to adapt and amend the previous federal laws on forestry and to make new ones.

<sup>14</sup> FSMP quotes that about 85 percent of total forests are owned by the government. However, it is difficult, rather impossible, to give area estimates according to ownership type. The FSMP gives area estimates which includes both forests and parts of rangelands. For example, in the case of communal lands in the Northern Areas the figure stands at 2.98 million ha whereas the total forest area of Northern Areas is merely 0.67 million ha.

<sup>15</sup> Forest Department has authority to regulate cutting in most of the private forests.

<sup>16</sup> See Ahmed and Mahmood (1998) for a detailed account of de jure and de facto status of different legal classes of forests in Pakistan.

<sup>17</sup> Reserved forests are the strictest tenure class where locals have no rights, rather some privileges are granted as concessions which can be taken away anytime.

concessions, generally include rights to passage, to water, to grazing and fuelwood collection<sup>18</sup>. **Protected Forests** exist in all provinces of Pakistan (except Azad Kashmir). Although under the ownership of government, they entertain a lot of rights of local residents<sup>19</sup>. These include, in addition to the rights mentioned above, rights to timber for non-commercial usage, lopping trees for fuelwood, and fodder. The important feature of these rights is that they are essentially meant to satisfy non-commercial needs. **State Forests** exist in Balochistan and Azad Kashmir. They are free of private rights but concessions for passage, grazing, water and fuelwood collection etc. are granted which can be revoked at any time by the government. Resumed Forests and Un-classed Forests are other categories of public forests<sup>20</sup>. Whereas Reserve Forests had been under government control for almost hundred and fifty years, Protected Forests were brought under government jurisdiction in late 1960s and early 1970s<sup>21</sup>.

**Private Forests** have two broad categories: Guzara Forests and Communal Forests. **Guzara Forests**<sup>22</sup> are community owned forests that were not declared as Reserved or Protected forests at the time of land settlement. These forests can be exploited for commercial purposes but they fall in the category of regulated forests as the Forest department regulates cutting in these forest. **Communal Forests** exist in the Northern Areas of Pakistan. They were owned by the local rulers before the annexation of these areas in 1972. They are now controlled by the forest department.

## 2.4 Resource Use and Availability

A daunting gap exists between total wood consumption and sustainable supplies of wood from the forests.

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<sup>18</sup>Only includes fallen wood, and does not imply lopping branches for fuelwood.

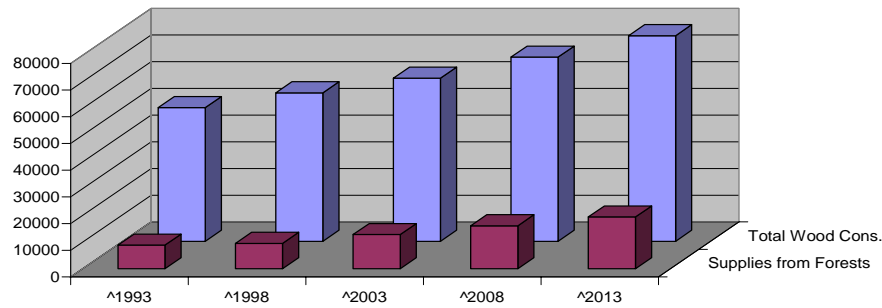
<sup>19</sup> These forests were the result of failure of government to demarcate disputed lands. This declaration was used as an interim device to extend legal cover to the disputed forests till the process of settlement can occur. The settlement process is meant to examine the rights and claims of locals in detail in a judicial process. This judicial inquiry should result in acceptance, rejection or commutation on suitable payment of these rights. In latter two cases, the forest can then be declared as Reserved. A protected forest is therefore not a category where forests can remain perpetually. In the protected forest, in addition to the concessions mentioned in footnote 7, locals are allowed fuelwood collection and timber for personal needs. They also have 60-80% share in the sale proceeds from timber.

<sup>20</sup> Un-classed Forests await their determination of legal classification. Meanwhile they are treated as protected forests. Resumed Forests came under government jurisdiction after the land reforms.

<sup>21</sup> Bulk of the Protected Forests is found in the Malakand division. Prior to this, these forests were the property of the rulers of the princely states of Dir, Swat and Chitral. Protected Forests are also found in the Murree division in the Punjab. These, however, have a longer history under government control, and were constituted as a temporary category awaiting settlement at the time of the annexation of the Punjab.

<sup>22</sup> These are held either individually (by families), or jointly (by communities). However, they have always been managed by the government except for a short period of time (1981–1992) when these forests were managed by forest cooperative societies. For this reason, it is better to regard them as regulated commons (Azhar 1993).

**Fig. 2: Wood Supply and Consumption**



Source: Pakistan (2005) [State of Environment Report]

Bulk of this gap is accounted for by the rural fuelwood consumption (Table 2 below).

**Table2: Wood Use/Availability ('000 m<sup>3</sup>/year)**

Wood Consumption \Year	1993	1998	2003	2008	2013
Industrial Wood	3549	4280	5339	6419	7933
Fuelwood Consumption					
Rural	36578	40385	44587	49228	54353
Urban	6917	7636	8431	3909	10187
Total Wood Consumption	50004	55569	61065	68940	76967
Projected Sustainable Supplies From Forests	8847	9506	12802	16099	19395
Required from Other Sources	41157	46063	49163	52841	57572

Source: Pakistan (2005) [State of Environment Report]

Whereas in 1993, sustainable wood supplies from the forests accounted for a meagre 18% of total wood consumption, by 2013 this would increase to about quarter of total consumption. Rest is covered by 'other sources'. It is not clear, however, what these other sources are. Pakistan (1992a) reported that the annual outturn of wood from Forests (under Forest Department jurisdiction) stood at 686,000 m<sup>3</sup> per year and the estimated consumption was 29,550,000 m<sup>3</sup>. It contended that this difference was covered by illegal removal of wood from the public forests. On a speculative note, one can say that bulk of the difference between wood supply and consumption today is covered by illegal removals. Clearly, there is not only an urgent need to come up with programmes to improve productivity of public forests but also a stringent regulation of these forests to guard them against wood theft.

