Deforestation in the Himalayas: Mainstream views, institutional failure and 'alternative systems'. A case study from Northern Pakistan.

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Abstract

The sustainable management of forests is of central concern to the local people who depend on forest resources for their livelihood, to international conservation agencies, and to the legal custodians of the forests, the forest services. This study explores the roles of these actors in forest management in the Northern Areas of Pakistan, particularly in the Basho Valley in the Baltistan region. During the last three decades, the mainstream view of deforestation in the Hindukush-Himalayan region attributed the phenomenon to increased local use due to population growth. This view has been contested in recent years by those who see deforestation rather as a result of complex changes in the socio-economic conditions of the region. This study contributes to this debate by means of providing empirical data from Basho.

The study consists of three papers and an introductory chapter. The introductory chapter discusses some of the key approaches to studying common property management, including political ecology, property rights, and co-management. It describes the local and policy context, the implications of the study for the Protected and Private Forests in the NAs and summarizes the main conclusions. Paper 1 uses local data on firewood consumption and timber extraction from the Basho Valley to investigate whether the general perception regarding forest depletion due to population growth is supported by empirical data. The results of Paper 1 indicate that local firewood collection is not the main cause of deforestation. Instead, deforestation has occurred due to commercial harvesting and mismanagement by the government Forest Department.

Paper 2 investigates the extent and time period of deforestation in the Basho Valley. Using oral sources as well as satellite imagery, Paper 2 estimates a 50 percent loss of forest cover over the last 30 years, while population growth has been relatively low. Therefore the theory of massive deforestation due to population growth is not supported by the data collected and analyzed in Paper 2. Instead, it was found that large quantities of timber and firewood were removed on the basis of informal permits called *chits* during a period of commercial harvesting in the 1970s and 80s. The results show that most of the

wood was taken out by contractors and members of what is called the 'timber mafia', after the construction of the Basho link road in 1968.

Paper 3 explores institutional aspects of forest management, exposing the limitations of conventional ideas regarding corruption in the forestry services. The data gathered for Paper 3 show that, faced with a severe shortage of resources, Forest Department officials engage in what is called 'alternative systems', in order to perform their official tasks. Through such 'alternative systems', they generate extra-legal resources to finance official tasks. Conventional analyses focus only on the deficiencies of forest services, and fail to offer constructive, realistic assessments of the potential positive role the forest services could play in community-based resource management. The paper identifies possible areas of intervention in order to improve the functioning of the Forest Department of the Northern Areas (NAs) of Pakistan.

Combining the data in all three papers and in the relevant introductory chapters, this study shows that the forests in the study area have been severely depleted. While this has been due largely to the weakness of the Forest Department, the response – a greatly increased role in resource management played by conservation agencies, without a concomitant strengthening of the government Forest Department – is problematic. Conservation agencies claim to promote conservation through decentralization and local participation. While a certain degree of decentralization in the NAs has occurred, real powers have, to a large extent, shifted from the Forest Department to conservation agencies, rather than to local communities. The strengthening of the power of international conservation agencies in this manner, at the expense of strengthening a national institution for natural resource management, will undermine community interests in the long run. This is due to the fact that in reality, the approach of the conservation agencies remains as centralized as the Forest Department's conventional approach has been.

Acronyms

AKF	Aga Khan Foundation
AKRSP	Aga Khan Rural Support Programme
BDO	Basho Development Organization
CBD	Convention on Biological Diversity
CIDA	Canadian International Development Agency
CF	Conservator of Forests
CKNP	Central Karakorum National Park
DC	Deputy Commissioner
DCC	District Conservation Committee
DFO	Divisional Forest Officer
DNP	Deosai National Park
FAO	Food and Agriculture Organization of the United Nations
FCR	Frontier Crimes Regulations
FCSs	Forest Cooperative Societies
FD	Forest Department
GA	General Assembly
GTZ	German Government Development Agency
GOI	Government of India
GOP	Government of Pakistan
HAINRMP	High Altitude Natural Resource Management Project
HKH	Hindukush Karakorum Himalaya
HWF	Himalayan Wildlife Foundation
ICIMOD	International Centre for Integrated Mountain Development
INECE	International Network for Environmental Compliance and Enforcement
IUCN	The World Conservation Union
KANA	Kashmir Affairs and Northern Areas
KNP	Khunjerab National Park
KVO	Khyber Village Organisation
LDO	Local Development Organisation

LBRD	Local Bodies & Rural Development
LSOs	Local Support Organisation
MACP	Mountain Areas Conservancy Project
NALC	NAs Legislative Council
NAs	Northern Area
NCS	National Conservation Strategy
NGO	Non Governmental Organization
NWFP	North West Frontier Province (Pakistan)
RFO	Range Forest Officer
SATA	Swiss Technical-Aid System
PFI	Pakistan Forest Institute
PMC's	Project Management Committees
PWD	Public Works Department
THED	Theory of Himalayan Environmental Degradation
TWMP	Tarbela Watershed Management Project
UMB	Norwegian University of Life Sciences
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
USAID	United States Agency for International Development
VCC	Valley Conservation Committee
VCF	Village Conservation Fund
VO	Village Organisation
WB	World Bank
WCD	World Commission on Dams
WO	Women's Organisation
WRI	World Resource Institute
WWF	World Wide Fund for Nature

1 Introduction to the study

1.1 The problem

Pakistan's current forest policy is inherited from forest policies and regulations formulated during the period of British rule in the sub-continent (Khattak, 1976a, b). During that time parts of the forest area of present day Pakistan were brought under centralized control. The main purpose of centralization was to promote the scientific management of forests in terms of a continued supply of commercial timber (Tucker, 1982). The post independence forest policies in Pakistan continued under centralized management, but were influenced by neo-Malthusian[1] assumptions and narratives[2] which consider that degradation of natural resources, particularly forests, is caused by unsustainable use by local people and population growth (Hardin, 1968). As elsewhere, such theories influenced environmental policies in Pakistan with far reaching implications. Such policies consider the foresters' knowledge to be superior to that of local people; thus scientific management was considered to be necessary for the sustainability of the forests. For example, Pakistan's forest policies formulated in 1962 and 1975 focussed on bringing more community-managed forests under the control of the Forest Department (Ahmed and Mahmood, 1998). Before centralization, local communities managed the forests under traditional institutional arrangements. State management, which is based on regulations and formal laws, is quite different from traditional arrangements. Despite increased regulations and claims about sustainable management through scientific principles, the forests in Pakistan, particularly in the northern region are reported to be quickly diminishing (Knudsen, 1999a; Gohar, 2002).

The Forest Department, which was created during British rule in the sub-continent, was

[1] The Neo-Malthusian population theory claims that poor nations are stuck in a cycle of poverty which they can't get out of, unless some sorts of preventive measures of population checks are engaged.
[2] An account of any occurrence - a story or account of events, experiences, whether true or fictitious (Webster, 1980). A narrative is a story with a beginning, middle and an end (Roe, 1991), for example, "The Tragedy of the Commons" where Hardin (1968) narrates about the greed of individual herders maximising their herds to be grased on common pastures leading to degradation of the resources.

considered to be the most sophisticated in the world at the time of partition[3] in 1947 (Champion, 1953; Tucker 1982). However unlike in India, where the forest service is still regarded as being cohesive and organized (Blaikie and Muldavin, 2004), the Forest Department in Pakistan, particularly in the NAs, is considered to have deteriorated and corrupt (Blaikie and Sadeque, 2000; Gohar, 2002). A weaker Forest Department, combined with the absence of strong authority in local institutions, has led to international conservation agencies playing a greater role in resource conservation in Pakistan, particularly in the NAs (Blaikie and Sadeque, 2000; UNDP, 1999).

This study attempts to analyse the impact of the centralized management of forests by the government through the Forest Department, and the causes of deforestation[4] in Pakistan, taking the Basho Valley as an example (Papers 1 and 2). It aims at contributing to the understanding of the roles of state institutions, community institutions and conservation agencies, and contributes in particular to current debates on deforestation in the Hindukush Himalaya (HKH) region (Papers 1 and 2). This study also attempts to explain the causes of corruption in forest management, the deterioration of the Forest Department, and the resulting impact on forest management in the NAs of Pakistan (Paper 3).

During the 1960s and 1980s, the phenomenon of deforestation was attributed mainly to population growth in the HKH regions (Eckholm, 1975; Myers, 1986). This view was thoroughly examined and rejected by international researchers (Thomson and Warburton, 1986; Blaikie and Brookfield, 1987; Ives and Messerli, 1989). However, this view still prevails in Pakistan and strongly influences forest policies. The National Conservation Strategy of Pakistan, which appears to encourage the participation of local communities in the management of *Protected Forests*[5], actually argues for centralized management of

[3] 'Partition' refers to the geographical division of the British ruled sub-continent into two independent states: Pakistan and India (Champion, 1953).
[4] See section 3.4 for a definition on deforestation.
[5] A 'Protected Forest' is a legal category whereby all uses by the local people are allowed, unless the government restricts them. In a 'Reserved Forest' all uses are restricted, unless specifically permitted by the government (Niazi, 2004).

Reserved Forests[6] (GoP, 1992a). This implies that the state still considers the involvement of local communities to be detrimental to the sustainability of forests, despite of the fact that the evidence shows that centralized management has been largely responsible for the deterioration of forests. Therefore, there is a need for critical research to examine the question of deforestation in the HKH region, using empirical evidence on population growth, local use, and the activities of the various actors in relation to deforestation.

During this research study, attention was paid to understanding the history of deforestation, its causes, and the opinions of the various actors regarding deforestation and forest management in the NAs, particularly in the Basho Valley. The motivation for this kind of research stems from appreciation of the fact that knowledge about people–environment interactions may contribute towards formulating possible strategies for the sustainable management of natural resources. The general tendency during the last two decades has been to exclude government forest services from such an analysis, considering them as being too corrupt to play a useful role. However, the forest services have remained an important part of resource management in the HKH region (Blaikie and Muldavin, 2004). Their role has actually been recently strengthened as a result of new legislation that has given them more powers (GoP, 1992a). In addition, international conservation agencies tend to depend on forest services to legitimise their actions. Therefore, there is a need to re-examine the roles of various actors, particularly the local communities, the Forest Department, and conservation agencies, in order to improve resource management in the region.

1.2 Objectives of the study

The main objective of the study is to contribute to the current debate on deforestation in the Hindukush, Karakorum and Himalaya (HKH) region and to understand the causes of

[6] Reserved and Protected Forests are legal categories as proclaimed in the Forest Act 1927. Reserved Forests are forestlands in which state restrictions are the highest. Communities can only enjoy rights which are granted by the state. Protected Forests are forestlands in which communities have several rights (*de facto* and *de jure*) and the state has the right to stop the practice of certain right(s) on certain grounds. Often these matters remain unsettled. For a detailed overview of the legislation, please see section 6.

deforestation. The three papers in this thesis and sections 5, 6 and 7 discuss the role of the Forest Department and communities in forest management, the impact of legislation in forest management, and the importance of forests in the livelihoods of local populations; all these factors contribute to the main objective – to investigate the causes of deforestation in the HKH region. The study analyzes forest management problems in the study area from ecological, institutional and policy perspectives. The specific objectives which contribute to the main objective of the study are:

- To assess the impact on the forests of fuelwood collection by local people and to investigate the general perception that forest depletion is caused by local fuelwood collection (Paper 1).

- To assess the period, extent and causes of deforestation in the Basho Valley (Paper 2).

- To examine the causes of weakness of the Forest Department and corruption in forest management (Paper 3).

- To examine the impact of legislation on forest management (sections 6 and 7).

- To examine the role of various actors in forest management (Paper 3 and sections 6 and 7).

2 Theoretical background

This section describes current mainstream views concerning resource management and challenges to these views. There are different approaches to the study of natural resource management practices. This section discusses four of them: the political ecology school, the property rights school, the common property school and the co-management school. This is followed in section 3 by a description of the conceptual framework chosen for this study.

2. 1 Mainstream views and Political Ecology

Concerns about degradation of the environment surfaced in the North during the 1960s. A number of studies based on neo-Malthusian assumptions attributed environmental degradation to population growth (Hardin, 1968; Meadows et al., 1972). Boserup (1965) presented an opposing view, arguing that population growth may have a positive influence on the natural resources base. Boserup wrote: "...in many cases the output from a given area of land responds far more generously to an additional input of labour than assumed by neo-Malthusian authors. If this is true, the low rates of populations growth found (until recently) in pre-industrial communities cannot be explained as the result of insufficient food supplies due to overpopulation, and we must leave more room for other factors in the explanation of demographic trends" (1965, p. 7).

There is an increasing emphasis on analysing the changing socio-economic and political relations which influence interactions between local people and the natural environment, and more importantly how these changes influence the local dynamics of environmental change (Fairhead and Leach, 1996; Wilson and Bryant, 1997). The studies cited were critical of approaches which studied nature and society separately, and suggested that, in order to understand historical patterns of landscape change, it is necessary to pay attention not only to the technical aspects of land management and its interaction with the ecology, but also to the broader conditions of land use. Thus it is important to examine changing local social and political relations, which influence how people deal with land and vegetation, and more broadly, how regional economic, political and demographic changes shape these local dynamics. Fairhead and Leach (1996) argue that ecological scientists have traditionally overlooked these social and political factors, "considering the role of local resource users only as destructive of forests" (p. 283).

Mainstream views or narratives have greatly influenced natural resource management policies and have served the interests of particular actors, including colonial governments, national governments and conservation agencies. The best known narrative is "The Tragedy of the Commons" (Hardin, 1968), which despite criticism (e.g. Ostrom,

1990), has strongly impacted environmental and developmental policies throughout the world. Based on neo-Malthusian assumptions, conservation and resource management polices were directed to exclude local people from areas that were considered important for conserving natural resources in terms of national and international interests (Guha, 1989; Knudsen, 1999b).

Mainstream views have come under criticism as new studies with social science perspectives have emerged (e.g. Blaikie and Brookfield, 1987; Ives and Messerli, 1989; Leach and Mearns, 1996). Lockwood (1995), studying population–environmental linkages in Africa stated:

"There is no doubt that the world population is higher than ever before in history. This has enormous implications for our environment at both global and local levels. But one of the main conclusions of this chapter is that the relationship between population growth and environmental change is not a simple, inevitably negative one, even in an underdeveloped context such as Africa" (Lockwood, 1995, p. 89).

Other studies conducted in Africa also dispel generalizations which were built on the assumption that deforestation is caused mainly by increased population growth and subsequent fuelwood collection for household consumption. For example, a study from Mali shows that there is no relationship between deforestation and fuelwood collection by local people. Rather, local people collect fuelwood from dead trees, and deforestation was caused instead by drought (Benjaminsen, 1993). There is also growing evidence that herders and pastoralists in African societies continuously innovate and adopt particular grazing practices in response to the uncertain conditions of dry rangelands. However, rangeland scientists seldom study such patterns and continue traditional experimentation with rotational grazing, for example. Such experimentation offers simple solutions to the perceived overgrazing and overstocking, and "is testimony to the seductiveness of simple solutions and the fear of the unknown and more complex alternatives" (Scoones, 1996, p. 50).

A growing body of literature from around the world shows that local practices are not necessarily detrimental to the sustainability of resources (Leach and Mearns, 1996; Benjaminsen, 1998; Schmidt, 2004) and that on the contrary, government polices have been responsible for resource deterioration (Guha, 1989; Kruetzmann, 1991; Gohar, 2002; Dove, 2003). The impact of neo-Malthusian narratives on environmental policies in Pakistan in general and the Basho Valley in particular, is discussed in Papers 1 and 2 and in sections 3.3.3 and 4.3.2.

The emergence of Political Ecology[7] as a research field in the 1980s was a reflection of the pressing need for an analytical approach integrating environmental and political understanding in a context of intensifying environmental problems in the Third World (Bryant and Bailey, 1997). Political ecologists argue that the environmental problems facing the Third World are not simply a reflection of policy or market failure, but are rather a manifestation of broader political and economic forces. This field focuses on the adverse social and environmental consequences of capitalistic natural resource extraction: logging, mining, fishing or cash crop production (Bryant and Bailey, 1997). Furthermore, political ecology acknowledges the very existence of a political environment in the Third World. Thus, politics and the environment are everywhere thoroughly interconnected (Blaikie, Brown and Westwood, 1999).

A recent trend within political ecology is the study of discourses[8], which are communicated through narratives or other rhetorical devices (Adger *et al.*, 2001). Narratives are then used as arguments for decision-making (Roe, 1991). For example, deforestation emerged as a global environmental issue during the 1970s and became a criterion for environmental activism and the development of thinking on global environmental change. Various studies highlighted large scale and rapid deforestation in the Third World due to population growth (Lall and Moddie, 1981; Myers, 1986). These

[7] A generally recognised definition of the term 'political ecology' is not available. The school of thought focuses on broadly defined politics and micro-politics, examining the role of culture, discourse, moral economy, community management, indigenous knowledge, social constructions of scientific knowledge, and issues of gender, race and ethnicity as they shape contests over resources (More 1993; Peet and Watts, 1996; Neumann, 1998 all quoted by Walker, 2003).