## ***REVIEW OF LITERATURE***

Many explanations regarding deforestation in the mountainous regions of the sub-continent are offered. Most current among these is the Theory of Himalayan Environmental Degradation [THED]. The THED ascribes deteriorating environmental conditions of the Himalaya region to the increasing population pressure in the fragile mountain ecological environment<sup>23</sup>. The second argument addresses the wider socio-economic processes-especially urbanization of the lowland areas and the corresponding increase in the demand for timber. This also includes developmental activities and infrastructure expansion in the mountainous areas-particularly opening up of previously inaccessible forests due to construction of roads<sup>24</sup>. Alternatively, another strand of research underscores the political economy approach to resource degradation. For example, research has looked into the rent seeking activities of the communities residing in/around the forests as a source of deforestation<sup>25</sup>. Failure of the government to establish a proper institutional set-up for forest management has also been blamed as the cause of forest decline<sup>26</sup>. The unholy alliance between private forest contractors and forest officials leading to illegal logging activities has also been quoted as one important reason for forest decline<sup>27</sup>. Though these studies identify important aspects of deforestation, yet they fail to incorporate them in a broader framework.

Contemporary research on causes of deforestation treats it as a multidimensional and complex process and distinguishes between direct and indirect causes [Contreras-Hermosilla (2000), Angelsen and Kaimowitz (1999), Cernea (1992), Barraclough and Ghimire (1990)]. Direct causes are the acts of agents-loggers, miners, shifted cultivators, plantation owners, ranchers etc., who use forests for its diversified products (or convert forestland to alternative land uses). Indirect causes include factors that induce behavioural patterns of these actors<sup>28</sup>. These include market failures<sup>29</sup>; mistaken policy

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<sup>23</sup> See Ives (1987) for a review of the THED, and about its validity (or otherwise) in the light of available evidence.

<sup>24</sup> Ali *et al* (2005) estimate approximately 50% of the forest in Basho Valley (Northern Areas) disappeared after the construction of the link road.

<sup>25</sup> See Azhar (1993) for an excellent account of this proposition.

<sup>26</sup> See Hasan (2001) for this point.

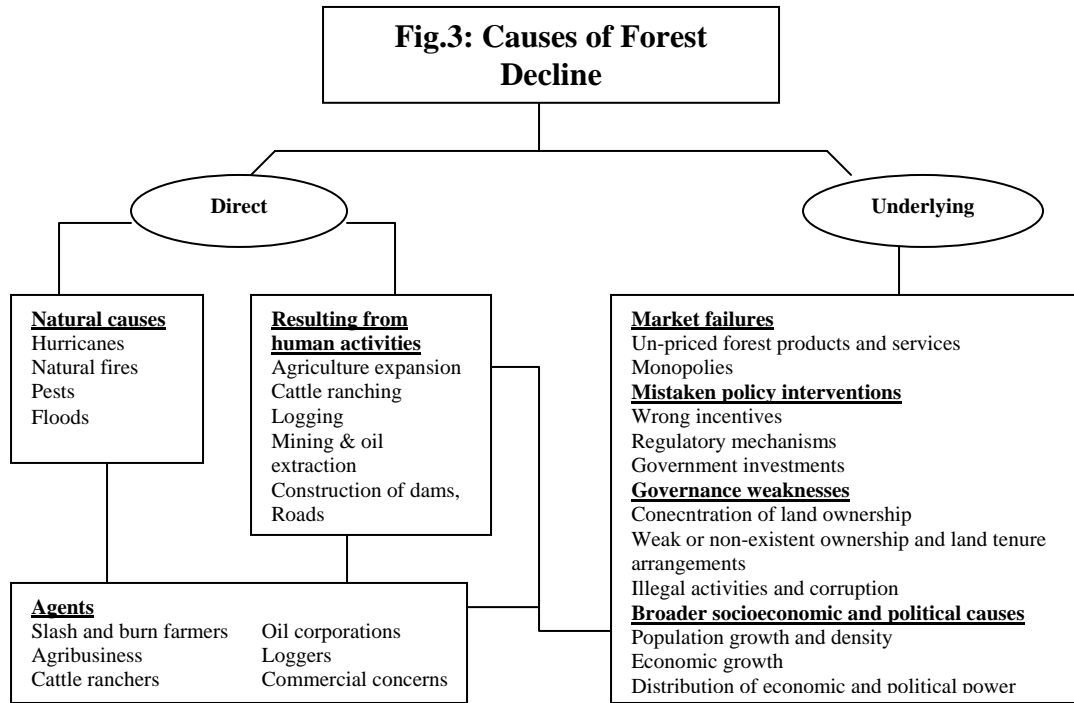
<sup>27</sup> Knudsen (1996) takes a detailed look at the “entrepreneurship” of forest contractors in making profit out of the uncertain tenure situation in the North West Frontier Province of Pakistan.

<sup>28</sup> Barraclough and Ghimire (1995) consider that the forces behind the direct causes of deforestation are “complex, speculative and controversial” (*ibid*, p. 12)

<sup>29</sup> Forests provide many services (watershed protection, flood control, carbon sink) yielding positive externalities. Since a private owner of forest does not get any monetary benefit from these services, his private net benefit is bound to be less than social net benefit (benefits that accrue to the society). Typically, “many of the services provided by forests have either no market price or very imperfect prices and therefore do not enter into the decisions of the main private sector actors. For example, a forest landowner in an upper watershed does not get paid for the services his forest provides to other producers located downstream. These may include services such as soil protection against erosion and protection of irrigation and hydropower dams against sedimentation. Such services would then be produced at a level that is lower than the optimal from society’s point of view. By considering only those products and services that can be sold in markets or that can directly benefit private actors, many of the non-priced or imperfectly priced



intervention<sup>30</sup>; institutional factors (land tenure, illegal activities) and broader socio-economic causes (population growth and density, economic growth)<sup>31</sup>.