[8] A discourse can be identified as a shared meaning of a phenomenon. This phenomenon can be small or large and shared by a small or large group of people (Hongslo and Benjaminsen, 2004).

discourses about population growth were then used to bring forests under centralized control. Discourses on deforestation have strong linkages with those on biodiversity loss, climate change and desertification, not only in terms of parallels in their rise and rhetoric, but also in linking the outcomes of physical and environmental processes (Adger *et al.*, 2001).

A key feature of the discourses on deforestation is trying to attribute forest loss to some cause(s). The literature on forest change identifies a range of agents and causes of deforestation (Eckholm 1975, Sterling 1976; Angelsen and Kaimowitz, 1999), including population increase, land tenure, forest products trade, infrastructure development and government policies. These agents and causes, it is argued, are regionally differentiated (Bawa and Dayanadan, 1997) and often act in combination. Various conceptual models have sought to explain causal links. In Asia and Africa, large scale deforestation is generally attributed to population growth and small-scale subsistence farming (Eckholm, 1975; Kaoneka, 1998).

The above discussion can be summarized by saying that the neo-Malthusian discourse has been challenged by a 'populist' discourse (Adger *et al.*, 2001), which does not hold the rural population responsible for deforestation. In contrast to the neo-Malthusian discourse, which portrays local resource users as 'villains'[9], the populist discourse presents these actors as victims of deforestation (Colchester and Lohmann, 1993). Instead of attributing deforestation to population growth, the populist discourse attributes it to socio-economic and political factors.

2.2 The Property Rights School

In 1954, Gordon Scott suggested that "everybody's property is nobody's property. Wealth that is free for all is valued by no one because he who is foolhardy enough to wait for its proper time of use will only find that it has been taken by another" (1954, p. 124).

[9] A narrative has its premises and conclusions and includes archetypes such as hero, villain and victim. The populist discourse considers the local people to be victims instead of villains (Svarstad, 2002).

In 1968 Garrett Hardin, in his famous article "The Tragedy of the Commons", suggested that common property will always be overexploited and finally destroyed, because the gains that individuals make by overexploiting will be outweighed by the loss they suffer as a result of its overexploitation. Hardin suggested, "Each man is locked into a system that compels him to increase his herd without limit – in a world that is limited. Ruin is the destination towards which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a common brings ruin to all" (Hardin, 1968 1245). Such statements are based on specific prejudices and confusions that relate to the non-observance of difference between common property regimes and free-for-all regimes.

The concept of privatization of common property resources is at the core of the property rights school. Privatization is the belief that private ownership of resources will secure property rights and guarantee future returns. In addition, this school of thought holds that private property becomes an incentive to individual owners to manage their property on a sustainable basis (Demsetz, 1967; Smith, 1981; Welch, 1983). These authors base their argument on market rationality. For example; "property rights develop to internalise externalities when the gains of internalisation become larger than the cost of internalisation" (Demsetz, 1967, p. 350). Further, proponents of this school believe that "it is clear that the problem of over-exploitation or over-harvesting is a result of the resources being under public rather than private ownership. The difference in their management is a direct result of two totally different forums of property rights and ownership: public, communal or common property vs. private property" (Smith, 1981, p. 444).

The proponents of the property rights school are of the opinion that creating and enforcing private property rights can resolve common property resource problems. They also suggest that a shift from communal property to private property is likely to occur under increased population pressure and market access, which they see as being the driving forces behind privatization. In the case of private property rights, it is assumed that private owners will have sufficient incentive to invest towards the improvement of

natural resources. The assumptions of the property rights school are in line with the "Tragedy of the Commons" model, which does not make a distinction between open access and common property.

The property rights model understands the concept of an 'institution' to refer to both a set of rules and an organization. North (1990), however, makes a distinction between institutions and organizations. "Institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interactions...institutions reduce uncertainty by providing a structure to everyday life" (p. 3). Organizations include political bodies, economic bodies and educational bodies. Property rights theories are sometimes criticized as having more characteristics of structural theories, where institutions are treated as rules, with deterministic qualities. According to Leach *et al.* (1997), institutions are best understood not as rules, but as regularized patterns of behaviour. Hence rules are constantly being made and remade through people's practices, and institutional boundaries and structures are subject to ongoing negotiations[10].

2.3 The Common Property School

Common property theories were put forward to challenge the "Tragedy of Commons" model. The common property model suggests that instead of private property or state control, local institutions could be an alternative for natural resource management. Bromley and Cernea (1989) suggest that "common property has something very much in common with private property – exclusion of non owners; common property is corporate group property. The property owning groups...are social units with definite membership and boundaries, with certain common interests, with at least some interaction among members, with some common cultural norms, and often their own endogenous authority systems. These groupings hold customary ownership of certain natural resources, such as farmland, grazing land and water sources" (p. 15). Furthermore, "essential for any property is an authority system able to ensure that the expectations of rights holders are

[10] See Nyborg (2002) for a detailed discussion on the meaning and definitions of 'negotiation' – and how negotiation takes on a different meaning than what is offered in conventional debates concerning natural resource management.

met. Compliance, protected and reinforced by an authority system, is a necessary condition for the validity of any property regime. When the authority system breaks down – for whatever reason – then the management or self management of resource use cannot be exercized any longer and, for all practical purposes, common property (*res communis*) degenerates into open access (*res nullius*)" (ibid., p.17).

The common property school suggests that common property regimes (CPRs) are governed by communal (e.g. village, sub village, kinship, extended families) rules, which allow certain actions, while other actions are restricted. It is also argued that local people have the most intimate knowledge about their environment, and due to their proximity to the natural resources, they can act quickly to solve any problems (Ostrom, 1990).

Madsen identifies "CPRs as resources that are not individually owned, but individually used in accordance with rules agreed to by one or more local communities" (1999, p. 4). The main critique of common property school approaches to resource management is that they treat communities as homogenous entities without conflicts (Leach et al., 1997), and that they assign an important role to communities, which may not be applicable everywhere (Hanna et al., 1996). Therefore, it is suggested that "environmental policies should focus on establishing property rights regimes that are designed to fit the cultural, economic, geographical and ecological context in which they are to function" (ibid., p. 4). Paper 3 in this thesis discusses the potential pros and cons of community-based resource management. It shows that although the community in Basho Valley has been able to coordinate agitation against the exploitation of resources by outsiders, there are also conflicts within the community which surfaced mainly after the government's intervention in forest management. Sections 3.2, 6.2.4 and 6.2.8 discuss community conflicts in a greater detail.

2.4 Co-management

Ideas formulated within the field of natural sciences tend to conceive environmental problems as being products of unbalanced human activities. They tend to emphasise the

physical and technical aspects of sustainability, which are often expressed in terms of not exceeding the earth's carrying capacity. Caring for the earth has become so predominant for conservation agencies that they target poverty, mainly because it inhibits a harmonious balance between humans and nature, and not necessarily because of its intrinsic importance (Blaikie and Jeanrenaud, 1996, p. 13). This approach is in line with neo-Malthusian approaches, which separate humans from nature.

In this school of thought, the solutions to environmental degradation are considered to be either the creation of private property regimes, or state control of resource use. State institutions assert control over resources claiming superior knowledge compared to that of local resource users (Ribot, 2001). Despite claims of sustainable environmental management, states have concentrated mainly on commercially important resources, particularly in the pre- and post colonial world (Tucker, 1982; 1984; Guha, 1989; Gadgil and Guha, 1992), while international conservation agencies concentrate on biodiversity conservation. Unfortunately therefore, "an important consideration in biodiversity conservation, as with other environmental issues, is that for many government servants, particularly in developing countries, the issue of biodiversity is probably of little direct interest, and impinges on their lives only as a series of regulations or bureaucratic procedures" (Blaikie and Jeanrenaud, 1996, p. 27).

The terms co-management, participatory forest management and community-based conservation, are often used interchangeably in the literature (Ahmed and Mehmood, 1998; Sarin, 2003). Co-management was suggested as a pragmatic way to institutionalise collaboration between government administrations and resource users, in order to eliminate unproductive situations where each is pitched against the other in a process of resource regulation (Baland and Platteau, 1996). Therefore, co-management is described as a sharing of decision-making power with non-traditional actors in the process of resource management. Non-traditional actors would include those other than state officials, such as local resource users, environmental groups, or local people (Campbell, 1996).

An important element of co-management is that it stresses negotiation rather than litigation, as a means to resolve conflict. Co-management has also been used to describe the process of combining scientific knowledge and traditional environmental knowledge for the purpose of improving resource management (Campbell, 1996). Recent literature, however, refers more to 'community-based resource management', rather than co-management, implying that the focus of management has shifted to the communities, at the expense of the interests promoted by government. This shift has resulted in a lack of analytical attention being paid to the role of government in resource management. This is an important development – in this study we see that this shift has had consequences for how roles and responsibilities are defined in policy and policy implementation.

Paper 3 in this thesis discusses the role of state and community institutions in co-management. It also presents success stories and failures in efforts related to community-based resource management and conservation. The data in paper 3 show that most of the literature concerning community-based resource management in general discusses community institutions, while state institutions such as the forest services and their problems, have been excluded from these analyses. The paper also discusses the misappropriation of resources by elites in some community-based resource management projects.

In order to overcome such problems, Leach, Mearns and Scoones (1999) suggested that considerable caution is needed before assuming that new formal organizations (community organizations) will replicate the assumed success of indigenous systems or enhance community involvement. Furthermore, "empowerment of subordinate groups needs to be negotiated through approaches aimed at enhancing the claiming capacity of such groups". Since marginalized groups fail to access resources due to their incapacity to make claims against the powerful actors, they require the support of both the formal and informal actors engaged in community-based conservation. "Diverse institutions, both formal and informal, and often acting in combination, shape the ways in which differentiated actors access, use and derive well-being from environmental resources and services and, in so doing, influence the course of ecological change" (Leach, Mearns and

Scoones, 1999, p. 240). Paper 3 in this thesis highlights the importance of the role of state institutions in conflict resolution and argues for the equitable distribution of resources. However, such initiatives presuppose the reform and restructuring of state institutions in order for them to be able to play such crucial roles effectively.

Community-based resource management has been criticized for not accepting communities as equal partners in decision making (Ribot, 2001; Sarin, 2003). Sarin (2003) argues that instead of decentralising powers, community-based conservation has been used by the state to centralise control over resources in areas where the communities had previously managed resources without interference by the state. Due to such critique, some writers have argued for decentralization in the form of devolution, as opposed to decentralization in the form of deconcentration (Agrawal and Ribot, 1999). Decentralization is usually viewed as including two different forms: deconcentration (mere administrative decentralization) and devolution (political decentralization). The former construct means that the state is still in control, but on a more local level. The latter construct implies the transfer of power to elected local councils. However "when powers are transferred to lower level actors who are downwardly accountable, even when they are appointed rather than elected, the reform is tantamount to political decentralisation" (Agrawal and Ribot, 1999, p. 4). Paper 3 in this thesis shows that democratic decentralization is possible only if the institutions which are supposed to decentralize powers; have power themselves. Co-management and decentralization theories fail to explain situations where a state institution, which is expected to be an important actor in community-based conservation, does not have powers to decentralize and lacks resources to perform its own usual official tasks. Neither do the theories adequately explain the particular forms of corruption which develop under such circumstances, nor offer suggestions on how to address them.

3 Conceptual framework and approach

From the above discussion, we see that there are particular challenges which arise in addressing natural resource management in the context of this study, and which require a more complex framework than any of the above mentioned schools can provide. This study thus takes inspiration from a variety of studies in different fields that address local, national and international power issues and interests which are crucial in understanding the complex causes of resource degradation, and corruption in resource management, particularly in developing countries. Such studies include: Blaikie and Brookfield, (1987); Ives and Messerli (1989); Knudsen (1995); Leach and Mearns (1996); Benjaminsen (1998); Robbins (2000); and Blaikie and Muldavin (2004). These studies suggest, for example, that resources in many developing countries are generally not being depleted because of local use, but rather as a result of mismanagement by the state. Such studies also give due attention to the issues of power at different levels.

This study takes further inspiration from studies focussing on the capacity of local people in terms of resource management (Boserup, 1965; Dove, 2003). In addressing this issue, the actor-oriented approach developed by Norman Long (1992) was found to be a very useful tool for analysis. This approach allows for a detailed examination of actors and their strategies and how "these interlock through processes of negotiations and accommodation. Such an approach places actors at the centre of the stage and rejects linear determinist and simple empiricist thinking and practice....The essence of an actor-oriented approach is that its concepts are grounded in the everyday life experiences and understanding of men and women, be they poor peasants, entrepreneurs, government bureaucrats or researchers" (Long, 1992, p. 5). This is particularly useful when considering the ways in which different actors relate to their natural environments. "Nature is everywhere evaluated in terms of the benefits it produces, as well as the costs and risks it imposes. "Because costs and benefits are not equally shared, because risks are hard to assess and agree on, and because ethical, economical and ecological goods are difficult to compare, nature inevitably becomes a battlefield of knowledge and actions"

(Madsen, 1999, p. 14).

The focus of this dissertation is the management and conservation of natural resources, particularly forests, in relation to people's lives. Millions of people in the world are dependent for their survival, directly or indirectly, on forest products that are at present either under *de jure* or *de facto* forms of management. According to the World Bank (2001), about 60 million people are almost wholly dependent on forests. Approximately another 60 million are indirectly dependent on forest products, for example being employed in forest industries. This thesis therefore, takes into consideration not only the need to conserve resources, but the importance of sustainable forest management for the livelihoods of the local populations that depend on forests. Effective forest management involves controlled utilization of resources and actions that can improve conservation and increase useful resources (Wiersum, 1997).

As mentioned in the previous section, the management of communally owned resources (e.g. forests and pastures) and the dependency of local people on such resources for securing their livelihoods have been a focus of common property debates for the last fifty years. Communally owned resources are owned by entities such as community institutions, or the state and are used by various interest groups. The manner in which these entities manage their common property resources in terms of efficiency, equity, and sustainability of natural resources, continue to be debated (Berkes 1989, Feeny et al., 1990; Ostrom, 1990; Hanna et al., 1996).

It is important to distinguish between the two very different scenarios when examining common property resources. First, one can identify commons as open access property regimes (for example, a city park) which are everybody's property (Ciriacy-Wantrup and Bishop, 1975), and where no one has the legal right to exclude anyone from using the resources. If such a resource generates valued products, then one can expect that the lack of rules regarding authorized use will lead to misuse and overexploitation (Ostrom, 2000).

In the second type, i.e. common property regimes on the other hand, utilization rights are well defined and limited to clearly demarcated groups of rights holders. Such regimes must not be confused with resource regimes for which such rights are not specified. However, ineffective exclusion of non-owners by the entity assigned formal rights of ownership could result in an open access regime. For example, many developing countries nationalized forest resources which had not yet been recorded as private property (Tucker, 1982; Guha, 1989). Thus, resources that had been under *de facto* common property regimes enforced by local users were converted into a *de jure* government property regime, but then later reverted to a *de facto* open access regime (Ostrom, 2000). The degradation of natural resources in the NAs of Pakistan, particularly in the Basho Valley, is a typical example of the result of forest resources being converted into a *de facto* open access regime. The state has not been able to control resource utilization since it took over the management of resources from local communities in the 1950s and 1960s (Schickhoff, 1998; Schmidt, 2004; Gohar, 2002). Further, it has been suggested that the state institutions responsible for the management of natural resources, particularly the forests, have become weaker over time.

The conservation of natural resources is pursued as a result of their different value for various interest groups or stakeholders (Pimbert and Pretty, 1997; Nagothu, 1999). The value of the resources is usually different for different interest groups (UNEP, 1994; Benjaminsen, 1998). The Convention on Biological Diversity (CBD) identifies three main interest groups: the local people who are directly dependent on natural resources for their survival, the nation's state, which derives economic benefits, and the world population as a whole, which depends on biological diversity for evolution and for maintaining life sustaining systems of the biosphere (UNEP, 1994, p. 2). Studies undertaken in Pakistan however, identify four actors, the communities, the government represented by the Forest Department, the international community represented by conservation agencies, and the timber mafia represented mainly by private forest contractors (Knudsen, 1999a; Blaikie and Sadeque, 2000; Gohar, 2002).

These four major actors seem to be grouped into two parties: the first group includes the

conservation agencies that, while undertaking a strict conservation agenda, seem to sympathise with the communities, and seek to implement their conservation projects through community participation. The second group consists of the Forest Department and the contractors. The contractor, despite being an important player, is not legally recognized as an actor. National forest policies and the national conservation strategy consider the communities, the Forest Department and the international conservation agencies to be the main actors in conservation and resource management (GoP, 1992a). The contractor has emerged as an actor due to failed policies and mismanagement (Knudsen, 1999a). In the Basho Valley, where the present study was carried out, the influence of the contractor at present seems minimal, although in the past it was quite substantial[11]. The role of the forest contractors however, remains important in places where timber has a high commercial value (Yousufzai, 1992; Blaikie and Sadeque, 2000). To summarise, this study recognises four main actors in Basho Valley: the communities, the conservation agencies, the Forest Department, and the contractors. Other actors, such as the police, are also recognized and not excluded from the analyses.