Source: Contreras-Hermosilla (2000)

More generally, environmental problems are often seen as stemming from institutional failures<sup>32</sup>. Therefore, study of institutional arrangements governing the use of resources has gained currency among researchers<sup>33</sup>. While the bulk of literature under the rubric of NIE has focused on explaining differences in the growth performances of the countries, and attributing it to differences in types of institutions<sup>34</sup>, lately researchers are using concepts and analytical tool of NIE to explain resource degradation problems

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environmental services of forests simply do not enter into the decision making equation of the private operator. Because they have no market value, there is no private incentive to protect forests for their environmental services. In all these cases there is a discrepancy between private and social costs and benefits. Benefits and costs that are important for the society as a whole are not important for the private individual that controls the management of forest resources” [Contreras-Hermosilla (undated)].

<sup>30</sup> For example government transportation policies, hydro-power policies, subsidies affecting alternative uses of land (cattle ranching), debt accumulation, and structural adjustment policies all affect forest use.

<sup>31</sup> See Rao and Marwat (2003) for a discussion of direct and indirect causes of deforestation in the case of Pakistan.

<sup>32</sup> Market failures and state failures are two instances of institutional failure.

<sup>33</sup> This interest in the study of institutions is revoked by the New Institutional Economics (NIE) school of thought<sup>33</sup>, which accords a central role to institutions in an economy. Institutions, broadly defined to mean rules and constraints, are the framework within which human interaction takes place (North 1990). They govern behavioural relations among individuals and groups (Nabli and Nugent 1989).

<sup>34</sup> North (1990) is the most coherent work. Also see Harris *et al* (1995). See Aron (2000) for a review of literature linking growth and institutions.

worldwide. Generally, focus is on the institutions of property and their role in resource degradation<sup>35</sup>. Deforestation is also cast in terms of institutional failure. Among the main reasons for deforestation, market failures and governance weaknesses are considered as most important (Contreras-Hermosilla 2000).

In a wider context, development economics (typically, NIE approach) focuses on governance failures as a probable cause of underdevelopment of the third world countries. Though no formal definition of governance failure is offered, one can borrow from Krueger's (1990) definition of government failure, who describes it as the sum of actions and/or failures to act which result in sub-optimal situations (Krueger 1990)<sup>36</sup>. Further, Khan (1995) distinguishes between two types of state failures. Type I state failures are those where "a particular formal institutional structure results in lower net benefits for society compared to an alternative structure". This he labels as structural failure. Type II failure occur when "the process for changing the structure of institution attains a lower cumulative set of net benefits for the society compared to an alternative process over a given period" (Khan 1995).

The focus of this paper is on studying state failures. Though, it is too broad a topic to be encapsulated in one paper, the idea perhaps is to start discussions on outlining a holistic, as against a piecemeal approach toward process of deforestation in Pakistan<sup>37</sup>. The study of state failures would then entail studying government actions that resulted in sub-optimal net benefits from the forests. The underlying hypothesis is: the primary cause of deforestation in Pakistan is failure of state to establish a system that would ensure proper exploitation of forest resources. The working hypotheses are: (1) The process of government control over forests created a discordant structure of property rights; (2) Government was pitted against the community and social recognition of state property was absent, which made forest management an impossible task; (3) Massive deforestation on part of the government exacerbated the dwindling state of public forests; (4) Management failures placed forest contractors in a comfortable alliance with the FD causing excessive felling. Below we discuss these instances of state failures.

### ***UNDERSTANDING STATE FAILURES IN FOREST MANAGEMENT IN PAKISTAN***

*"Weak and ineffective government institutions unable to monitor and enforce regulations also derive deforestation mechanisms"* (Atje and Roesad 2004)

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<sup>35</sup>Inadequate property rights are blamed to be the culprit in most instances of resource degradation. See Hanna and Munasinghe (1995) for this point. The most researched area in the present context is the effect of different types of property rights on resources. The debate about private property vs. common property is one of the most heated debates in economics.

<sup>36</sup> The term governance failure was coined by development economist/practitioners to account for the institutional causes of lack of development. Though in currency, one fails to find an exact definition of the term. The term government/state failure is much precisely defined.

<sup>37</sup> Ideally, such an approach should also cover 'market failures', but these are not examined in this paper as the task would require valuation exercises.

### **A Complete Lack of Understanding about the Pre-existing Tenorial Arrangements**

Ownership over resources in the pre-colonial India was predominantly communal [Singh (1986)]<sup>38</sup>. Generally, all land was considered to be the property of the ruler who claimed absolute ownership and people only had usufruct rights. As such, people were not aware of the concept of private property. Forestlands were held under similar arrangements. The local communities used the forest products at will and the rulers never interfered with the exercise of these rights. [Azhar (1993), Bilal, Haque and Moore (2003), Cernea (1990), Gadgil and Guha (1995), Guha (1993, 1989), Mumtaz and Nayab (1992), Singh (1986)]<sup>39</sup>.

After advent of the British, the process of land settlement was started around the middle of the nineteenth century. Since traditionally the ruler claimed absolute ownership over land (and granted usufruct rights to the communities), the British used this 'monarchical claim' to establish its control over land. Through an 'act of the state', they acquired land in the name of the crown<sup>40</sup>. The process of acquisition was twofold. Whereas in the tilled area (called 'revenue lands') it granted propriety rights to zamindars, no such provision was made in the forestlands<sup>41</sup>.

Though the state had extended its control over forests as early as the 1850s, it was not until some twenty years later that a regulatory procedure, in the form of the Indian Forest Act of 1878, was established to provide legal cover to it. This act regulated peasant access to the forests, restricting it to areas not deemed commercially profitable. A forest department was set up to regulate tree felling in the areas brought under government supervision. In addition, the forest department was also entrusted with the task of policing forests. Punitive sanctions were introduced against transgressors. [Guha (1993), Banuri and Marglin (1993)].