In attempting to understand how various actors value resources and what their role is in the management of these resources, it is worth investigating their future role in sustainable resource management. In explaining these roles, this study contributes to the current debate on environmental change and management in the Himalaya Karakorum and Hindukush (HKH) region. This debate focuses mainly on the causes of environmental degradation in the HKH region and is discussed in section 3.3: the Theory of Himalayan Environmental Degradation (THED). The views of both authors and contestants of the debate are presented in greater detail in sub-sections 3.3.1 and 3.3.2, respectively.

Discussions on the role of forest services in forest management and the causes of

[11] The forests in the NAs (except in the Chilas, Daril and Tangir valleys) including the Basho Valley, are protected forests where commercial harvesting is not allowed (Niazi, 2004; Gohar, 2002). However commercial harvesting was carried out during the 1970s and 1980s when political and administrative reforms were introduced in the NAs (Dani, 2001). As a result of the reforms the government built hospitals, schools, bridges and administrative buildings. For this purpose the government needed timber. Therefore the forests were harvested by making use of contractors. Commercial harvesting was banned in 1991 and the contractors are no longer a part of forest management in the protected forests of the NAs.

corruption therein can clearly generate useful information that could be used by policy makers to reduce corruption in natural resource management (Robbins, 2000; Hafiz, 2003). And indeed, the Forest Department, which originated during the colonial period, has remained an important subject of discussions around environmental change in the HKH region and elsewhere in the post-colonial world (Champion; 1953, Tucker, 1984; Benjaminsen, 1997a, 2000; Ribot, 2001; Blaikie and Muldavin, 2004). However, neither the supporters of the THED (who are supporters of the Forest Department) (Champion, 1953; GoI, 1992; GoP, 1992a), nor their critics (Benjaminsen, 1997a; Sarin, 2001; Corbridge and Kumar, 2002) have analyzed in detail the working dynamics of Forest Departments and their employees.

Using an actor-oriented approach (Long, 1992), this study explains the rise and demise of the Forest Department, taking the Forest Department of the NAs and its employees as a case study. The point of departure for this study is the premise that reform and restructuring might strengthen the Forest Department, such that it can become a viable partner in community-based conservation and resource management (World Bank, 1988; Berkes, 1995; GoI, 1992; GoP, 1992a; Baland and Platteau, 1996).

An analysis of the Forest Department (the legal custodian of forest resources) and possible reforms would benefit local communities (the *de facto* managers of the forests) in many parts of the world. This study takes the analysis concerning the Forest Department deeper, in order to understand the problems of the department and the causes of corruption that have been mentioned in other studies. The general tendency has been to treat the Forest Department as a single coherent entity. However, treating any of the actors, including the 'community', as single coherent entities gives a false sense of common interests. Local conflicts and interests exist (Nyborg, 2002) and are important in understanding local community responses to other actors.

3.1 Local communities–forests interface

National governments have traditionally placed value on the commercial exploitation of resources and have emphasized the international scientific value of biological resources, which focus mainly on species richness. As a result, such resources were often centrally managed by the Forest Department. On the contrary, those who promote a greater role for communities in resource management emphasise the importance of natural resources in terms of the livelihood of local populations (Hobley 1992; Agrawal and Ribot, 1999; Ribot, 2001). It is important to appreciate the fact that the various actors involved perceive the situation differently, due to their different interests.

Various actual or potential land users have different perceptions of physical changes of the landscape. For example, 'land degradation' is a perceptual term, and is open to multiple interpretations at several levels. Blaikie and Brookfield (1987) state that: "to a hunter or herder, the replacement of forest by savannah with a greater capacity to carry ruminants would not be perceived as degradation. Nor would a colonizing farmer see forest replacement by agricultural land as degradation. Usually there are is a number of perceptions of physical changes of the biome on the part of actual or potential land users. Usually, too, there is conflict over the use of land – whether it be between farmers and conservationist, pastoralists and peasants, small farmers and the state, developers and concerned landholders" (p. 2). The stronger partner will strive to ensure that their particular perspective holds sway. For example, the government with its interest in continuing centralized control over natural resources may not be willing to investigate the local realities and problems that local people encounter due to restrictions on local use.

In the case of the Basho Valley, conflicts and conflicting interests are visible among community members, and between the community and the state. For example, there are those community members who want to manage the forests for local use, versus those who want to make a profit from the sale of forest products. The government; supported by a few community members, values commercial harvesting, while the rest of the

community values local use. The community is divided on access issues, both for land and trees. Likewise, causes of deforestation could be interpreted by different actors in ways they perceive it, or in the way it favours their own interests. As Thompson, Warburton and Hatley (1986) describe it: "do not ask what the facts are, ask what you would like them to be" (p. 73). Blaikie and Muldavin (2004) suggest that continuous reports on environmental degradation provide reasons for the state to maintain control of resources: "If deforestation and accelerated erosion are regularly reported, there are continuing grounds for attempting to maintain or increase regulations, and to exclude local control and management" (p. 532).

Researchers need to recognise such conflicts over the use of resources by various interest groups, with the powerful actors, in particular, interpreting changes in landscapes according to their own interests. As knowledge and understanding are socially constructed, they are functions of each individual's interests and background. For example, "conservationists and field officers tend to perceive ecosystems through the narrow window of their own professional disciplines. Their training has taught them to look at just that aspect of the ecosystem on which they specialise, which may be medicinal plants, rare orchids, trees, birds, elephants, or tigers. As a result, "specialists commonly adopt just one or two criteria for deciding on priorities and measuring the performance of conservation projects" (Pimbert and Pretty, 1997, p. 17).

What becomes evident from the above contradicting and contesting interpretations of changes in landscape and resource management is that there is no single 'correct' understanding of the problems of deforestation and land degradation. What various actors consider to be correct depends upon multiple sets of value that the resources hold for them, their knowledge about the resources, and the assumptions they carry concerning the degradation or improvement of the resources. Therefore, it may be more appropriate for researchers to seek opinions of the various actors, in order to understand different perspectives for the solution of a problem in question. Such a strategy can generate valuable information and can contribute to the current knowledge base concerning common property management.

The expropriation and exclusion from the forest areas of local communities, who once used the forest without external influence, has led to increasingly severe social and ecological impacts in many countries (Pimbert and Pretty, 1997). Empirical evidence shows that the transfer of western conservation approaches to developing countries has adversely affected the livelihoods of the local people (Kohtari et al., 1995; Ghimire, 1992). The transfer of management powers to state institutions has created conflicts between these institutions and local communities (Knudsen, 1999b), thus restricting the development of institutions for collective action (Nagothu, 1999). Further, it has also provided greater decision-making powers concerning resource management to state institutions and elites, leading to the misappropriation of resources. Thus those in charge of decision-making could, while misappropriating resources, attribute degradation to local use, an excuse for seeking continuation of centralized management (Blaikie and Muldavin, 2004). There have been increasing calls to include the local people in resource management, by means of the devolution of control over resources (Conroy and Litvinoff, 1988; GoP, 1992a; Holmberg, Thomson and Timberlake, 1993; Ribot, 2001). It is important to ask: What is the benefit for the local people in conserving natural resources? Their interest and role in conservation is determined by the benefits that would accrue to them.

In summary, resource management strategies in the past, in Pakistan as well as elsewhere, were influenced by the assumption that population growth led to overexploitation by local people. The solutions presented were centralized control and protection of resources from local people. This approach led to the establishment of Reserved Forest Areas and Protected Areas, in order to promote the conservation of biodiversity. Recent studies however, point to the importance of socio-economic issues such as property rights, markets, commercial harvesting by the government, and the misappropriation of resources by elites. All these factors emphasise the fact that the challenge is to investigate the broad range of socio-economic causes of environmental degradation, instead of focussing exclusively on local use, population growth and ecological issues.

3.2 Actors' interests and their implications for conservation

While studying the relationship between social and natural systems, it is important to analyse the role of various actors, their interests, and the values they attribute to the conservation of natural resources (Nagothu, 1999). As already mentioned, there are four main actors who are interested in the conservation and management of forests and other biological resources in the Basho Valley, as well as other less prominent actors.

The major actors can be categorized into macro and micro level actors. The conservation agencies represent international interests at the macro level. As the legal custodian of the forests, the Forest Department represents the interests of the national government, as well as international interests. In addition, the department is responsible for providing legal cover for biodiversity conservation projects implemented by conservation agencies in the Basho Valley and elsewhere in the NAs. The department is thus expected to consider global, national and local interests in managing the natural resources, paying less attention to local people's needs and interests. Instead it continues to play its traditional role of protecting the forests from local resource users.

There are some non-governmental organizations (NGOs) that are interested in highlighting the social problems and needs of the local people, in contrast to the protectionist and preservationist approaches of the Forest Department. Other actors who are less prominent in Basho are various government departments, including Education, Revenue, Public Works and Police. The police officials are, however, more prominent than the other departments mentioned. This is because they benefit from illegal wood harvesting and conflicts among local communities. Such conflicts often prevent communities from being able to establish common interests in terms of the management and use of the forests.

Due to the conflicting interests of the major actors mentioned above, the Basho Valley has undergone the following developments concerning resource management since the

1960s:

Establishment of the Forest Department to represent the state in forest management;
Commercial harvesting of forests by the Forest Department, by using contractors;
Recognition of the phenomenon of deforestation and subsequent ban on harvesting, including local use;
Increasing conflict between the Forest Department and the local communities;
Agitation by the local communities, supported by NGOs, against the Forest Department;
Deterioration of the Forest Department, due to lack of resources and training;
Increasing influence of conservation agencies;
Attempts to re-organise the Forest Department, sponsored by conservation agencies.

The above developments point to the fact that the Forest Department and the local communities need to develop some mechanism to manage the resources jointly, in order to reduce conflict between them. The situation also suggests the need for reform of the Forest Department, in order to improve its functioning and to enable it to be a viable partner in community-based forest management. Community-based forest management implies the need for policy provisions to enable the communities to participate in decision making concerning resource management. The National Conservation Strategy suggests the need for community participation in resource management; however, no rules have been formulated so far to facilitate this process.

Since the local community is not legally a partner in resource management, people generally harvest resources without permission from forest officials. It has also been reported that local communities negotiate among each other for access to both forest products and forestlands (Nyborg, 2002), both of which are formally government property. The Forest Department seems unable to restrict these transactions. Such independent actions, both by the Forest Department (commercial harvesting and banning local use) and local communities could be detrimental to the sustainability of the resources. Furthermore, any formal management strategy that does not involve resource

users in forest management (planning, decision making and implementation) is likely to encounter problems, as identified in the discussion on co-management theories (see above, section 2.4).

Conservation agencies however involve the local communities in the implementation of their activities, particularly wildlife conservation projects. Such informal discussions and dialogues could provide opportunities for closing the gap between the formal managers (the Forest Department) and the informal managers (the local resource users). The gap cannot be bridged without the involvement of local resource users in formal decision making. Understanding resource management in the Basho Valley thus depends on the recognition of the importance of natural resources to the livelihood of local women and men, as well as their roles in the management of natural resources.

An additional issue worth including in an overall framework for analysing resource management in the NAs is the lack of decision-making power within the Forest Department. This issue has been neglected in the co-management literature which has focussed heavily on the management of resources by local communities. Due to the disputed nature of the NAs, the actual decision-making power lies with the central government in Islamabad. No one in the NAs has the power to make decisions, including decisions on the restructuring and reform of the department, and institutionalising the role of the local communities in forest management. In such a situation, the conservation agencies become important players in facilitating reform, since they have an influence on the central government.

3.3 The Theory of Himalayan Environmental Degradation (THED)

During the past century, the "Theory of Himalayan Environmental Degradation" (THED) (Ives and Messerli, 1989) has been instrumental in policy formulation in the HKH region. Supporters of the THED assumed that environments in the HKH region had been degraded due to population growth, followed by unsustainable harvesting by the local people (Eckholm, 1975; Sterling, 1976; Myers, 1986). Based on this view, the

government, represented by the forest services, should assume central control of the forests. This view was in line with those of Gordon (1954) and Hardin (1968), and has dominated mainstream ideas concerning natural resource management since the 1970s. There have, however, been a myriad of empirical studies in recent years questioning resource management strategies based on the THED, critically challenging its underlying premises and their interpretations. The views of the proponents and opponents of the THED are given in greater detail in the following paragraphs.

3.3.1 Proponents of the Theory of Himalayan Environmental Degradation (THED)

Erik Eckholm (1975), from the Worldwatch Institute in Washington D.C., wrote an article titled 'The Deterioration of Mountain Environments' which, together with his book 'Losing Ground' published in the following year, promoted the influential ideas that became known as the 'Theory of Himalayan Environmental Degradation' (THED). According to Eckholm (1975), three practices, namely cultivation, woodcutting and grazing (which he claimed are not appropriate on steep mountain slopes), are increasing due to increased human and livestock populations, and are adversely affecting mountain environments, particularly in Asia, Africa and Latin America. Eckholm's main concern was the perceived environmental deterioration in the Himalayas, particularly in Nepal, where, he believed that an ever-increasing human population had caused widespread degradation of a fragile mountain eco-system, threatening the lives of millions of people living downstream in the plains. Eckholm (1975) wrote: "from the Himalayas flow the major rivers of the Indian subcontinent – the Indus, the Ganges, and the Brahmaputra – which annually bring life, and death too, to Pakistan, India, and Bangladesh. Nepal has an exotic façade of romance and beauty, but behind it are the makings of a great human tragedy" (p. 764). He claimed that the continued deforestation in the hilly areas would result in silting of dams and clogging of irrigation networks by collapsing the agriculture systems of the countries downstream.

This tragedy, Eckholm argued, is due to population growth, which forces farmers to bring steep slopes under cultivation and to search for fodder and firewood around their villages,

thus creating a "widening circle of denuded hillsides". These hillsides without trees, and the steep and unfit terraces brought under cultivation, cannot hold the top soil, which results in increased erosion and the triggering of landslides, destroying crops, houses and killing human beings throughout the hilly areas of Nepal. This situation leads to Nepal's precious top soil being transported into India, and declining productivity of the hills while the demand for food keeps on rising due to an ever-increasing population. Eckholm also noted that the application of farmyard manure in the fields was reducing continuously. Instead local people deploy this resource as an alternate fuel for cooking and heating, due to the unavailability of firewood, which, unlike in the past, is now available only if one spends considerable time in collecting it. Hence, despite a huge increase in livestock numbers, the availability of manure for application to cultivated land has not grown proportionately. The amount of manure available is therefore inadequate to meet the increasing fertility requirement of the land. Furthermore, the increased livestock population has resulted in overgrazing and a general scarcity of fodder.

Eckholm (1975) noted that the devastation in the hills also impacted on the productivity in the plains. The incidence of floods due to swollen rivers coming down from the hills has increased, and river beds are rising consistently every year. If this trend continued, Eckholm feared that the hills would soon switch to semi-desert conditions. Eckholm argued that the plains in Nepal are taking the brunt of the ecological and economic disasters in the hills. For example he said: "if Nepal borders ended at the base of the Himalayan foothills, the country would by now be in the throes of a total economic and ecological collapse" (*ibid.*, p. 765).

Eckholm (1975) recorded similar environmental problems for the Himalayan regions of both Pakistan and India. There, he argued, the growing population is perceived to being forced to move up to steeper slopes. In Himachal Pradesh, Kashmir and other hilly states of India, topsoil from one million hectares of hilly land was reported to have already eroded. Moreover, the forest resources in these areas are shrinking due to shifting cultivation, overgrazing and the collection of firewood.

In the Pakistani Himalayas, large areas in the mountains were feared to be already denuded within the last century (FAO/UN, 1972, quoted by Eckholm, 1975). The remaining forests were believed to be under extreme pressure from expanding subsistence agriculture, grazing practices and urban needs. Eckholm further noted that the deforestation in the hilly areas of Pakistan and Indian had resulted in rivers carrying heavy silt, thereby negatively impacting the reservoirs built downstream. Eckholm made the same observations for the mountain regions in East Africa and Latin America and concluded that "on the basis of already available knowledge, it is no exaggeration to suggest that many mountain regions could pass a point of no return within the next two or three decades. They could become locked in a downward spiral from which there is no escape – a chain of ecological reactions will permanently reduce capacity to support human life. This possibility is very real, but it is not inevitable....There is no escaping the need to rapidly bring population growth to a halt in the mountains; there limited carrying capacity will assert itself in no uncertain terms over the next few decades" (Eckholm, 1975, p. 769).

In 1976, Eckholm's book "Losing Ground" was published. The book reflected his strong belief that population growth and subsistence farming were the main reasons for the perceived deterioration of mountain environments. In the introductory chapter he wrote: "a Somali nomad builds his herd to record size, but the grassland is overgrazed, his cattle grow thin, and sand dunes bury pastures. A farmer in Northern Pakistan clears trees from a mountain slope to plant his wheat; soon after, fields downstream are devastated by severe floods. In Indonesia, a peasant burns away luxurious hillside vegetation to plant his seeds; below, rice production drops as soil washed down the mountain chokes irrigation canals" (Eckholm, 1976, p. 17).

Compared to the perceived environmental devastation in the hills, Eckholm considered urban pollution to be a smaller threat to the environment and mankind. In order to highlight this point, he wrote: "yet in the World War[12] to save a habitable environment, even the battles to purify the noxious clouds over Tokyo and Sao Paulo, and to restore

[12] Eckholm meant the war to save the environment.

life to Lake Erie, are but skirmishes compared to the uncontested routs being suffered in the hills of Nepal and Java, and on the rangelands of Chad and Northwest India. ....The world's poor suffer more compared to the rich as an environment deteriorates; however it is the poor who damage the environment more than the rich – the reason being desperation, ignorance, short-sightedness or greed" (p. 18).

Further strengthening his argument that the poor are mainly responsible for the environmental degradation in the mountain regions, Eckholm wrote: "where rangelands are badly overgrazed, the leaves of a young sapling tempt the appetites of foraging animals. Even if he keeps careful control of his own livestock, a herdsman may reason that if his animals don't eat the leaves, someone else's will. Marauding livestock are prime destroyers of tree-planting projects throughout the less developed world. Even if a village is internally disciplined enough to defend new trees from its own residents, passing nomads or other wanderers may do them in. In order to be successful, then, reforestation efforts often require a formidable administrative effort to protect the plants for years – not to mention the monitoring of timber harvesting and replanting activities once the trees reach maturity" (Eckholm 1976, p. 112).

Eckholm's (1976) main evidence on population growth and environmental degradation, which he used to generalise his theory for the rest of the Himalayas, comes from Nepal. According to him, population growth, both in the Terai region and in the hills of Nepal, increased as a result of improved health care services provided by external agencies and the national government. For example, as a result of the eradication of mosquitoes in Terai, people from the hills in Nepal and from India migrated to this region (Government of Nepal, 1974, quoted by Eckholm, 1976). During the period from 1964 to 1974, 77,700 hectares of Terai forestlands were officially distributed by the government to settlers, and a lot more was cleared by immigrants. The increased populations in the hilly areas, in his view, either overexploit the natural resources in the hills or migrate to the plains, such as Terai, thus adding to existing urban problems.

Eckholm (1976) argued for a better distribution of wealth to eradicate poverty,

particularly in the rural areas. He noted that during the 1960s, per capita income as well as per capita food production in the hilly areas of Nepal and India decreased, while economic growth in general for poor countries increased. He argued that by providing better income and employment opportunities in rural areas, the migration of rural poor to the cities could be checked. Despite that he believed that the rural poor are the ones who destroy the environment, he suggested that community participation is a key factor in achieving success in reforestation programmes. However, he acknowledged that engaging the rural poor in communal initiatives in the mountains of India is an 'uphill task'. It is because the "Indian villagers are notoriously faction-ridden, and the idea of the whole community working together for its own long-term benefit may be somewhat utopian. People have given up even the wisdom of Buddha who preached planting and nursing trees. In fact most societies today lack a sprit of environmental cooperation – not a sprit of conservation for its own sake, but one needed to guarantee human survival amid ecological systems heading towards collapse" (*ibid.*, p. 113). Furthermore, he suggested that the historical patterns of smaller families could be restored by improving health services and thereby reducing mortality rates in the rural areas. Though not mentioned explicitly, Eckholm seemed to think that the rural poor historically believed in smaller family sizes.

Although Eckholm (1975, 1976) was concerned with population growth and the threat to the environment from subsistence farming, he had faith in the sincerity of government institutions, particularly the government Forest Departments. He believed that the national Forestry Departments were aware of the need to increase the supply of wood products and to preserve forests for a better environment. However, their efforts targeted at tree planting encountered several problems, such as limited resources and capacity. Any failure on the part of government institutions should be considered in this context.

The above views by Eckholm, particularly those on population growth and its impact on the environment, have been shared by many other scholars including Sterling (1976), Lall and Moddie (1981), Myers, (1986) and Lall (1995). Sterling (1976) asserted that the environment in the Himalayan region in general has deteriorated, as indicated by the

appearance of a new island the size of Nepal in the Bay of Bengal, made up of silt carried from high up in the Himalayas. This formation of sediment indicates a 'sudden and convulsive' change in the region. Such changes occurred during the last decade and triggered ever-increasing incidents of floods. Sterling (1976) was of the opinion that it is already 'too late to save the Himalayas'. One of the main reasons for this state of affairs, according to Sterling, is the work of development agencies. He observed: "in the twenty-five years since the international aid community homed in on the Nepalis, their population has doubled to 12 million souls" (p. 15). Before the aid agencies came to Nepal and the population exploded, Nepal's middle hill region, which is suitable for forest growth, was 'superbly forested'. The rest of Nepal is either permanently covered with snow or consists of swamps. Deforestation is so severe that "Kathmandu has run out of firewood to cremate its dead" (p. 15). The forests have vanished so quickly that even in the hills it takes a day for people to find wood in areas where it was previously available in an hour's walking distance. As a result of the vanishing forest, the top soils are eroding, particularly during the monsoons.

Sterling's account was based on his discussions with aid agency and government officials in Kathmandu[13]. Quoting Nepal's Director of Hydrology, who claimed to have taken samples to estimate soil loss, Sterling reported that Nepal is losing about 2 trillion cubic inches of topsoil a year. Based on this assumption, Sterling predicted a continuous decrease in crop yields, and that out of total 55 hill districts in Nepal, only eight were growing enough food for their own consumption. Like Eckholm (1975, 1976), Sterling also asserted that as populations increase in the hilly areas, farmers move higher and higher up the hills, bringing new land under cultivation by chopping down the trees, thus causing more erosion and landslides.

Sterling (1976) observed that most of the aid agencies were not working in the remote areas from where the forests had been cleared; because firstly, the areas were far too remote, and secondly, the people were averse to change. Moreover, most of the aid agencies were directionless and performing poorly due to political, cultural and financial

[13] Eckholm, on the other hand, did not mention anything about methodology that he used.

constraints. Quoting a government official, Sterling noted that the newly built roads do not serve any good purpose to the Nepali population, but only damage the trees: "The people go where the road goes, and then everything else in sight goes for five or six miles on both sides of the road. The trees especially go down like a house of cards; with all the side effects you must have heard about" (p. 19). Apart from damaged trees, Sterling noted a number of landslides along the newly built Kathmandu-Pokhra road, which he attributed to tree cutting for firewood and timber, and building tourist facilities along the roadside. "The Pokhra road hasn't brought much but misery..." (p. 20). He quoted an Indian official claiming that most of Nepal is not made for building roads due to its hilly terrain.

The THED was also critical of foreign aid in Nepal. Sterling (1976) argued that as in the hills, forests in the low-lying Terai region also became devastated, after a USAID campaign to clean up the area of mosquitoes. According to Sterling, prior to the USAID campaign, no one dared to come to this area, except for the aboriginal Tharu tribesmen. Once the area was cleared of mosquitoes, some of the land was given to the landless hill farmers; the rest was captured by squatters who cut the trees in order to cultivate the land. Sterling asserted that the foreign aid since 1951 was responsible for the destruction of Nepal's forest resources, owing to increased construction needs and population growth, and that: "it is too late to expect a miraculous change for the better from the derelict land Nepal has become" (p. 25). Sterling was critical of almost all the development agencies (a long list is provided in his article) operating in Nepal, for not being able to recognise what Nepal and its population needed to halt the perceived environmental degradation. In order to stop further deterioration of its environment, Sterling suggested letting the Nepalese handle their country themselves. However, he recognized that even without the presence of aid agencies, the Nepalese would still have produced children and the trees would still have been cut down.

Myers (1986) endorsed the findings of Eckholm (1975) and Sterling (1976) concerning environmental degradation in Nepal – deforestation, floods and disruption of river systems. He reported that forest cover in the Indian Himalayas dwindled from 60 percent

in the early 20th century, to one quarter in the 1980s. He claimed that in Nepal, the national forest cover has decreased from 57 to 23 percent, and he predicted that the remaining forest would vanish by the end of the 20th century.

Myers (1986) found no significant change in the climate of the Indian sub-continent during the first half of the 20th century. After the 1940s, however, he claimed that the climate changed followed deforestation, causing environmental disasters, killing thousands of people and damaging 2,000,000 km^2 of land area in India, and one third of the total land territory of Bangladesh. "In forestlands, landslips average only about eight per square kilometre, with a total area of about 1.25 hectare each; but in deforested land, there are twice as many, each with twice as large an area" (p. 67). Myers has also noted losses of humans and property due to deforestation in Pakistan. "In late 1974, a moderate earthquake, registering only 5.5 on the Richter scale, struck the mountains of Indus Kohistan in the western Himalayas. Although the geological upheaval was not exceptional, it caused devastation over an area of some 750 km^2, killing thousands of people and injuring several times as many, razing villages and severely disrupting the entire economy of the region. Under the impact of debris sliding down deforested slopes, sections of the Karakoram Highway were swept away at hundreds of points along a 64 km stretch of road" (p. 67).

Myers (1986) argued that as a result of environmental degradation in Nepal, million of people suffer food and fodder shortages – "as a result they overexploit the remaining vegetation with progressively greater impact. They are trapped in pervasive poverty, which does not allow them to take remedial measures" (p. 67). In order to overcome this 'vicious circle' Myers suggested three measures: "The first, and an obvious measure, is to plant trees for firewood, timber and fodder on denuded slopes. The second, and a less obvious measure, is to plant bulky forage grasses in eroded gullies and along drainage lines, especially close to crop terraces. The third, and the least obvious measure of all (at least, insofar as it runs counter to established practices), is to permit livestock to graze only when they are tethered, and near to terraces" (p. 69).

Myers thought that the third measure would be a remedy to many problems Nepal was facing, by doubling the food production. He argued: "the final practice will double the amount of manure on the terraces, and permit the usual hill-rice crop to be followed by a winter-wheat crop" (p. 69). He surmised that the third measure will improve fertility and increase the average income to a family four times in three years, thus enabling them to adopt the first and the second measures. Myers suggested that the package of measures is simple for the people to follow, if all three measures are implemented in an integrated way. He also argued that this scheme is already proving its worth in half of the hill districts, where the forest cover is expanding. The community involved in this package was offered incentives, including the rights to all the forest produce from what they had planted. Donors provided the scheme with a budget of US$166 million. Unlike Eckholm (1975, 1976) who mentioned the lack of resources, Myers assumed that there is no dearth of funding for the Himalayan region, if government institutions can absorb funding available with the donors.

Lall (1995) proposed complementary arguments to those of Eckholm (1975, 1976), Sterling (1976) and Myers (1986) elaborated above. Lall's (1995) main finding was that development projects, followed by population growth, are the main factors for widespread deforestation in the Himalayas. He argued: "there is no way of measuring the damage to the soil caused by deforestation and the extension of cultivation resulting from increasing population" (p. xii). He observed that soon after British rule ended in 1947, a massive development programme was initiated, including the construction of dams and roads. The mountain environment, however, could not accommodate such a dramatic change, thus resulting in severe deterioration of the environment. Furthermore, these drastic changes in the environment triggered more erosion and landslides, bringing devastation to the population living both in the mountains and on the plains.

Maddie (1981) indicated that the environment in the Himalayas has deteriorated to the extent that the world cannot wait anymore to develop thorough plans to be implemented. Ideas for interdisciplinary research (Ives, 1981) in understanding complex systems are "easy to suggest but hard to plan and accomplish" (Moddie, 1981, p. 350). Moreover,

desertification is spreading quickly eastwards from the western Himalayas, which have been barren for centuries. "There will be widespread consequences of this deleterious impact of multiplying man and his multiplying livestock on Central Himalaya....and into the plains of India" (*ibid.*, p. 344).

Furthermore, Maddie (1981) argues that the life of water reservoirs built in India, Nepal and Pakistan has reduced to half within ten years of their construction, primarily due to increased soil erosion and silting of reservoirs, as a result of population growth followed by deforestation in the hills. In order to stop further deterioration of the environment, Moddie suggested a drastic policy change in terms of changing forest management priorities – by making the earning of revenue the third and last priority, instead of the first priority of forest policies in India and Pakistan.

The THED authors presented above claimed that deforestation in the Himalayan region occurred due to population growth after the introduction of developmental projects during and after the 1950s. However, their arguments focus mainly on Nepal, and generalized conclusions were made on environmental degradation for the entire Himalaya, Karakoram and Hindukush region (see Eckholm 1975, 1976; Sterling, 1976; Lall and Moddie, 1981; Joshi, 1986; Myers, 1986; Lall, 1995; Bhatt, 1995).

From the above discussion, the following points can be synthesized to represent the main ideas in the THED:

The environment in the mountain areas of poor countries has, in general, deteriorated due to a vicious circle of population growth, leading to increased cutting of trees for firewood, and clearing of land for cultivation in order to meet increased food demands. The environment in the Himalayan region, including Indian and Pakistan and particularly Nepal, has been degraded to an alarming degree as a result of population growth, particularly after the 1950s. Development projects initiated after 1950, led to higher population growth through better health services and lower mortality rates, thus adding to the deterioration of the environment in the mountainous regions.

With the increase in human populations, livestock populations also increased, resulting in increased demands for fodder, thereby leading to overgrazing and the devastation of forests in terms of hampering their natural regeneration.

In order to fulfil the increasing food demands of the rapidly increasing population, people are clear-felling the forests in steeper and more fragile and marginal mountain slopes. These lands soon get eroded and washed away by landslides. This leads to another round of deforestation in bringing more patches of land under cultivation, in even steeper slopes, in order to grow subsistence crops. These practices resulted in a catastrophic increase in soil erosion and loss of productive land through accelerated landslides and the disruption of the hydrological cycle. This situation, in turn, led to massive silting of water reservoirs.

Due to deforestation, distances and time required for firewood collection are increasing; thus the people supplement their needs through burning animal dung instead of using it for fertilizing the agricultural terraces. This lack of fertiliser decreases crop yields, more trees are cut on ever-steeper slopes to feed the ever-increasing subsistence population, thus one vicious circle leads to yet another one.

3.3.2 The Critique of the THED

From the 1980s a number of reports, papers, and books have been published arguing that the assumptions and conclusion of THED are over simplistic and have been generalized based on inadequate empirical data. In contrast to the THED's claims that the forest cover in the mountain areas of developing countries has declined drastically since the 1950s, it has been shown that the forest cover, particularly in parts of the Himalayas, has changed over centuries (Tucker, 1982, 1987). Other scholars have argued that the forest cover in many places is still intact and that great diversity in forest cover occurs from one country to another, as well as within countries and even within individual valleys (Ives and Messerli, 1989).

The THED presented simplified assumptions of population growth and destructive practices of subsistence hill farmers as being the main causes of deforestation, while in the Himalayas this process may have a number of other causes. These causes include the conversion of forestlands to crop fields during the colonial rule in order to generate revenue (Tucker, 1982, 1984), policy failure and long term socio-economic changes (Schickhoff, 1995; Knudsen, 1995), urbanization and population growth (Richardson, 1987), regional conflicts, wars and mass migration of refugees (Ives and Messerli, 1989), sectarian conflicts (Gohar, 2002), and corruption (Knudsen, 1999a; Gohar, 2002). Furthermore, it is argued that there is no direct link between deforestation and firewood consumption (Ives and Messerli, 1989), and floods in the plains and deforestation in the mountains (Hofer, 1993; Hamilton, 1987). Central to these more recent views is the perception of failed forest policies and corrupt and inefficient forest services (Knudsen, 1995; Gohar, 2002), with the general conclusion that communities should play a greater role in resource management.

While Ives (1981) partly seemed to support the main assumptions of the THED (population growth being the cause of environmental degradation in the Himalayas), he suggested that the Himalayas are a "high energy environment"[14]; therefore there could be other causes of environmental changes in the region, which require investigation. In line with this thought, other critics of the THED asserted that the way environmental changes in the Himalayas have been projected, has serious repercussions for the interrelationship of populations living in various countries of the Himalayas, and within individual countries. Therefore, the underlying assumptions of the theory should be thoroughly investigated in the best possible way. Some of the possible serious repercussions noted by Ives and Messerli (1989) were:

In short, the worst-case scenario foresees that the terrain of Nepal and that of the adjacent areas of the Himalaya, and certainly the very basis of life, the top soil, will

[14] "A high-energy environment is defined as an area possessing high relief, where processes, natural, or man-made, or man-augmented are rapid – in other words, these processes are influenced by a combination of elevation, slope angle and gravity" (Ives, 1981).

virtually flow down the Ganges and Brahmaputra rivers by the year AD2000. It has even been suggested that, in preparation of such an event, His Majesty's Government of Nepal should transfer its patronage of the Swiss technical-aid system (SATA) to that of the Dutch. In this manner Nepal can begin the struggle to reclaim (and legally claim) land below sea level and establish polders in the Bay of Bengal, the product of its own topsoil. Indian and Bangladesh gunboats are already rumoured to be patrolling extensive new islands that are being added to the outer Sundarbans, the outer delta of the distributaries {tributaries} of the Ganges and Brahmaputra .... It infers that a few million Nepalese hill farmers are responsible for the massive landscape (and climatic) changes that are affecting the lives and property of several hundred million people in Gangetic India and Bangladesh. This raises two related points: (1) that the downstream countries, as victims of this unwarranted and irresponsible environmental disruption, could justify reprisals in economic, political, or military terms; (2) that Nepalese interests are served well (assuming no reprisals are actually taken) by this perceived image of helpless drift into environmental and socio-economic chaos, since it may account for its disproportionate amount of international and bilateral development aid in relation to its total size and population.... The popular image of a hill farmer as the cause of the growing environmental disaster makes him a convenient scapegoat; it has been claimed that the relatively few mountain farmers are holding hostage the very many on the plains. Once more, effect is taken for a cause, and corrective measures are misdirected (p. 6).