This abrupt extension of state control conflicted with the customary use of the forest by the people residing there. It provoked them because it had caused infringement of their customary rights and led to widespread protests by them. Locals could no more exercise their rights with same freedom. In the case of Reserve Forests the infringement was severe, as they could not cut trees any more. For Guzara Forests they had to seek permission from the government for the exercise of same rights [Azhar (1993), Guha (1993)].

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<sup>38</sup> He estimates that approximately 80% of the land was under some kind of common property arrangement.

<sup>39</sup> See Azhar (1993) regarding customary rights in Northern Punjab, Bilal, Haque and Moore (2003) for Northern Areas and Rome (2005) for Swat and Kalam (NWFP).

<sup>40</sup> The first instance of this act was applied to Bengal (Bengal Regulation I of 1824). In the coming twenty five years this act was extended to other areas as well. This law later on led to the Land Acquisition Act 1894.

<sup>41</sup> It is claimed that motives behind this act were of revenue maximisation. Granting private rights over agriculture land was considered optimal for output increase. Whereas this was not the case for forests as granting private rights over these would rid the state of a profitable opportunity to exploit forests commercially.

## A Discordant Structure of Property Rights

“Deforestation is encouraged by weak or non-existent ownership rights. The lack of enforcement of property rights induces landless peasants and others to use forest resources as a free resource. The incentive for deforestation is clear.” [Contreras-Hermosilla (undated)].

Initially the forests were divided in two categories: the Reserve Forests and village wastelands. In the Murree and Hazara division of the Punjab, for instance, the most well stocked forests (commercially profitable) were declared as Reserve Forests, and those that were not well stocked were left for the local population to meet their requirements. The village wastelands were later labelled as Guzara Forests. The Reserve Forests were almost free of rights of locals. The rights of passage, water use and grazing and fuelwood collection were allowed as a concession. In the Guzara Forests, in addition to above stated rights, local people were allowed to make use of the forest for liquidation of debts and the education of their children; moreover they could exploit the forests for commercial purposes on payment of a small fee to the government.<sup>42</sup>

Since the purpose of state control of the forests was to safeguard state forests from misuse by the local population, therefore, a proper demarcation was essential in restricting people’s access. This, however, could not be accomplished with ease. In fact government’s attempts at demarcation were met with protest from the local community as they contested the rights of the government, and struggled to assert their rights over forestland. Consequently the government failed to demarcate reserved forests [Azhar (1993)]. The government could only accomplish the task by leaving the disputed areas out of the reserve category. It had to constitute another category of forests to accommodate these disputed area, labelled Protected Forests.<sup>43</sup> It was decided that demarcation would only occur when nature and extent of rights were thoroughly investigated.

In the Protected Forests locals were given more rights. In addition to the concession they enjoyed in the Reserve Forests, the locals had rights to cut timber for their non-commercial needs, subject to prior governmental approval. The government itself retained the rights to trees of spontaneous growth, and carried out large felling operations during this period for the building of local cantonment and the northwest railways [Azhar

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<sup>42</sup>This account of customary rights is taken from Azhar (1989). Also see The West Pakistan Forest Manual, Volume 1, Legislation Relating to Forest Administration with Rules made under Forest Acts and Regulations (1963).

<sup>43</sup>Government Of West Pakistan in one of its report—The Report of the Murree Hills High Powered Commission; Lahore: Government Of West Pakistan, 1958—writes that the protected forest category was constituted because “*it was a quicker process involving much less labour for the settlement officer and partly because the forests were burdened with rights which were recorded*” [Azhar (1993), p. 126].

(1993)]. Such felling in turn fuelled resentment among the right holders because they considered this as an infringement of their rights.

Literature also reveals that Government efforts at demarcation were only half-hearted<sup>44</sup>. As a result of this lack of effort there has been considerable illegal annexation of and encroachment on Guzara and state forests.

### **Massive Deforestation on Part of the Government**

“The imperatives of colonial forest management were essentially strategic, i.e. to meet the critical imperial need for wood for railways and during the world wars, and commercial, i.e. to assure steadily increasing revenue to the state [Guha (1993), p. 83].

The historical account of the forestry in the Sub-continent points out the fact that the forests were used for subsistence living, and commercial exploitation was an absent phenomenon [Ali *et al* (2005)]<sup>45</sup>. The nature-population balance was such that there were limited demands on the forests and grazing lands, and a number of studies talk about the virtually unexploited forests in many parts of the sub-continent [Tucker (1984), Schickhoff (1995), Simorangkir (undated)]<sup>46</sup>.

The situation changed when the British took over control of the forestlands. The process of control was followed by exploitation of these forests on commercial basis. The British Government considered it an important source of timber and revenues [Guha (1993), Tucker (1987), Schickhoff (1995)]. “The exploitation was carried out mainly for the setting up of railways leading to the coasts, and for shipbuilding, so as to export products to Europe” [Singh (1986): 15].

Tucker (1987) traces the first phase of massive deforestation in the Himalaya in period 1850 and 1860 to the ‘twin forces of establishing British control in the upper Ganges and Indus plains, and the penetration of that region by the railways’ [Tucker (1987): 3]. And as a result of this expansion, “the overexploitation of the Himalayan

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<sup>44</sup> Jan (1965) observes that “boundaries pillars ... ultimately disappeared due to lack of subsequent repairs with the result that the demarcation lines remain only on ... map” [Azhar (1993), p. 127]. On the state of boundaries in the Murree-Kahuta forest division, Bashir (1959) writes that “in several forests ... boundary pillars were found missing and there was no clearly defined boundary line” [*ibid*, p. 127]. On this Muhammad (1972) later noted, “the reserved and protected forests were not even touched by the settlement officer” [Azhar (1993), p. 127]. Rome (2005) reports similar problems in the case of Swat where, due to lack of demarcation between forest and non-forest land, forestland was converted to cultivable land.

<sup>45</sup> Sheikh and Khan (1982) write that private forests of Chilas were not exploited on commercial basis before the partition of sub-continent. Irfanullah (undated) confirms that local population’s use of forest did not pose a threat to the forests. Saravanan (2006) also elucidates this point in the case of South India.