Earlier, Thompson and Warburton (1986) had further elaborated on the issues raised by Ives (1981), and asserted that the discussions on the perceived environmental degradation in the Himalayan region are filled with uncertainties about its causes and the extent of degradation. Referring to historical evidence, Tucker (1982, 1984), and Thomson and Warburton (1986) argued that most of the Indian sub-continent was covered with forest at some point in history. Most of these forests were gradually cut as a result of population increase and technological and political developments. What remains in terms of the current debate on Himalayan environmental degradation, is a narrow strip {containing forest} stretching all the way from Pakistan to Bhutan, which is currently contentious. The rest of the area consists of either high mountains covered with snow and glaciers, or

populated plains. Some areas along the narrow strip are subject to mass wastage, while some are virtually immune to wastage and erosion. Moreover the cause of perceived flooding is not evenly spread; ninety percent of the damage may result from ten percent of the land prone to erosion. Recognising the extent of this great diversity within the long, narrow strip is crucial in introducing a strategic perspective. "What is needed is the rejection of homogenising generalizations and their replacement by a sensitivity for local context" (*ibid.*, p. 128).

Thompson and Warburton (1986) further argued that uncertainties in the data on environmental degradation, and cultural, institutional and political complexities even question the presence of a 'downward spiral' as predicted by the proponents of the environmental crises in the Himalayas. Because the proponents of the THED have not been able to capture the institutional, physical, ecological, social and cultural diversity of the region, questionable data from some localized areas have been generalized to indicate a 'downward spiral' for the entire Himalayas. "The Himalaya may be poor in natural resources, but they are extraordinarily rich in institutional variety – in contradictory perceptions, in multiple problem definitions, in plural rationalities and in contending prescriptions – something which, alas, the classic approach, with its homogenising assumptions and its inappropriate cis-science methods, is ill equipped to handle" (p. 121).

It is evident that the target beneficiaries of development programmes in the Himalayas are extremely diverse, and the interrelationships between the stakeholders of economic and political power flows are remarkably complex. This situation impacts on the models and methods being used for data collection; the quality of data reflects these complexities, as well as the interests and ambitions of people collecting the data. These interests and ambitions are evident from the questionable data collected in terms of firewood consumption in Nepal, to project a crises situation. For example, the difference between the two variables used for estimating deforestation (per capita firewood consumption and the sustainable yield from forest production) is so great that "if the most pessimistic estimates are correct, the Himalaya will become as bald as a coot overnight and that, if the most optimistic estimates are correct, it will shortly sink beneath the

greatest accumulation of biomass the world has ever seen" (*ibid.*, p. 116).

Moreover, the quantitative data used by the THED do not lead to anywhere – whether the assumed spiral is downwards or upwards. The applied science models used to investigate environmental changes in Himalaya were adjusted to an already assumed understanding of the problem. For example, it was reported that 95 percent of the total population in Nepal consists of farmers. Therefore, it was assumed that 95 percent of the total wood taken from the forests is used as firewood (Donovan, 1981, quoted by Thompson and Warburton, 1986). Furthermore, such firewood consumption statistics were then deployed to understand the entire system and the impact of a growing population on the overall environment.

Thompson and Warburton (1986) showed that the type of questionnaires[15] used for collecting data on firewood consumption misled the results and conclusions. Based on such data, firewood collection was considered to be the main cause of deforestation, and deforestation was considered to be the main cause of increased flooding and erosion. However, other causes, for instance tectonic activities, were not taken into consideration. In order to highlight this point, Thompson and Warburton (1986) quoted the results of a study conducted by a group of geologists claiming that "the tectonic stresses which heaved up these mighty ranges in the recent past have not completely died out as yet... these processes are manifested by intense seismic activity, floods and mass wastage observed in this region" (Department of Science and Technology, Government of India, 1978, quoted by Thompson and Warburton, 1986, p. 119).

Thompson and Warburton (1986) found that there are problems in conceptualising various issues; for example, forestry statistics are misleading and the figures given for the designated forest areas are 'grossly doctored'. Vast tracts of scrub forests are not included

[15]"Sometimes we felt that the reply was more socially or politically desirable than correct. To our question regarding forest utilisation, I often felt informants gave a politically appropriate response rather than actual facts. Many times individuals were hesitant to name their suppliers or geographical source. In several instances we were told to return at dawn if we wanted to talk with charcoal producers. Fearful of government's surveillance; these people carry their loads into the cities and towns under the cover of early morning darkness" (Donovan, 1980, quoted by Thompson and Warburton, 1985:117-118).

in forest definitions, although these could be a vital source of firewood. Moreover, there is a link between the projection of a 'super crises' in the Himalayas with national, international and institutional politics. For example, the linkage between deforestation in the hills and flooding in the plains is a key policy consideration in the region. It influences the allocation of funds to the countries and developmental organizations with interests in the region, since perceived causes in one country affect another country and its people. The arguments of various actors (individuals, organizations and the government) involved in the Himalayan environmental degradation debate, their research methodologies, findings, and development projects based on these findings, are all shaped by institutional affiliations between various actors and their past experiences. Ironically, however, the perceptions of the hill farmer are seldom heard, due to inappropriate scientific approaches to research, that focus mainly on physical facts and not on "socially-induced perceptions" (*ibid.*, p. 120). Due to the lack of political voice or economic power, the hill farmers are not able to make their perspective heard by the policy makers.

In order to reduce the uncertainties identified by Thompson and Warburton (1985), it was proposed that interdisciplinary research is necessary, based on collecting empirical data and case studies from various locations to investigate the generalizations claimed by the THED. Ives and Messerli (1989) presented their comprehensive work challenging the THED, in a book titled 'The Himalaya Dilemma'. Through collecting empirical data and secondary literature published mainly in India and Nepal, they concluded that there is a great diversity in the Himalayas and that the THED was based on fictitious data. The following paragraphs briefly present their findings from various locations in the Himalayas.

By comparing aerial photographs over the period from 1964 to 1977, Ives and Messerli (1989) estimated that the forest loss in the Middle Hills was 1.5 percent of the original cover of the forest in Nepal, representing an annual loss of 0.11 percent over thirteen years, which was statistically not significant for two reasons. Firstly, it was a minute rate of loss in itself, and secondly, it was smaller than the limits of accuracy of the methods used. For Terai and the Siwaliks (foothills) respectively, a loss of 27.5 and 10.2 percent

of the forest areas was estimated, showing an annual loss of 2.1 and 0.8 percent respectively, considered as statistically significant. However, being a plains area, deforestation in Terai was viewed as not relevant to the assumed acceleration of soil erosion and landslides on the slopes.

Furthermore, Ives and Messerli (1989) argued that it is extremely difficult to determine the loss of forest due to the fact that different surveys did not use the same definitions of 'forest' and 'grazing lands'[16]. Since deforestation in the Terai and Siwaliks is significant, while it is not significant in the Middle Hills, the linkages between population growth, deforestation, increased soil erosion, increased landslides and the Middle Mountain deforestation process, are open for examination. The forest cover in the Middle Mountains has not changed significantly since 1950. The forest cover changes in this area have a long history beginning from 1769, when the State of Nepal was founded, and the state's policies ensured progressive conversion of forestlands into arable land, in order to ensure a source of income to the state through taxation.

Socio-economic and political changes from 1769 till 1930 resulted in continued deforestation and by 1930, the forests were considerably reduced. Ives and Messerli (1989) also show that there had, in fact, been an improvement in forest cover in the Kakani area close to Kathmandu, due to local people taking advantage of government decentralization, rather than outside aid and development projects. Through a reconnaissance survey and an examination of old photographs of the Hengduan Mountain in China, Ives and Messerli (1989) concluded that some areas show evidence of deforestation, some areas are reforested due to natural processes, while no change in vegetation cover is observed in other areas. In Sikkim India again, deforestation dates back to 1769, when pressure on subsistence farmers in Nepal increased and they migrated to Sikkim. An extensive increase in subsistence agriculture, coupled with the development of tea plantations, reduced the forest cover. Extensive road networks during the last twenty years have further reduced forest areas and have accelerated landslides. In

[16] Also see Thompson and Warburton (1985) in terms of these points of confusion and uncertainty.

contrast to reduction in forest cover in Sikkim, Bhutan has 60 percent forest cover and is in need of the construction of logging roads in order to mine forest products through more effective harvesting.

Ives and Messerli (1989) concluded that increased population growth, and the shortage of fodder, firewood and other forest products cast a serious shadow over the future well-being of the mountain people in some areas. However "if significant deforestation since 1950 has not occurred in the areas for which reasonable reliable data is available, and if these results are applicable, at last to adjacent areas, the claim that post-1950 deforestation in the mountains has led to increased flooding, silting of reservoirs and other deleterious impacts on the Ganges and Brahmaputra (and Chengdu) plains is tenuous at best" (p. 66). Ives and Messerli (1989) suggested that the above example should not be taken to mean that deforestation is not occurring in the Himalayas. Elsewhere, there is reliable evidence that deforestation has occurred, for example, in Ghora Pani in the Myagoli/ Parbat district of Nepal, due to the construction of tourist facilities.

Hamilton (1987) supported some of the observations made by Ives and Messerli (1989), and Thompson and Warburton (1985), and argued that deforestation in the hills and flooding downstream have no direct link with each other. He wrote: "...the real cause was too much rain accruing in too short a time. Some areas received 414mm in 24 hours in the monsoon season, when soils were already saturated. Even if the entire basis had been forested there would have been disastrous floods.... But they will not prevent floods or sedimentation in the lower reaches of major rivers, nor significantly reduce flooding in major storm events" (p. 262).

A number of further studies from the Himalayan and Karakorum regions of Pakistan have emerged since the early 1990s, which seem to dispel more of the assumptions of the THED. These studies indicate that environmental change in the region has socio-economic and political reasons, and is not caused by population growth (Gohar, 2002; Schickhoff, 1995; Knudsen, 1995, 1999a). Furthermore, some studies have demonstrated how subsistence farmers have managed their common property resources, particularly

pastures, sustainably for centuries, without any signs of serious resource degradation in the area (Allan, 1989; Schmidt, 2004). In some areas, resources have even improved as a result of community initiatives (Kreutzmann, 1991). In analysing the impact of the construction of the Karakorum Highway (KKH), Allan (1989) reported that with the completion thereof in 1978, the mountain habitat of the upper Indus basin underwent significant changes. Pastoralism in China has been assisted by the new road, but in the Pakistani section, just the opposite is true. Allan (1989) found that livestock husbandry practices have become secondary to crop production. The decline in livestock production is due to expanding economic opportunities close to the road, and periodic migration down to the plains via the KKH.

Before and during the construction of the KKH, a large number of wildlife was killed by officials. The number of wildlife has now increased as a result of efforts by local populations (Mir, 2006). Much of the forest in the southern reaches of the KKH has been destroyed, mainly by contractors commissioned by the government. Northwards from Besham, native vegetation exists on the left bank, but on the right bank where the road is located, most of the vegetation has been removed either for transportation to the plains, or by grazing impact by animals owned by nomads. Further north, in Manschra, the forest has been devastated by Afghans in refugee camps, for cooking and heating purposes, and for transportation down to the plains, with the collusion of Pakistani officials.

Allan (1989) concluded that in general, the construction of the KKH has been beneficial both for the mountain communities and the habitat, except where contractors and officials have colluded to extract timber, taking advantage of the existence of the KKH. These findings were confirmed by other researchers from other valleys in the NAs. For example, Nusser and Clemens (1996), while studying the impact of mixed mountain agriculture in the Rupal Valley in the Nanga Parbat area, found that the ecological carrying capacity of the high pastures in Rupal remains intact, despite an increase in livestock populations. The existing pasture resources are adequate, even to sustain a slight increase in the present livestock population. Therefore although the pastures are used extensively, no serious overexploitation seems to have taken place.

The natural forest resources in many parts of the HKH region in Pakistan are, however, decreasing, owing to a number of factors. Knudsen (1999a) described these factors for the North-West Frontier Province (NWFP) of Pakistan, where most of Pakistan's remaining forest resources exist (GoP, 1992b). Knudsen (1999a) stated: "Despite the government being willing to reverse the situation created by deforestation, it has not been able to intervene to a productive end due to several complexities. In order to understand Pakistan's forestry sector issues, one has to consider a number of factors: the role of state and the bureaucracy (*'institutions'*), the costs involved in changing the present organization of forestry (*'transaction costs'*), short-term returns against long-term profitability (*'discounting'*) and the motivation of the individuals against collective interest (*'the problem of collective action'*). "As long as poverty, population growth and limited cultivable land are characteristics of the countryside, the problem of creating incentives for conserving forests remains" (p. 225).

Knudsen (1999a) found that large-scale deforestation has occurred recently and that environmental problems are complex. This conclusion was confirmed by the Pakistan Forestry Resource Inventory (PFRI), which extrapolated images from the Geographical Information System and found that if the rate of deforestation continues at the current pace, the forest cover in the North West Frontier Province (NWFP) will disappear by the year 2025 (GoNWFP/GTZ, 2000). The Forest Department never formally released this report, as they feared that they would be regarded as bad controllers if the results were made public; not that they feared that the reasons for deforestation explained by the PFRI were flawed (Hassan, 2001).

Interestingly, where forest resources in a number of valleys are extremely scarce, the population growth is not a major issue. As Jettmar (2002) noted, population growth in the NAs has been very slow due to adversities of history (diseases, food shortages, wars). In some areas, these difficulties resulted in a negative population growth (McDonald, 1996). In contrast to the usual depiction of rapid population growth across the Himalayas, of the ten villages studied by McDonald (1996) in the Braldo Valley in the Baltistan region of

Pakistan, the population in one village was stable between 1901 and 1981; in the remaining villages a net decline was recorded. This decline was not because of out-migration as generally hypothesized for the Himalayas; it was due rather to a low birth rate (as a result of fewer opportunities for couples to spend intimate time with each other), and high infant mortality, coupled with fatalities.

A low population growth was also reported for Ladakh, the cultural and geographical neighbour of Baltistan. "One of the great strengths of Ladakhi society is that over the centuries a tight control has been kept on populations. At least partially responsible for this has been the practice of fraternal polyandry which, although technically banned in 1941, is still found in the remote villages. By this system; a women marries into a household and becomes the wife of all the sons; population growth is thus strictly regulated since, although the number of men and women is equal, relatively few women can marry and bear children" (Norberg-Hodge, 1995, p. 144).

From the above findings put forward by the opponents of the THED, the following points can be synthesized:

There is uncertainty about forest cover changes and the reliability of data presented by the THED.
Great diversity exists from country to country and valley to valley within countries.
Given that the Himalayas are comparatively younger mountains and are classified as high energy environments, erosion and landslips are mainly geological in nature, and not necessarily the outcome of deforestation.
There is no direct link between deforestation in the hills and floods in the plains.
As opposed to what is projected by the THED, deforestation in the Himalayas has a long history, although deforestation in some areas has occurred rather recently.
Where deforestation has occurred, it was due mainly to changing socio-economic conditions, policy failure and in some instances, rapid development after 1950.
Although hill farmers use forest resources for subsistence needs, they are not responsible for major deforestation in the hills.

- In some areas where outside socio-economic influence is rather low, subsistence farmers have managed natural resources in a sustainable manner.
- Development, particularly road construction, has shown both negative and positive impacts, depending on the type of socio-economic conditions and opportunities offered by the new developments.
- Finally, population has not grown rapidly everywhere in the Himalayas. Great diversity is found in population trends.

3.3.3 Impact of the THED on resource management and forest policies of Pakistan

As elsewhere in the colonial world, the issue of environmental degradation has played a very important role in the politics of the HKH region, with the main intention of controlling valuable natural resources (Blaikie and Muldavin, 2004). Claims to manage forests and land use in general by the government rest upon scientific management, the responsibility for which lies with the forestry services. In Pakistan, abrupt policy changes resulted after environmental crisis narratives were harnessed in the case of several projects. For example, in 1992 the devastating floods after torrential rains required that "causes had to be found for the floods and corrective measures taken to avoid them in future" (Knudsen, 1999a). Blame was therefore attached to the communities who had been given some control over forest management in parts of the Hazara division of the NWFP, through Forest Cooperative Societies (FCSs). Although losses to forests that had been managed by the FCSs representing community shareholders, were less prominent when compared to other categories, including forests managed by the government itself, the FCSs were abolished.