<sup>46</sup> Schickhoff (1995) writes, “In the seventeenth century and in the first decades of British occupation in the eighteenth century, the forests of India and the Himalaya were considered to be more or less untouched and inexhaustible” [Schickhoff (1995), 9].

forests far surpassed that of the commercial timber cutting prior to the railway building era” [Schickhoff (1995): 10]. Table (3) below depicts that revenue from forests increased sharply in the next decades following the establishment of the Forest Department in 1870.

**Table 3: Revenue and Surplus of the Forest Department 1869-1925**

Yearly Average for the Period	Revenue	Surplus	Percentage
1869-70 to 1873-74	5.6	1.7	30
1879-80 to 1883-84	8.8	3.2	36
1889-90 to 1893-94	15.9	7.3	46
1899-1900 to 1903-04	19.7	8.4	43
1909-1910 to 1913-14	29.6	13.2	45
1919-1920 to 1923-24	55.2	18.5	34
1924 to 1925	56.7	21.3	38

Source: Singh (1986)

Himalayan forests were also a chief source of timber during the two world wars. Almost 400,000 sleepers of chir were exported from Kumaun during the First World War, and an almost equal number of sleepers (440,000) were supplied during the Second World War from the same forests [Guha (1993)]. Table (4) below describes that out-turn of wood from Indian forests doubled during the Second World War.

**Table 4: India’s Forest and the Second World War**

Year	Out-turn of Timber and Fuel (in cubic ft)	Area under Sanction (sq. miles)
1937-38	270	62532
1939-40	294	64976
1941-42	310	66538
1943-44	374	50474
1944-45	439	50440

Source: Singh (1986)

The massive deforestation by the government generated feeling of resentment among the forest dwellers, who considered timber cutting as their prerogative, and compelled them to involve in excessive wood removal as well [Azhar (1993)]. Khattak (1994) also argues “large scale deforestation in the Malakand Agency was caused during the seventies by tenants who considered it inequitable for landlords to claim major benefits from forests even when they were not resident in the area [Khattak (1994), p. 29]<sup>47</sup>.

<sup>47</sup> Also See Rome (2005) for this point.

## State Vs the Society-the Competing Interests

“Many right holders feel uncertain about the continuation of their rights and concessions<sup>48</sup>. Being doubtful of the future, many right holders try to obtain maximum benefits in the present” [Ashraf (1992a), p. 44].

Hill people in Asia are generally marginalised, sitting at a distance from the centre of power in the lowlands (Dani, Gibbs, and Bromley (1987)]. The extension of the state control over the hilly forests exacerbated the social conflict between the state and its subjects. It pitched the state against the forest dwellers, and thus started the tenuous struggle over forest resources [Gadgil and Guha (1995), Tucker (1984)]<sup>49</sup>.

Trust between forest dwellers and the Forest Department (FD) is lacking, to the extent that the FD is in open conflict with the majority of population [Cernea (1988b), Dove (1994), Khattak (1996, 1994), Shahbaz and Suleri (2004), Van Dijk and Hussein (1994)]<sup>50</sup>. Opposition to forest management was expressed through the violation of forest laws, constituting a direct challenge to the state to relax its control over the forests [Guha (1993)]<sup>51</sup>.

The government claimed legal title over the forests but the locals made competing claims. The situation was worse in the case of protected forest which awaited settlement. The Government of Pakistan in its report on the state of forestry in NWFP admits that the disputed status of Protected Forests has affected its management [Pakistan (1992)]. The local people “do not allow the FD to plant areas from where mature trees are removed. Natural regeneration fails to get established because of ubiquitous grazing. The forests are not demarcated and the local people promptly appropriate any sizable opening in the forests for cultivation” [Van Dijk and Hussein (1994), p. 41].

Resistance by the local people to active management by the FD is common. Cernea (1988b) writes that in a social forestry project in the AJK, “the small farmers hesitated to accept project planting on their lands. They were fearful of losing possession or control

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<sup>48</sup> Ashraf (1992a) reports that this uncertainty is due to “a) repeated declaration by the government of its intention to forfeit the rights; b) informal and wrong seizure of parts of communal forest land by the influential persons; and c) over use of land and over cutting of trees by a few politically and socially powerful right holders in a manner that others are unable to exercise their rights” [Ashraf (1992a) p. 44].

<sup>49</sup> Gadgil and Guha (1995) write, “Throughout the colonial period, popular resistance to state forestry was remarkably sustained and widespread” [*ibid*, p. 85].

<sup>50</sup> In the case of Kumaon Village, Tucker (1984) writes that people saw the forest Department as a machinery of repression.

<sup>51</sup> The feeling of apathy is not one way. Dove (1994) notes that “the FD has an attitude of mistrust towards local population and attributes overexploitation of tree products and deforestation of forested area to the ‘anti-tree’ attitudes of the rural people. Up until recently, state foresters maintained that farmers were not merely the enemies of the forest (i.e., the state forests), but they were also opposed to trees per se” [Dove (1994), p. 107]

over their land to the government once it was planted by the FD, or being deprived of their rights to collect fodder and graze their cattle.” [Cernea (1988b), p. 170]<sup>52</sup>.

Writing on the current degraded state of Hazara forests, Azhar claims that population pressure does not seem to be an important factor in the degradation of these forests. In 1870 the average household holding was 16 acres, sufficient to meet the household requirements. From this he concludes that the “prevailing atmosphere of antipathy towards the government and the forests contributed to the decline of forests”. *Clearing forest lands to rid them of the state rights seemed logical on part of the right holders to ascertain their claims on these lands*” [Azhar (1993), p. 120, emphasis added]<sup>53</sup>. Most studies on forestry talk of abuse of customary rights [Khattak (1996, 1994), Azhar (1993), Ashraf (1992a), Cernea (1990)].<sup>54</sup>

Khattak (1994) blames the inability of the government to carry out settlement process in the protected forests of the Malakand Civil Division as the major cause of forest depletion. He writes that “even when trees are felled under the authority of the FD, the local people generally do not allow them to plant up the felled tree areas in the fear that such planting *would reinforce the claims of the government to the ownership of the forests*” [Khattak (1994), p. 29]. With the result that those forest openings, which can sustain agriculture, are converted to cultivated land [ibid]. Uncontrolled grazing is yet another problem contributing to the decline of forest by hindering regeneration<sup>55</sup>.

### **Management of Forests- The Contractor-Forester Alliance**

Crucial for the conservation is a proper management system, which should ensure a continuous flow of services from the resource without harming it. In the current organisational set up FD marks trees to be felled, the harvesting, transportation and sale is the responsibility of an autonomous government organisation, FDC (Forest Development Corporation).<sup>56</sup> The FDC works in the Reserve and Protected Forests.<sup>57</sup> Before 1973, FD used to sell standing volume of trees to private contractors, who were then responsible for

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<sup>52</sup> The case refers to the pilot forestry programme under the Azad Kashmir Hill farming Technical Development Project in Pakistan, co-financed by the World Bank between 1978-83. Most of the farmers interviewed indicated that they might offer small plots for project planting, provided they could be convinced that the FD would not alienate their lands and that they would be able to cut grass for their cattle. “In contrast, large landowners, being confident of their political power, did not regard tree planting by the FD as a threat to their ownership of land and trees” [Cernea (1988b), p. 170].

<sup>53</sup> Rome (2005) writes that after declaring forest as government property in the state of Swat, “forests’ boundaries gradually receded upwards” [Rome (2005): 74].

<sup>54</sup> Pakistan (1992a), in fact, holds this abuse of rights as one of the main cause of forest depletion.

<sup>55</sup> “The greatest single factor vitiating the effectiveness of massive efforts at regenerating forests and planting forest lands has been continuous uncontrolled grazing and *lack of cooperation and often open hostility from the local people in this venture*. Livestock roam free all over the forests...Where expensive fencing is installed, it cannot be effectively maintained against the will of the local communities. *And even an army of forest guards cannot protect planted seedling from being surreptitiously uprooted by grazers from the areas which they consider their legitimate grazing grounds.*” [Khattak (1996), p. 4].

<sup>56</sup> The FDC operates only in the Province of NWFP.

<sup>57</sup> In the protected forests local people are entitled to a 60 percent share in the sale proceeds.



felling and transporting the timber to the sale depots. Since these contractors were the owners of trees once these were sold out to them, they had an interest in felling much more than that permitted on a sustainable yield basis. The practice got defamed and was eventually stopped<sup>58</sup>. A Forest Development Corporation was then created in the province of NWFP for harvesting, transportation and sale of timber. It tenders out the service of felling and transportation to the private contractor. This practice differed from the earlier practice in the way that under this new arrangement the contractor does not become the owner of the trees at any moment in time. Therefore it was assumed that he would have no incentive to fell more tree than those marked-an assumption that soon proved to be wrong.

This arrangement was adopted to counter the practice of over felling. Indeed, the GOP is satisfied that the FDC has put an end to over felling and “these arrangements have effectively removed corruption that was common under the previous system of stumpage sale to contractors [Pakistan (1992a), section 4.4.4.]” Other authors do not seem to be in agreement [See Khattak (1996, 1994); Khan and Zurflueh (1994)].

A report by the Kalam Integrated Development Project (KIDP) identifies ‘the alleged collusion’ between foresters and contractors, a legacy of British administration,<sup>59</sup> still exists in the NWFP forestry department. “Especially poignant is ...(the) observation on the ‘alleged collusion’ between foresters and contractors. The government of NWFP took action against this in 1973, and disallowed the sale of standing trees to contractors or forest lessees. Later, in 1977, the FDC was created to act in the place of contractors. *The overall situation, however, is said to have changed for the worse through the complex series of developments*” [Khan and Zurflueh (1994), p. 2]<sup>60</sup>.

The report describes the series of events as follows. In 1981, the FDC adopted a system of pre-fixed rates for the payment of royalty. Under this system, the concessionists were paid royalty according to the pre-determined rates<sup>61</sup> that were agreed upon by all the parties. The system functioned well until the late 1980s, because FDC contracted out harvesting and transportation to labour contractors, who had no vested interest in over felling. The labour contractors made profits purely by working efficiently. The surplus revenue accrued to the government.

In the late 1980s, when timber prices rose dramatically, and the labour wages followed suit, a system of net sale was adopted. Under this system FDC deducts the actual harvesting cost plus taxes from the sale proceeds after auction, the remainder

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<sup>58</sup> Tucker (1982) writes, “Competition among the investors (contractors) was usually intense, and winning bidders became determined to squeeze maximum profits from their coupes. As the system matured, the hill people charged that contractors often cut many more trees than they had legally purchased, either by stealth or by bribing foresters... Senior officials of the FD were never able to effectively monitor their chronically underpaid subordinates” [cited from Khan and Zurflueh (1994), p. 2]. Also see Sheikh and Khan (1982) for destruction of forests in the Northern Areas by timber traders in the early years of Pakistan.

<sup>59</sup>See Tucker (1984) for the malpractice in the forestry administration in the colonial regime.

<sup>60</sup> Mehmood (2003) notes the ‘timber mafia’ is still deeply entrenched in the state administrative machinery.

<sup>61</sup>Implied rate per tree removed.

was split between the concessionists (60 percent), and the government (40 percent). This allowed more revenue to accrue to concessionists.

“Contractors and (ex) forest lessees were quick to take advantage. Royalty purchasers entered as de facto contractors largely through the ignorance of illiterate majority of concessionists. This was easy. The new net sale was poorly understood by rural concessionists, and the purchasers guaranteed a fixed rate for standing volume of timber... Rather than to face the uncertainties of a perceived fluctuating market and uncertain tenure, concessionists opted for a fixed (low) rate. Royalties were purchased through influencing tribal elders, who entered into legal agreements on behalf of the tribe. Purchasers then registered their or relatives name as contractors with the FDC, and *manipulated*, the bidding to win the contract (emphasis added), at rates that no contractors not backed by a royalty purchase could compete with. Thus, they entered the same harvesting coupes as contractors that they had purchased.” [Khan and Zurflueh (1994), pp. 2-3].