The National Conservation Strategy (NCS) attributes most of Pakistan's irrigation problems to population growth, particularly in the mountains (GoP, 1992a). It states: "much of the decrease in forest vegetation throughout Pakistan over the past few decades has been insidious – mostly the felling of single trees or lopping by local people for fuel. Bit by bit, more and more trees are tapped, lopped, burnt or cut and replaced by fields and terraces. More and more cattle and goats are allowed to graze in the forests, to the

detriment of seedlings and young growth" (p. 32). Thus the government sees it as crucial that the Forest Department should retain control of the forests in Pakistan for scientific management reasons, namely to save the country's water reservoirs, irrigation networks and agriculture production systems from further deterioration. The NCS also assigns import additional roles to the Forest Department in the form of forest development, irrigation of plantations, and training communities so that the "plants grow and flourish". "It is the Forest Department's responsibility to make people understand that it is in their own interest to protect and nurture trees. And if as a result of this awareness campaign by the Forest Department, the people withhold herds from grazing or refrain from lopping or cutting, they must be sure they will receive the benefits that their abstinence will undoubtedly produce" (p. 173).

What the government and Forest Department have not recognized however, is the fact that the people in the mountains have always planted trees, established plantations, and had considerable environmental sense. In the NAs of Pakistan for example, without the support of the Forest Department, and in some instances facing resistance from the same (personal communication with hundreds of village representatives in the NAs; personnel observation over 10 years), the communities have established hundreds of irrigated plantations and forest nurseries, and have planted 40 million trees with a 70 percent survival rate since 1991 (World Bank, 2002). Afforestation and land development in the NAs has been successfully implemented by the communities with the technical assistance of the Aga Khan Rural Support Programme, whereas a component of this project allocated to the NAs government was a failure. An independent evaluation mission in 1995 recommended that the finances provided to the Forest Department should be shifted to the communities so that the latter could carry out the plantation work originally assigned to the government (Nyborg and Hameedullah, 1995).

It is thus clear, as Knudsen (1999a) says: "the problem is not to convince forest-dependent communities that they have a stake in the protection of forests – they know this very well. The problem resides in the structure and institutions which prevent them from playing any meaningful part in the management of the forests. They would protect

their forest better if they were assured of enjoying the future benefits" (p. 227). Successful large scale afforestation in the NAs by the communities is contrary to the assumptions of the THED, which feared that desertification from the dry desert mountain environment in the western Himalaya would spread eastward to the greener parts of Himalaya (Moddie, 1981).

The increasing empirical evidence emerging from Africa and Asia showing the ability of subsistence farmers to manage natural resources in a sustainable manner, has facilitated community participation in resource management in a number of instances. However, the reinforcement of the notion (as a result of the THED and other crisis narratives) that only government control can ensure sustainable resource management, perpetuates centralized control and hinders major policy changes to facilitate community participation.

A typical case in Pakistan was the controversy in 1975 over the creation of the Khunjerab National Park (KNP) (Wegge, 1988; Knudsen, 1999a) for the conservation of wildlife species, particularly Marco Polo sheep and Tibetan wild ass. As a result of resentment from the local population over restrictions on their traditional grazing rights, a consultant was commissioned by the World Conservation Union (IUCN) to make an assessment and provide recommendations on wildlife management (Wegge, 1988). The assessment report suggested a more flexible approach to park management by allowing livestock grazing, because there was no competition between wildlife and domestic animals for grazing, except possibly for Marco Polo sheep at Khunjerab pass (Wegge, 1988, p. 21). The report further recommended that the status of the park should be changed from category II to category VIII in order to facilitate multipurpose conservation and permit local communities to continue with grazing (Wegge, 1989, p. 59).

However, these recommendations, particularly allowing traditional grazing rights for the communities, were not acceptable to the World Wide Fund for Nature (WWF), IUCN and the government. As a result, the communities took the case to court (Knudsen, 1999b). Seven villages in the Gojal region however settled the issue with the government, while the communities in the village of Shamshal still did not accept the restriction on

grazing nor the establishment of the park. In 2006, according to the KNP staff, some residents of Shamshal physically assaulted them on a visit to Shamshal, which the residents denied. This was discussed in a meeting held at the office of the Director KNP in 2006, which unfortunately ended without any settlement of the issue.

The government has no reliable data to show that the population of Marco Polo sheep and Tibetan wild ass have increased in the KNP. On the other hand there is credible evidence that the population of wildlife has increased in some other areas where communities have been involved in conservation efforts outside the National Parks in the NAs (Tortell et al., 2006). The community members at Gojal also claim that the increase in population of wild ungulates in the KNP (as claimed by government officials) is a result of conservation in the adjacent areas by the local communities, where a community-based conservation programme was initiated in 2000 (Mir, 2006).

Wegge (1999) explained the following reasons for the rigid approach adopted by the government and conservation agencies in terms of the management of the KNP:

- The Forest and Wildlife Department officials in the NAs receive instructions from Islamabad and are bound to implement centralized government legislation.
- The National Conservation Council established for the conservation of wildlife is pre-occupied with designing and implementing conservation policies on a national level. As a result, the office tends to rely on conservation policies on a national, rather than local, level.
- A national park has the potential of generating far more revenues through tourism than any other designation of a protected area.
- Changing the park status and expanding it to a Biosphere Reserve or a Multiple Conservation Area would mean introducing new legislation, requiring quite extensive bureaucratic procedures; pursing a national park option undoubtedly appears to be more convenient.
- By establishing a national park, the government may be in a better position to qualify for international financial support.

- International conservation experts exhibited a lack of insight and a superficial understanding of the ecological status of park areas. Their assessments were based on visits to only a few sites and interviews with the local people near the Karakoram Highway.

The rhetoric of resource degradation due to firewood collection, grazing, and illegal hunting by subsistence farmers is repeated without evidence in almost all policy, resource management and conservation documents in Pakistan, particularly for the northern parts of the country (See e.g. GoP, 1995; 2002a; Rao and Marwat, 2003). The National Conservation Strategy (NCS) claims that the collection of firewood and grazing in the mountains are the main causes of sedimentation in rivers and reservoirs. It points in particular to the Tarbela water reservoir (GoP, 1992a), which is one of the world's largest earth-filled reservoirs, built on the Indus and fully commissioned in 1976 (WCD, 2000). Such claims then form the basis for instigating greater government control over natural resources and initiating watershed management programmes (Blaikie and Muldavin, 2004).

Contrary to the government's claims that the life span of Tarbela has reduced due to increased sedimentation (GoP, 1992a), it has actually increased (WCD, 2000). At the time of the construction of the Tarbela reservoir, it was recognized that the river Indus flushes a high level of sediment at point of the Tarbela site. A study by the World Commission on Dams (WCD) estimated that "the real life of Tarbela was estimated to be 50 years at most, considering the sediment deposition in the dam's lake" (WCD, 2000, p. x). In order to drain the silt, the provision of tunnels to discharge the sediment downstream was considered as an option. However this didn't materialise, due to the difficult nature of the site and the large scale of the project (WCD, 2000). "The estimated annual sediment inflow was 0.294 billion cubic meters (bcm); however the actual inflow has remained at 0.106 bcm and has enabled the useful dam life to be readjusted to 85 years" (WCD, 2000, p. x). "Sediment yields in the Indus's upper catchments amount to the following for the major catchments: Braldu/Shigar 12,500F4700 t/km2 year, Hispar 11,000F5000 t/km2 year, and upper Hunza basin 2500F1600 t/km2 year" (Garzanti et al.,

2004, p. 296). This shows that the river Indus drifts a proportionately higher silt load from its source region, which includes principally the central Karakoram and northern parts of the Himalayan sharp peak areas which are devoid of vegetation (Garzanti et al., 2004, p. 297), while deforestation in the Tarbela watershed is believed to occur in the southern forested parts of western Himalaya. Higher sedimentation originating from Karakoram and the northern parts of the western Himalayas is attributed to their extensively glaciated topography comprising high ranges (Garzanti et al., 2004, p. 299). This evidence refutes the claimed and propagated notions of deforestation as being the major cause of shrinkage of the Tarbela reservoir.

Despite these facts, the government of Pakistan and the International Network for Environmental Compliance and Enforcement (INECE) claim that the life of the Tarbela reservoir has decreased to less than twenty years due to excessive deforestation (INECE, 1994, p. 9). In order to reduce sedimentation, the Tarbela Watershed Management Project (TWMP) was initiated by the government of Pakistan during 1980s (WCD, 2000). The project covered less than 6 percent of the total watershed area, which represented the actual and potential forested cover. The rest of the watershed area has extremely low vegetation cover and consists of high peaks, glaciers and extremely precipitous mountains. Therefore reduction of the sediment influx into the Tarbela reservoir from most of its catchment areas is impractical by means of watershed management efforts and afforestation. More than 90 percent of the total sediment run-offs are dominated by snow and glacier melts carried from dry desert-like mountains, which are not suitable for forests (WCD, 2000, p. 44-45). Thus, the estimated lifespan of the Tarbela reservoir has increased, primarily because of the initial overestimates of sediment flows from 90 percent of the areas outside the watershed project (WCD, 2000).

3.4 Defining deforestation

Estimating the extent of deforestation has always been difficult, and findings are often contradictory. The reasons for this are several, for example, the use of different methods of measurement, but more importantly, different understanding of what actually

constitutes deforestation. Despite the large amount of literature on deforestation, a clear definition of the term is seldom offered. Dictionary definitions generally do not match each other. For example, Webster's Dictionary defines deforestation as "to divest of forests or trees" (Webster 1983, p. 379), while another Webster's edition adds 'land' to its definition on deforestation – "to clear (land) of forests or trees" (Webster 1980, p. 371). The Dictionary of Ecology adds two more terms to the definition – 'permanent' and 'wood land': "permanent clear felling of an area of forest or wood land" (Allaby, 1998, p. 114), while the dictionary of Ecology, Evolution and Systematics mentions 'undergrowth': "permanent removal of forest and undergrowth" (Lincoln et al., 1988, p. 64). The dictionary of Environmental Sciences adds another concept – 'non-forest uses' to the definition: "the permanent clearing of forest land and its conversion to non-forest uses" (Jones et al., 1990, p. 112).

Quoting examples from parts of Africa and South America where replanting is being practiced, deforestation is considered to occur if clear felling is not followed by afforestation. This implies that if a former forest area is replanted with forest tree species and is not used for other purposes, then deforestation has not occurred. Cunningham et al. (1994, p. 215) accept this line of argument: "Deforestation is the complete removal of the forest ecosystem and conversion of the land to another type of landscape. It differs from clear-cutting which entails complete removal of all standing trees but leaves the soil in a condition to re-grow a new forest if seeds are available." This definition is in line with that of the World Resource Institute (WRI) which argues that deforestation occurs if there is "a complete change in land use from forest to agriculture – including shifting cultivation and pasture – or urban use. It does not include forest that has been logged and left to re-grow, even if it was clear cut" (WRI, 1992 quoted by Angelsen, 1995, p. 1714). Angelsen finds a contradiction in the above definitions of the WRI and others, arguing that "forest opened by shifting (swidden) cultivation often would be secondary forest previously used for swidden agriculture, and then left for fallow. Thus temporary clearing by logging is not classified as deforestation, whereas temporary clearing by shifting cultivation is included" (Angelsen, 1995, p. 1714).

Much of the literature on deforestation highlights the negative impacts that follow deforestation, without offering clarification on which definition of deforestation is being applied. Often deforestation seems to mean merely the removal of woody vegetation, particularly those species useful as firewood and timber (Benjaminsen, 1993; Knudsen, 1999a; Gohar, 2002).). Some writers focus their attention particularly on the removal of trees species that provide commercially valuable timber (Eckholm, 1975; Crump, 1991; Rawat, 1995; Champion, 1953). It is assumed that once the woody vegetation is removed, land degradation[17] will follow. Even if the clearly felled area is taken by less valuable woody species, land is regarded as degraded, although some of this vegetation is actually more profuse compared to a coniferous forest, and would reduce run-off and hence soil erosion. This type of vegetation is nevertheless often regarded as undesirable (Eckholm, 1975).

As described by Brown, "...generally heavy destructive influence on the natural vegetation supports the development of a more xerophytic type of vegetation and this appears to be even more pronounced in drier climates. For example, *Quercus dilatata* gives way to *Quercus incana* to *Pinus roxberghi,* to the main components of the monsoon forest. Ultimately, vegetation is turned into a thorny scrub, which is useless as timber or firewood and of no use at all for animals" (Brown 1971, quoted by Eckholm, 1975, p. 768). This perspective exhibits a distinction between commercially and economically valuable species; and those considered not to be valuable. Furthermore, deforestation is said to have occurred even though the ground is still covered with vegetation that has grown naturally, with species that are native to the area.

The above discussion dismisses the idea that only clear felling can be considered as deforestation. For the purpose of simplicity, this study defines deforestation as a reduction in the total forest cover.

[17] Land degradation refers to a decline in the productivity of an area of land or its ability to support natural ecosystems or types of agriculture (Gilpin, 1996). However 'degradation' is a perceptual term (Blaikie and Brookfield, 1987). Here it is taken to imply a negative change in the production capacity of land.

4 Forests and forestry in Pakistan

4.1 Forest types

4.1.1 Natural forests

The partition of India and Pakistan in 1947 occurred in such a way that Pakistan inherited very small patches of natural forest, situated mainly in the north in the Himalaya and Hindukush mountains. In the absence of inventories, the precise extent of forest areas in Pakistan is not known. Available estimates show that Pakistan at present has only 4.2 million hectares (4.8 percent) of its total 88 million hectare land area covered with forests (GoP, 1992b). Although the forests are scarce, their diversity is great and extremely significant for millions of people's livelihoods living in and around them (Shahbaz et al., 2007, p. 441). There are 5700 species of plants, 188 species of mammals, 666 species of migratory and resident birds, 400 marine and 125 freshwater fish species, 174 species of reptiles, 16 species of amphibians, 20,000 species of insects and terrestrial and freshwater invertebrates, and 700 species of marine invertebrates (GoP, 1992b).

Various types of forests are found in Pakistan (Siddiqui, 1997). Littoral and swamp forests are found around the coast by the Arabian sea; tropical, dry, deciduous forests grow in the foothills of Rawalpindi; tropical thorn forests occupy the Indus plan; and sub-tropical, broad-leafed, evergreen forests are evident on the foothills and lower slopes of the Himalayas, the salt range, the Kalachitta area and the Sulaiman Range. Sub-tropical pine forests dominated by *Pinus roxburghi* are found at 900-1700 meters elevation in the Western Himalayas, within the range of the south-west summer monsoon. Himalayan moist temperate forests are found at 1500-3000 meters elevation, also in the Western Himalayas. In the lower zone of these forests, *Cedrus deodara, Pinus wallichiana, Picea smithiana* and *Abies pindrow* are the main conifer species. In the upper zone, *Abies pindrow* and *Quercus semecarpifolia* are the dominant species. Himalayan dry temperate forests occur on the inner ranges throughout their length and are represented mainly in

the north-west. *Cedrus deodara* and *Pinus gerardiana* are the main species. Sub-alpine forests thrive throughout the Himalayas, from about 3350 meters to the timber limits. *Abies spectabilis* and *Betula utilis* are the main tree species in this type of forest. Alpine scrub forests are situated above the sub-alpine forest. *Juniper macropoda* is the main species found here.

4.1.2 Farm forestry in Pakistan

Whereas the management of state owned natural forests has been a failure in Pakistan, the development of farm forestry has been a success (Myers and Bass, 1999; Ali, 2001; Gohar, 2002; Dove, 2003). Since the 1980s, the forestry sector in Pakistan has been much influenced by NGOs and internationally funded projects. The recognition of the involvement of local people in forest management in the 1991 forest policy was due to the influence of the NGOs and participatory projects. For example, evaluations of eight projects in the country on the basis of equity, stability, sustainability, productivity and impact on policy, show that all the projects have a medium to high impact in terms of all these factors (Ahmed and Mahmood, 1998). The first major farm forestry project in Pakistan was the Forestry Planning and Development project, jointly funded by the Government of Pakistan and the U.S. Agency for International Development (USAID) (Dove, 2003). The Aga Khan Rural Support Programme (AKRSP) initiated afforestation programmes in the Northern Areas (NAs), which was another milestone. Since 1991 these programmes have facilitated the establishment of hundreds of plantation in the area. Around 26 million plants were planted between 1991 and 2001 and hundreds of local people were trained (Village Forestry Specialists) in basic forestry techniques (Ali, 2001), which perhaps marks AKRSP as the largest contributor in promoting farm forestry in the country, in terms of the size of intervention. Another project was the establishment of 1388 forest nurseries by local farmers, which supply millions of plants to private growers in the NAs (Ali, 2001). This programme was funded by several donors, mainly the Norwegian Agency for Development Cooperation (NORAD). Other farm forestry initiatives were embedded under various projects funded by international donors and implemented by NGOs and the Forest Department (e.g. the Tarbela Watershed

Management Project, the Dir Kohistan Upland Rehabilitation and Development Project, the Siran Social Forest Development Project, the Kalam Integrated Development Project, the Social Forestry Project Malakand/Dir, the Environmental Rehabilitation Project, the ADB Forestry Sector Project, the Barani Area Development Project, the Dir District Development Project, the Sarhad Rural Support Programme, and the Integrated Rural Development Project Mardan). Farm forestry was also supported by private sector companies, such as the Pakistan Tobacco Company and Shell Pakistan (Nizami and Irfanullah, 2008).