They now have enormous interest in over felling, thus realising huge profits. The practice still continues. Although the FDC was established to eliminate the malpractice of forest contractors, it came to depend upon the same contractors. Thus, the same situation of a close relationship between the FDC and contractors came to prevail [*ibid*, p. 5]. “Undermining the *raison-de-ere* for the establishment of the corporation” [Van Dijk and Hussein (1994), p. 41]. It further writes “The forest department gives high priority to forest conservation, but despite all efforts, the tremendous pressure on forests caused by high prices of timber and the demand for fuelwood and money makes it extremely difficult to save the forest. *It is generally perceived that Forest Department Staff is also a threat to the forest*” [*ibid*, p. 41]. This alliance between the forest contractor, forester and local influential is also very well documented in Knudsen (1996), which also provides interesting economics of this forest theft.

### **CONCLUSION**

The objective of the paper was to document instances of state failures in the forest sector of Pakistan, and to build an argument that these failures are the primary cause of deforestation in Pakistan. Typically, the process of control of the forests by the government paid little attention to the existing tenurial rights of the local people. The infringement of their rights due to the restrictions imposed on them infuriated the forest dwellers and led to considerable deforestation by them. On the other hand, the state invested little effort in establishing a property regime that could ensure an optimal exploitation of forests, which resulted in a discordant structure of property rights fuelling deforestation. Moreover, though the quantity restrictions had been imposed on the wood removal by the community, the state itself was involved in excessive timber harvesting for the construction of cantonments and railways and also during the World Wars. Finally, the management system and its system of contracts encouraged ‘collusion’ between contractors, foresters and local influentials, which led to the flourishing business

of the 'timber mafia'. With the result that the local community considered it fair to take their share of the resource.

We end this paper with the following quote from Contreras-Hermosilla (undated). "The management of a large proportion of the forest resources in many countries is entrusted to the Government. However, the institutional weaknesses of many of the Government agencies, particularly in developing countries, are well known. Very few technical and managerial staff with limited implementation equipment and facilities are asked to plan, manage and monitor developments in millions of hectares of forest resources often subject to a number of intense external pressures. It is no wonder that in many cases, but particularly in developing economies, forest resources are, for all practical purposes, considered as resources with "open access", with nobody exerting effective property rights on them" [Contreras-Hermosilla (undated)].

## References

- Ahmed and Mahmood (1998) Changing Perspectives on Forest Policy. Policy that works for forests and people series no. 1. IUCN Pakistan and International Institute for Environment and Development, Islamabad and London.
- Ali, J., T. A. Benjaminsen, A. A. Hammad, and Ø. B. Dick (2005) The Road to Deforestation: An Assessment of Forest Loss and Its Causes in Basho Valley, Northern Pakistan. *Global Environmental Change*, 15: 370-380.
- Angelsen, A. and D. Kaimowitz (1999) Rethinking the Causes of Deforestation: Lessons from Economic Models. *The World Bank Research Observer*, 14: February, 73-98.
- Aron, J. (2000) Growth and Institutions: A Review of the Evidence. *The World Bank Research Observer*, 15:1 99-135.
- Ashraf, M. (1992a) Forest Policy, Tenure, and Legislation. Background Paper for Forestry Sector Master Plan of Pakistan. Government of Pakistan, Islamabad.
- Ashraf, M. (1992b) Forestry Institutions in Pakistan. Background Paper for Forestry Sector Master Plan of Pakistan. Government of Pakistan, Islamabad.
- Atje, R. and K. Roesad (2004) Who Should Own Indonesia's Forests? Exploring the Links Between Economic Incentives, Property Rights and Sustainable Forest Management. CSIS Working Paper Series no. WPE 076. Centre for Strategic and International Studies, Jakarta.
- Azhar, R. A. (1993) Commons, Regulations, and Rent-seeking Behaviour: The Dilemma of Pakistan's Guzara Forests. *Economic Development and Cultural Change* 42:19 115-129.
- Azhar, R. A. (1989) Communal Property Rights and Depletion of Forests in Northern Pakistan. *The Pakistan Development Review*, 28: Winter, 643-651.
- Barracough, S. and K. Ghimire (1995) *Forests and Livelihoods: The Social Dynamics of Deforestation in Developing Countries*. UNRISD. MACMILLAN, London.

- Barracrough, S. and K. Ghimire (1990) *The Social Dynamics of Deforestation in Developing Countries: Principal Issues and Research Priorities*. UNRISD Discussion Paper 16. United Nations Research Institute for Social Development. Geneva, Switzerland.
- Bilal, A., H. Haque and P. Moore (2003) *Customary Laws*. IUCN Law Programme.
- Cernea, M. M. (1988a) Land Tenure Systems and Social Implications of Forestry Development Programmes (Pakistan). In L. Fortmann and J. W. Bruce (eds) *Whose Trees? Propriety Dimensions of Forestry*. Boulder and London: Westview Press. 139–148.
- Cernea, M. M. (1988b) Alternative Social Forestry Development Strategies. In J. Ives and D. C. Pitt (eds) *Deforestation: Social Dynamics in Watersheds and Mountain Ecosystems*. London: Routledge. 159–190.
- Cernea, M. M. (1990) User Groups as Producers in Participatory Afforestation Strategies. The World Bank, Washington, D. C. (World Bank Discussion Paper No. 70.)
- Cernea, M. M. (1992) A Sociological Framework: Policy, Environment, and the Social Actors for Tree Planting. In Narendra P. Sharma (ed) *Managing the World's Forests*. Kendall/Hunt Publishing Company.
- Contreras-Hermosilla, A. (2000) The Underlying Causes of Forest Decline. CIFOR Occasional Paper No. 30. Centre for International Forestry Research, Bogor. Indonesia
- Dani, A. A., C. J. N. Gibbs, and D. Bromley (1987) Institutional Development for Local Management of Rural Resources. East-West Center, Honolulu, Hawaii. (Working Report No 2.)
- Dove, M. (1994) Jungle in Nature and Culture. In R. Guha (ed.) *Social Ecology*. Delhi: Oxford University Press. 90-111.
- FAO (2001) *State of the World's Forests 2001*. FAO Rome.
- Gadgil, M., and R. Guha (1995) *Ecology and Equity—The Use and Abuse of Nature in Contemporary India*. London: Routledge.
- Guha, R. (1989) *The Unquiet Woods: Ecological Change and Peasant Resistance in the Himalaya*. Delhi: Oxford University Press.
- Guha, R. (1993) The Malign Encounter: The Chipko Movement and Competing Visions of Nature. In T. Banuri and F. A. Marglin (eds) *Who Will Save the Forests? Knowledge, Power and Environmental Destruction*. London: Zed Books. 80–109.
- Hanna, S., and M. Munasinghe (eds) (1995) *Property Rights and the Environment: Social and Ecological Issues*. Washington, D. C.: The World Bank.
- Harriss, J., J. Hunter, and C. M. Lewis (eds) (1995) *The New Institutional Economics and Third World Development*. London: Routledge.
- Hasan, L., (2001), Analyzing Institutional Set-up of Forest Management in Pakistan. Pakistan Institute of Development Economics, Islamabad. (Research Report Series number 182).
- Irfanullah, S. (undated) National, Regional and Local Forest Policies and Their Impact. Available at: <http://idrinfo.idrc.ca/archive/corpdocs/117583/irfanu.doc>