All these initiatives were highly subsidized and provided free plants and inputs to the farmers. Most of the species raised in project-funded private nurseries were of an exotic nature and the plants were distributed free of charge; unfortunately there was little chance that farmers would buy seedlings of these species for planting on their lands when free distribution came to an end (Khan, 1998). The most recent project intervention in farm forestry is the Farm Forestry Support Project funded by the Swiss Agency for Development and Cooperation, which promoted nursery-raising by farmers as an enterprise. The choice of species was left to the farmer, in the light of market demand, and there was no longer any free distribution for the purposes of farm forestry. This project was the culmination of all the previous experiences in farm forestry (ADB, 2002).

Despite the fact that most of the firewood used domestically and commercially is produced in irrigated plantations, forest policies still focus heavily on natural forests. This is due to the conventional role of the Forest Department in managing the natural forests. With less than 5 percent of land under natural forests, only 0.5 million cubic meters of firewood and 0.2 million cubic meters of timber per annum come from natural forests, compared to private plantations which contribute 2.6 million cubic meters of firewood and timber (Myers and Bass, 1999). Furthermore, the farmers in Pakistan are motivated to raise trees, but the state forestry institutions have largely ignored this important actor (*ibid*).

This study shows that the success of the AKRSP's forestry project was due to the

identification of local needs, that facilitated the design of flexible forestry packages suited for both wood and fodder production. The AKRSP supported plantations were inter-cropped to produce fodder. This encouraged farmers to develop techniques and measures to control free grazing. The AKRSP encouraged villagers to form Village Organization (VOs) and Women's Organizations (WOs) which took collective action in establishing communal plantations and free grazing control. The VOs and WOs formulated local regulations for the arrangement of plants, the protection of plantations and the distribution of benefits from the plantations. The Forest Department has not recognized the huge contribution made by farmers and still carries the misconception that the farmers need to be motivated. Contrary to this view, experiences in farm forestry have shown that the farmers only need technical hand-holding and, at times, easy availability of material inputs in order to further expand farm forestry (Dove, 2003).

4.2 The history of forest enactment in the sub-continent

Before British control over the sub-continent, the forests were managed by the local users. Between 1818 and 1920, the British controlled major parts of western India. Major changes were introduced in administration, land revenue systems, trade, transport and communication networks, which resulted in the transformation of agriculture systems, increased populations, prosperity and peace (Tucker, 1982). The farmers of the area responded to these changes by cultivating more land and the cropping pattern also changed, mainly from a mixed cropping pattern for subsistence, to more commercialized crops. By the turn of the century these rapid changes in cropping patterns and communication resulted in increased productivity, economic growth and a new level of prosperity for some groups.

Peace and prosperity resulted in population growth. Land under cultivation increased throughout the nineteenth century. India began to embark on one of the greatest economic transformations of the modern age between 1820 and 1830, when imported machine-manufactured cotton cloth from Lancashire mills began to rapidly displace many of the higher grades of domestically produced, hand-loomed cotton cloth. Rapidly increasing

numbers of bales of pressed cotton from India were sent to Europe, the UK and China. The increase in cotton production was facilitated by the introduction of railways. Expansion began in areas under cotton cultivation in the 1860s and continued for the remainder of the century. For a hundred years, the clearing of brush, shrub and forest in the interior districts of Bombay proceeded with few pauses (Tucker, 1982; Richards and McAlpin, 1983).

The colonial officials were passionately committed to a dream of a prosperous peasantry, productive cash crops and growing cities and towns. In order to stimulate agriculture, colonial policy makers granted the title to large amounts of fallow or untilled land, to any farmer willing to plough it. Woodcutters removed trees and were followed by villagers gathering firewood and burning dry grasses to make way for the new expansion. By 1850, forests in the lowlands had lost their best timber. Thus commercial agriculture was the single most important influence on changing forest conditions in those decades. By the 1840s, British entrepreneurs began to penetrate much higher into the mountains and valleys. By 1850, some of the region's prime Sal and Deodar tracts, both below the hills and in the higher valleys, had already been cleared of their marketable trees. Removal of tree cover, especially in the hills, destroyed the forests' capacity to restrain the heavy tropical downpours of the summer monsoon (Richards and McAlpin, 1983). Thus the region's ecology was changed and the people were faced with limited resources in the years to come.

Alarmed by the rapidly shrinking forests, the government made serious attempts to halt further degradation (Ahmed and Mahmood, 1998). This included the appointment of Dr. Dietrich Brandis, a German forester, in 1864 as Inspector General of Forests, to establish the Forest Department. Subsequently, legislation was formulated to bring the forests under the control of the central government. In 1878, the Forest Act (Act VII) was passed, which facilitated the assertion of state control over the forests, through the Forest Department. The state nationalized large tracts of forest (Tucker, 1982). It enacted legislation regulating peasant access by restricting it to areas of forests not deemed to be commercially profitable.

The act of 1878 provided the basis for the establishment of Reserved Forests, which denied the existing rights of the local users. Guha (1989) notes that the 1878 Act and other subsequent regulations were promulgated mainly to ensure a consistent supply of commercial timber initially required for railways sleepers to meet the increasing demand for furnishing new tracks. The regulations were introduced as an attempt to alienate human beings from nature, since the government had observed degradation of forests that had been assigned for use by the villagers. Guha further states: "what one may now ask is, what was the cumulative impact of these strategies of management and control on the relationship between humans and forest in Uttarakhand? At the most obvious level the reservation of large tracts of forest meant an effective loss of control over their habitat for forest-based communities. Inevitably, an increased pressure was felt on the forests, that did remain open to villagers, in many cases hastening their destruction" (Guha, 1989, p. 55).

By declaring some forests as Reserved, the Government assumed legal rights of ownership over the forestland so that the tree cover could be preserved and systematically harvested. Forest areas with less tree cover were designated as Protected Forests. Other categories, for example the Private Forests and Guzara Forests, were left to be managed by the Revenue Department, private owners and village communities. The declaration of Reserved Forests, which were previously used by the communities for grazing and the collection of wood, created tension between the Forest Department and the villagers. Therefore the present tension between the Forest Department and communities in many countries of the HKH region (Chhatre, 1996; Gohar, 2002) has its roots in the 19th century. The tension increased as a result of colonial policies that required people to provide free labour for state operations (Ahmed and Mahmood, 1998). Furthermore, the requirement of labour increased during World War II, in terms of army duty and increased demands for timber. Since the Forest and Revenue Departments were responsible for the recruitment of labour, the people held them responsible for their suffering.

In 1927, the Indian Forest Act 1927 was promulgated, which is widely referred to as the 'holy book' of forestry services in Pakistan. It sustained the legal classifications provided under the 1878 Act. The Forest Act 1927 provided further details on legal categories of forests, as well as on the powers of forest officials. During the period between 1927 and 1947, more attention was paid to the legal and administrative aspects, like forest regulations, Acts and rules[18].

The natural forests situated in present Pakistan were brought under state control during the British rule through a number of local Acts (Khattak, 1976a, 1976b). For example, in 1856, rules were promulgated to bring the vegetation in the town of Rawalpindi under state control. The forest in the Hazara area of the NWFP was brought under government control in 1857 and the Hazara forest regulation was passed in 1872. In both cases, local people were given some concessions as per state directives. Through these regulations the forests were divided into two categories: Government Reserved Forests and the wastelands labelled as Guzara[19] Forests. Forests which were well stocked were declared as Reserved Forests, while degraded forests were declared as Guzara Forests. The Guzara Forests were set aside to meet the domestic requirements of the local people, under the supervision of the government, and were still considered to be state property. The government retained the right to conserve and manage the Guzara Forests, and charged a share of their sale proceeds.

The present legal classification of forests in Pakistan has existed since 1872, and the Forest Act 1927 still provides the basis for forest management. These regulations limit the rights of the local forest users and do not consider their role in forest management, particularly in decision making. The post independence legislation, including the Hazara District Protection Forest Rules 1973 and the Wildlife Preservation Act 1975, were introduced under the shadow of the Forest Act 1927, and maintain the spirit of state control and little consideration of the rights of local users. The recent NWFP Forest Ordinance 2002, which replaces the Forest Act 1927, is the only example of repealing

[18] See Niazi (2004) for details of Acts and rules formulated before 1947 and until 2002.
[19] Urdu: Subsistence

any old colonial forest legislation in Pakistan. It mentions participation of local people in the management of wastelands; however, only at the discretion of the government. Hence it capitalizes on the legacy of forest management in the sub-continent, since it aims to sustain government main control of resource management, particularly in state owned lands (Reserved, Protected and Guzara Forests).

The NWFP Forest Ordinance 2002 was largely the result of agitation by civil society actors and forest owners (Shahbaz et al., 2007, quoting Steimann, 2003 and Sulcri, 2002a). Unfortunately, many observers have found contradictions in the ordinance regarding what it claims and how it proposes to achieve its aims. The ordinance reserves all decision-making powers for the government. Sub sections 'a' and 'b' of Section 34 of the ordinance, legislate the powers of the government to be the following: a. "Cutting, felling, sawing, converting, obtaining, storing, selling, transporting, and removal of trees and timber and the collection, manufacture and removal of forest products from carriages, boats, vehicles, pack animals, conveyances, power saw and sawing units in protected forests". b. "Granting of licenses or permits to the inhabitants of the towns and villages and the community-based organizations in the vicinity of protected forests to take trees, timber or other forest produce from forest to their own use or for the purpose of trade, and the production and return of such licenses or permits by such person or organizations" (Niazi, 2004, p. 405).

4.3 Forest policies of Pakistan

While Forest Acts are major legislations at the national level, policies have been formulated under those Acts from time to time, to provide an overall strategic orientation for the Forest Departments. Most newly introduced forest policies were associated with a change in government (Shahbaz et al. 2007, p. 441). The forestry sector in Pakistan is amongst the most distinctive of remaining colonial artefacts[20]. A brief appraisal of the

[20] As a result of political changes in the country, other institutions organised during the colonial period, for example, the judiciary and the civil bureaucracy are believed to have undergone significant changes. The forestry services and forest regulations however have not changed much. One reason being that the forest sector has not been important in the overall power game in the country as forests in Pakistan in general are

forest policies over time reveals that their primary objective has been mainly protection rather than sustainable use, and that the local people have been considered a threat to forest resources. The policies focussed mainly on increased regulation in order to decrease local use; and on conservation, almost always disregarding people's livelihoods. Even so, the conservation aspects of the policies were never implemented effectively (Shahbaz et al., 2007) and people's participation was generally ignored. Ahmed and Mahmood (1998) argue that the forest policies of Pakistan have claimed to manage forests as a public good, yet ironically through the alienation of local populations. The general failure of this approach is evident from extensive non-compliance with regulations and the poor state of forest resources. A shift in this approach however, came as a result of the participation of NGOs in the forestry sector during the 1980s and 1990s (Ali, 2001; Dove, 2003).

4.3.1 An overview of forest policies in Pakistan

In 1894, the first forest policy was notified and the state forests were referred to as 'public forests' (Khattak, 1976a; 1976b). However, merely changing the terminology from 'state' to 'public' forests did not change the management of forests or their legal status. The forest policy of 1894 was amended in 1955 and in 1962 (Ahmed and Mahmood, 1998). The 1955 amendment did not make significant changes to the 1894 policy. It proposed fencing of the forest to protect forest from local people. A newly created country could never provide resources required for materializing this policy recommendation. In 1962, farm forestry and watershed management were included in the policy. In response to this change, fast growing exotic tree species, including hybrid poplar and eucalyptus, were introduced through farm forestry initiatives. The policy further suggested that for better conservation of the forests, people living in the mountain areas should be shifted to the plains. The policy did not indicate if the government would provide resources for the settlement of the mountain people in the plains. However, the radical suggestions of the policy to displace mountain people were never implemented.

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not of commercial value, do not generate significant revenue therefore do not attract governments (both democratic and military) to introduce reforms.

The 1962 policy amendment in 1975 reinforced increased control by the Forest Department and acknowledged that more efforts were needed in terms of the conservation of forests situated in the hilly areas. The forest policy of 1980 was an integral part of the national agriculture policy. It emphasizes the inadequate supply of fuel owing to the limited area under forest and the degraded state of forests. It provides a long list of improvement measures such as introducing fast growing tree species, involving people in plantations, creating national parks, scientific felling of trees, etc. In 1982 the forest policy of 1962 was amended, and recognized for the first time the need to involve local people in the sustainable management of Guzara forests situated in the hilly areas. As a result, the Forest Cooperative Societies were established, giving representation to local communities. However, these societies were later abolished due to increased deforestation and corruption by the local elite (Knudsen, 1999a).

The Forest Policy of 1991 was different from all the past policies, since it indicated the need for learning from forestry projects implemented by NGOs and internationally funded projects, through local participation. The policy also highlighted the need for research to improve natural resource conservation in the country. This policy was, in a way, a continuation of the 1980 policy; however it spelled out details of the actors to be involved, which the 1980 policy had not adequately addressed.

The latest policy (draft) is that of 2001. This policy is still waiting for approval from the parliament. The main emphasis of the policy is sustainable management of renewable resources, and it calls for eliminating fundamental causes of their depletion. The policy aims at sustainable development of natural resources, maintenance and rehabilitation of the environment, and improving people's livelihoods. It is presented as an umbrella national policy and invites provinces to draw up their own policies using its overall essence. The policy stresses the role of the state in controlling resources, although there is an emphasis on generating labour and a sustained supply of fuelwood and fodder for subsistence needs (Shahbaz et al., 2007, p. 447).

A comparison of the objectives of the four major forest policies of Pakistan is presented

in Table 1.

Table 1. Comparison of objectives stipulated in four major forest policies since 1947

1955	1962	1975	1991
Classify forests based on utility, and define objective of management. Forest should contribute to economic development of the country. Manage forests under working plans. Ensure sustained yields. Forestry should be given priority in national plans.	Manage forests as commercial farms. Maximise yields. Protect against fires. Acquire rights of local people. Enhance penalties under the Act. Extend Forest Act to tribal and other areas not covered by it. Appoint special forest magistrates. Plant all bare/ degraded areas.	Extinguish rights of local people. Do not permit deforestation of wooded areas. This restriction was introduced to supplement natural regeneration using high quality growing stock.	Integrated use of forest resources in conformity with wildlife conservation, environmental and social needs. Production of forage an important component of multiple uses. Selected public lands leased to interest groups for forestry development. Replication of Kaghan valley (GTZ) and KIDP (SDC-IC) experience. Reliance on artificial regeneration using high quality stock.

Source: Ahmed and Mahmood (1998)

4.3.2 National Conservation Strategy (NCS) – a major policy agenda

Apart from national policies, the NCS is regarded as a major document which sets the agenda for several conservation agencies. Developed in 1992, the NCS recognized the importance of the participation of local communities. However, the conventional assumption that the Reserved Forests are more important than other legal categories and can be well managed only by the Forest Department without the involvement of the local communities, remains central to the strategy. The strategy notes: "It is simplistic to assume that all forests can be protected and managed best by making the local people their managers and protectors. If this were so, all countries would turn their state owned forests over to local people. The Reserved Forests of Hazara, the Punjab, and Sindh, with long harvesting cycles and the performance of vital watershed regulation functions, need to be maintained by the state in inter-generational and wider public interest, while working towards making the local populace as educated and farsighted as that in Switzerland. Elsewhere (as in the Northern Areas and Kalam), the Forest Department must accelerate its move towards some form of partnership or arrangement with the local people, based on the recognition that it is in their own interest to protect and nurture the forests" (GoP, 1992a, p. 172). It suggests greater public participation in development and environmental management, through the inclusion of community organizations and NGOs in planning and implementation. Out of 14 recommended programme areas identified by the NCS for priority implementation, public participation is suggested in nine, including forestry development, biodiversity conservation and rangeland improvement (GoP, 1992a). The NCS was developed after lengthy discussions and consultative processes, but its implementation has been slow and the initial dedication and enthusiasm have dissipated (Blaikie and Sadeque, 2000).

Furthermore, the NCS remains confined to central, official government circles in Islamabad; its impact at the local level has been minimal. Each province was supposed to develop its own conservation strategy; this process has been slow, particularly in the NAs due to its provisional status (see Paper 3 for a discussion on the status of the NAs), and

being held hostage to the flow of funds required for completing these demanded processes. Blaikie and Muldavin (2004) state that the outcome of the NCS has been negligible in many counties of the Hindukush Himalaya region. They argue: "Much of ...the NCS consists of shopping lists of desirable things, which are rhetorically called into existence for public consumption, but rather less so for implementation" (p. 527).