- Ives, J., and D. C. Pitt (eds) (1988) *Deforestation: Social Dynamics in Watersheds and Mountain Ecosystems*. London: Routledge.
- Ives, J. D. (1987) The Theory of Himalayan Environmental Degradation: Its Validity and Application Challenged by Recent Research. *Mountain Research and Development*, 7: 189-199.
- Khan, J., and R. Zurflueh (1994) The Timber Harvesting Ban and Its Implications. Kalam Integrated Development Project, Kalam, Pakistan.
- Khan, M. (1995) State Failure in Weak States: A Critique of New Institutional Explanations. In J. Harriss, J. Hunter, and C. M. Lewis (eds) *The New Institutional Economics and The Third World Development*. London: Routledge.
- Khattak, G. M. (1994) Strategy for the Sustainable Development of Forestry in NWFP. IUCN, Peshawar, Pakistan.
- Khattak, G. M. (1996) Proposed Forestry Policy for NWFP. Islamabad, Pakistan. (Paper Presented at Sustainable Development Policy Institute.)
- Knudsen, A. J. (1996) Deforestation and Entrepreneurship in the NWFP, Pakistan. Chr. Michelsen Institute (CMI) of Development Studies and Human Rights, Bergen. (CMI Working Paper WP 1996:11.)
- Krueger, A. O. (1990) Government Failures in Development. *Journal of Economic Perspectives* 4:3 9-23.
- Mehmood, I. (2003) Deforestation in NWFP. *The NIPA Journal*, 8: September, 75-101.
- Nabli, M. K., and J. B. Nugent (1989) The New Institutional Economics and its Applicability to Development. *World Development* 17:9 1333-1347.
- North, D. C. (1990) *Institutions, Institutional Change and Economic Performance*. New York: Cambridge University Press.
- Pakistan, Government of (2005) *State of Environment Report*. Ministry of Environment. Islamabad
- Pakistan, Government of (1992) *Forestry Sector Master Plan: National Perspective*. Islamabad.
- Pakistan, Government of (1998) *Compendium on Environment Statistics Pakistan*. Federal Bureau of Statistics, Islamabad.
- Rao, A. L. and A. H. Marwat (2003) NASSD Background Paper: Forestry. IUCN Pakistan, Northern Areas Programme. Gilgit.
- Rome, S. (2005) Forestry in the Princely State of Swat and Kalam (North-West Pakistan): A Historical Perspective on Norms and Practices. IP6 Working Paper No. 6. NCCR (The Swiss National Centre of Competence in Research) North-South. Available at: [www.nccr-north-south.unibe.ch](http://www.nccr-north-south.unibe.ch)
- Saravanan, V. (2006) Economic Exploitation of Forest Resources in South India During the Early 19<sup>th</sup> Century. Paper presented at the Historical Perspective on the Economic Exploitation of the Forest, XIV World Congress of Economic History. Helsinki, Finland (21-25 August 2006).

- Schikhoff, U. (1995) Himalayan Forest-Cover Changes in Historical Perspective: A Case Study in the Kaghan Valley, Northern Pakistan. *Mountain Research and Development*, 15: 3-18.
- Simorangkir, D. (Undated) Trends in Forest Ownership, Forest Resources Tenure and Institutional Arrangements, in *Understanding Forest Tenure in South and Southeast Asia*.
- Singh, C. (1986) *Common Property and Common Poverty: India's forests, Forest dwellers, and the Law*. Delhi: Oxford University Press.
- Shahbaz, B. and A. Q. Suleri (undated) The State, Civil Society and Trust: Evaluating the Sustainability of Decentralized Natural Resource Management Project in Pakistan. Sustainable Livelihoods and Globalization Programme. Sustainable Development Policy Institute (SDPI), Islamabad.
- Sheikh, M. I. and S. M. Khan (1982) Forestry and Range Management in Northern Areas. Forestry Research Division. Pakistan Forest Institute, Peshawar.
- Tucker, R. P. (1987) Dimensions of Deforestation in the Himalaya: The Historical Setting. *Mountain Research and Development*, 7: 328-331.
- Tucker, R. P. (1984) The Historical Context of Social Forestry in the Kumaon Himalayas. *The Journal of Developing Areas*, 18: April, 341-356.
- Van Dijk, A., and M. Hussein (eds) (1994) *Environmental Profile of the North West Frontier Province Pakistan*. Rawalpindi: Imprint.
- Williamson, O. E (2000) The New Institutional Economics: Taking Stock, Looking Ahead. *Journal of Economic Literature* XXXVIII 595-613.