The NCS fails to recognize that the forests of the Northern Areas (NAs) are more significant for watershed regulation when compared to the forests in the rest of the country, since many of the tributaries of the Indus River, the lifeline of Pakistan, originate in the NAs. Silting of water reservoirs has been a national issue in Pakistan for the last few decades. Therefore, if local interference is to be restricted, assuming that it could be detrimental to watershed regulation, local use should be restricted in the forests situated in the NAs. However, the forests of the NAs are not considered to be managed solely by the state. This implies that it is not the watershed regulation function that makes Reserved Forests important to the state; rather it is the fact that these forests have been traditionally a source of power and income for the Forest Department, since commercially valuable timber exists in these forests (Tucker, 1982; Guha, 1990; Gadgil and Guha, 1992). Therefore, protection of Reserved Forests for the purposes of regulation of watersheds and conservation has been used as an excuse to retain power by the government, through the Forest Department. Blaikie and Muldavin (2004) state that: "the important point is that the justification of the need for watershed management is a powerful reason for the continuing state control, and if deforestation and accelerated erosion are regularly being reported, there are continuing grounds for attempting to maintain or increase regulations and to exclude local control and management" (p. 532).

Apart from resistance by the Forest Department, there are other reasons for the recommendations of the NCS not being implemented (Blaikie and Sadeque, 2000). Firstly, the NCS includes new themes, for example, community participation, that are new for the institutions involved in conservation. The existing institutions lack organizational and individual skills needed to address the new themes, since they are accustomed to implementing policies that foster policing roles of resource management.

Furthermore, the existing institutions are not willing to share information among various institutions and with the target population, which is a prerequisite for working jointly. The implementation of the NCS requires processes based on the principle of learning by doing, something difficult for bureaucratic institutions, which have traditionally implemented policies through regulations. For any intervention to be effectively implemented and acquire results that are people-centred and pro-poor, good governance is a prerequisite. However, in the absence of resources, enabling legislation, skills among Forest Department staff and an enabling environment in the country, good governance is impossible. Therefore, to enable the successful implementation of the NCS, present institutions need to be reformed and capacitated in terms of skills in order to change professional behaviour at all levels. Paper 3 in this thesis discusses the need for the reform of the Forest Department and training of its officials, in order to orient them to the changing realities in the management and conservation of natural resources.

In order to halt the further degradation of natural resources including the forests, and to fulfil international conservation treaties, a large area of the country has been assigned as a focus for conservation. At present, around 11 percent of the country's land area is under the protected area system (IUCN, 1997). This includes 14 national parks, 97 wildlife sanctuaries and 89 game reserves. A review of the literature however, reveals that the focus of international conservation agencies in Pakistan has shifted from forests and is now tilted more towards wildlife protection. The documentation of most conservation projects claims that the conservation efforts are aimed at habitat management; yet activities at field level, particularly in the NAs, focus on the conservation of wild animals. Thus it is clear that the conservation of forests seems to have been pushed aside.

4.3.3 Why are policies ineffective in Pakistan?

Although policy documents mention community participation and empowerment, forest regulations in Pakistan remain practically unchanged and still follow rules framed during the 19th century. In spite of the strict regulations, forests and wildlife in Pakistan have not been protected, and high rates of deforestation are reported to be continuing (Shahbaz et

al., 2007). Reliable figures on deforestation are not available. The FAO (1998) estimated a deforestation rate of 1.1 percent during 1990 and 1995. The Pakistan Forest Resource Inventory (PFRI) report (GoNWFP/GTZ, 2000) based on extrapolation of GIS images, claims that the extent of deforestation is so enormous that if the same pace continues, there will be no forest left in the NWFP by 2025[21]. Dove (2003) suggested that Pakistan actually has the lowest rate of deforestation in the world, simply because the forest cover has been reduced to such an extent that there is not much forest left to cut.

Many reasons have been identified for the depletion of forests in Pakistan. These include high demand and less production (Dove, 2003); the continuation of top-down strategies that alienate local users and create conflicts (Gohar, 2002); the corruption of forest services; unclear property rights; and the inability of the state to enforce regulations (Knudsen, 1999a). Policies that originated during the colonial period were based on alienation that excluded local people from their traditional use rights (Gadgil and Guha, 1992). The consequences of these policies were the intensification of conflicts between the state and the people, with the people agitating over regulations that were formulated mainly to ensure the state's monopoly over forests. "If the state monopoly severely undermined village autonomy, then what is striking about social protest is that it was aimed precisely at this monopoly. The state's monopoly over forests and commercial exploitation of the forests ran contrary to the subsistence ethics of the peasant" (Gadgil and Guha, 1992, p. 175).

The policy strategies created mistrust between state institutions and the people (Dove, 1994). Formal regulations and state control have led to the collapse of traditional systems of community management. Jodha (1986) states that the replacement of customary management by formal systems for common pool resources, has encouraged open access use of resources, thus leading to overexploitation and depletion. The formal system replaced flexibility and location specific arrangements in terms of natural resources, with more generalized formal regulations imposed by the state – one of the many 'so called

[21] Pak-German Siran Social Forestry Project, NWFP. Also quoted by Vision 2025 (2000:iv), Government of NWFP.

blessings' of a centralized regime.

5 The study area

5.1 The Northern Areas of Pakistan – natural resources and administration

The Basho Valley is located in the Skardu district of the Baltistan Forest Division of the Northern Areas (NAs) of Pakistan. The NAs consists of five districts, namely Ghizar, Gilgit, Diamer, Skardu and Ghancha. Due to its placement at the crux of Central and South Asia, lodged between Afghanistan, China, India and Pakistan, the NAs has been strategically important throughout history: as a crossroads on the Silk Route, during the colonial period, the cold war and the Great Game, and most recently due to events in Afghanistan and Kashmir. The NAs has also been a very important location for geological and biological studies, due to the world's highest concentration of mountains and the presence of the largest glaciers outside the polar region. Three of the world's largest mountain ranges, the Himalayas, Karakorum and Hindukush meet in this area. Some of the world's highest peaks including K2, the second highest mountain in the world, are situated in this region.

The population of the NAs is around 1 million people and the total area is 72496 square kilometres (Dani, 2001). The economy is subsistence farming, with the average farm size being 2.5 hectares. Pieces of land allocated to fodder production, farm forest and fruit trees are included in 2.5 hectares (Streefland *et al.*, 1995). Agriculture relies on irrigation that is received in the form of snowmelt from the mountains. Major crops grown in the area include maize, wheat, potato and barley. Farm income contributes about 50 percent to the total household income. The remaining household income is usually generated from off-farm activities or employment (e.g. remittances from factory workers or civil servants, employment in the army and earnings from shops) (Streefland *et al.*, 1995). Most of the villages are situated between 1000 to 3000 meters above sea level. The winters are extremely cold and long, stretching from November to April, with the

temperature dropping to -20°C in December and January. Summer is hot with temperatures reaching 35°C during July and August.

The area is extremely arid and rocky and is classified as mountainous desert. The mean annual precipitation is recorded at 250 mm, which is received mainly during the winter, in the form of snow. Because of extreme aridity, the vegetation cover in the NAs is rather low: the total forest cover has been estimated as 5 percent of the land area (Gohar, 2002). The area falls under three major vegetation types (Schweinfurth, 1957). The lower north-eastern part from the river Indus to about 2500 m elevation is described as sub-tropical semi-desert. The area above the sub-tropical semi-desert is classified as steppe of *Artimesia*, dominated by scrub such as *Artimesia maretima* and *Eurotia ceratoides*. The uppermost part consists of snow-covered mountains with inner greener valleys between the mountains. Natural forests are situated mainly in these valleys. Here the average rainfall may reach 400-2000 mm, depending on the location. Some of the tree species found in the natural forests include deodar (*Cedrus deodara*), blue pine (*Pinus wallichiana*), Chalgosa pine (*Pinus gerardiana*), juniper (*Juniperus excelsa*), and birch (*Betula utilis*). The main indigenous tree species grown on-farm are poplar (*Populus nigra*), willow (*Salix spp.*), apricot (*Prunus spp.*), mulberry (*Morus spp.*), Russian olive (*Eleagnus angustifolia*) and Robinia (*Robinia pseudoacacia*).

The area is famous for its wild animals that include the snow leopard (*Uncia uncia*), wolf (*Canis lupus*), brown bear (*Ursus arctos*), musk deer (*Moschus moschiferus*), Himalayan ibex (*Capra ibex siberica*), Astore markhor (*Capra falconeri falconeri*), blue sheep (*Ovis nayaur*), Marmot (*Marmota caudate*), Monal pheasant (*Lophophorus impejanus*), and golden eagle (*Aquila chrysactos*). The people keep mixed herds of domestic animals including cattle, sheep, goats, yaks, dzo (cattle-yak crossbreed), horses, and donkeys.

Reliable data on timber and firewood consumption is not available for the NAs. However, given the extremely cold winters, fuelwood consumption is likely to be higher compared to the rest of the country. For some valleys, the average daily per capita firewood consumption has been reported to be 2 and 4 kg during the summer and winter

respectively (Paper I). For cooking and heating purposes, 94 percent of the villagers are dependent upon firewood. In addition, there is a dramatically increased demand from down-country after the NAs were opened up by the construction of the Karakorum Highway and valley link roads (Streefland et al., 1995). For example, in 1978, only 1400 m^3 of timber was extracted, while between 1980 and 1991 a steady production of over 28,000 m^3 per year was extracted. In addition, large quantities of timber have been extracted unofficially by the timber mafia, both for local use and transportation down-country (Gohar, 2002).

Unofficial timber extraction is reported to be 10 times higher than the official figures (Streefland et al., 1995). Thus the already scarce natural vegetation in the NAs has been severely degraded (Ali and Benjaminsen, 2004; Gohar, 2002). In order to stop further depletion of the natural vegetation, the Aga Khan Rural Support Programme (AKRSP)[22], in collaboration with the local communities, initiated large-scale planting of indigenous tree species in irrigated plantations, including *Poplus nigra*, *Salix spp. Morus spp. Prunus Spp.*, *Eleagnus angustifolia* and *Robinia pseudoacacia*. The irrigated plantations produce fuel and timber, serving as alternative sources to the scarce natural forests in the area.

Reliable data on wildlife populations in the NAs are not available. Recent wildlife population surveys in some valleys suggest that the wildlife population has increased during the last 10 years as a result of conservation efforts (IUCN, 2001). For example, the populations of Himalayan ibex have increased in the Basho Valley from 47 in 1997, to 91 in 2001; in the Kachura Valley, they increased from 87 in 1997, to 230 in 2001; while in the Hushay Valley they increased from 101 in 1995 to 1293 in 2000. Wildlife population surveys in the area are difficult because of the difficult terrain and the migratory nature of wild animals. Therefore, the abrupt increase in wildlife population in some areas might have been due to double counting as a result of the migration of wildlife from one area to another. Because of the apparent increase in wildlife population, trophy hunting was introduced in the area in 1999.

[22] AKRSP is a rural development NGO that has been working in the NAs since 1982 (AKRSP, 2002).

The NAs are the fifth administrative unit of Pakistan and are a disputed territory; therefore they have a special status. The other four units are four provinces which have their own provincially elected governments and representation in the parliament and central government. Despite its historical, biological, geological and hydrological significance, the NAs appear to be less important in the present political and administrative set up of the country. Most of the population in Pakistan were not aware of the existence of the NAs till 1972, when the first elected Prime Minister of Pakistan, Zulfiqar Ali Bhutto, re-discovered the NAs and introduced administrative reforms in the area. Despite these reforms, the NAs remain to date without an elected provincial government or representation in the parliament and central government. Elections are held for the Northern Areas Legislative Council, which has limited decision-making power; it only makes decisions on how and where to spend the annual development budget allocated by the central government. Therefore, the people of the NAs do not have any real voice in decision making.

The ambiguous political and administrative status of the NAs within the federation of Pakistan is better explained by quoting Charles Haines: "Today every grade school student in Pakistan is required to take a course in civics. In this class they learn how Pakistan comprises four provinces (Sind, Baluchistan, Punjab, and the Northwest Frontier), one federal territory (the capital city of Islamabad), and a segment of the disputed region of Jammu and Kashmir (Azad Kashmir). However, if one were to examine a Pakistani map, one would notice an additional region, known as the Northern Areas. A region mapped within Pakistan, but without official recognition. If one were to investigate the political nature of the Northern Areas, one would be drawn further into a perplexing situation. Constitutionally, the Northern Areas is not considered part of Pakistan, likewise Azad Kashmir. However Azad Kashmir is governed by an 'independent' government which lays claims to all of Jammu and Kashmir, much of which lies in neighbouring India. But, the Northern Areas are not administratively part of Azad Kashmir either" (Haines, 2000, p. 5).

One reason for the deterioration of the state institutions including the Forest Department

(Gohar, 2002; Blaikie and Sadeque, 2000), could be attributed to the absence of decision-making institutions in the NAs. This situation has negatively impacted resource management in the NAs, including the Basho Valley (see Gohar, 2000; Blaikie and Sadeque, 2000; Paper 3 in this thesis).

5.2 The Basho Valley

The Basho Valley is situated about 50 km west of the town of Skardu – the political headquarters of the Baltistan region. Basho is famous for its coniferous forest and black grapes, known locally as *Basho*. The valley derived its name from Basho. The government owned Protected Forests of Basho fall under the jurisdiction of Baltistan Forest Division headed by the Divisional Forest Officer (DFO) Baltistan. The Basho Valley consists of seven villages namely Sultanabad, Nazimabad, Meito, Guntho, Khar, Bathang and Matillo. The total number of households in the Basho Valley was 286 during the fieldwork for this study and the total population was estimated at 1950 people. Education facilities in Basho are very scarce and the literacy rate is very low. Out of 100 households interviewed, the literacy rate among men and women has been recorded at 14 percent and nil respectively (Zia, 1998). There are four schools in the valley, of which three are primary and one is at the secondary level. Previously, there was no school for girls in Basho, but around 20 girls were registered in a newly established primary school in 1999.

The people in Basho speak two main languages: *Balti*, a Tibetan dialect, and *Shina*, a Dardic (Indo-europian) dialect (Fussman, 2001). The *Baltis* are considered to be the decedents of Mongols and Tibetans who entered Baltistan centuries ago from central Asia and Tibet (Afridi, 1988). In previous times, the population was mainly Buddhist, but converted to Islam as a result of the teachings of preachers who came to Baltistan from Kashmir, Iran and central Asia in the 15th century[23]. The minority *Shina* speaking population migrated mainly from Astor, an adjacent valley, in search of pastures for their

[23] See Dani (2001), Fussman (2001), Jettmar, (2001) and Afridi (1988) for a discussion on the history, culture, and religion in Baltistan.

livestock. Initially, the *Shina* speaking people were settled in the uppermost village, Sultanabad, where pasture and forest are ample, compared to the other villages. In due course of time however, they mixed with the local *Balti* speaking population through intermarriage and settled in other villages as well.

5.2.1 Livelihood sources in Basho

The livelihoods of the inhabitants of Basho depend on a number of both farm and off-farm sources. Agriculture, livestock and the forest are the major sources of livelihood. Off-farm employment includes employment in the army and other public sector organizations, including the departments of health, education, forests and the Public Works Department (PWD). This section gives a brief overview of the following resources which serve as the people's major assets: agriculture; forests; pastures and livestock.

5.2.1.1 Agriculture

Privately owned land is used mainly for the cultivation of cereal crops, vegetables and fodder, with average land holdings being around one hectare (Zia, 1998). Major crops include wheat, barley, buckwheat, millet, maize, turnip and potato. In contrast to the lower-most village (Matillo), where two crops are cultivated annually, only one crop is grown in the uppermost village (Sultanabad), due to a shorter growing season. Potato has become a major cash crop since the 1980s. Potatoes are sold in bulk to buyers who collect production from the fields for transporting down-country.

The lower villages have abundant fruits, including black grapes[24], apricot, apple and mulberry. In the upper villages apricot is abundant, except for Sultanabad, where fruit trees are not grown due to its higher altitude and short summer season. The marketing of dried fruits, mainly *Basho*, mulberry and apricot kernels, is an important source of cash income, particularly in the lower villages. Apricot oil is also sold in limited quantities –

[24] A local grape variety called Basho.

the bulk of it is used locally as cooking oil, butter (oil: *chuli mar*) and for beautification. Apricot scrub is fed to the animals as supplementary feed. Fresh and dried fruits supplement human nutrition during summer and winter respectively. Due to the unavailability of linkages with major markets, the bulk of the fruit produce (including mulberry and apricot) is wasted – most of the sour (inferior quality) apricot shells are either fed to the animals, or washed away in order to collect the kernels.

Irrigation water required for cropping and forest tree plantation is supplied by irrigation channels fed by glacial snowmelt or natural springs. A number of irrigation channels exist in Basho, including those newly built with the financial assistance of NGOs. All legitimate land holders have access to irrigation water, which is managed under communal arrangements. Drinking water is fetched from the springs and irrigation channels. Some villages have access to tap water which has been recently provided by NGOs.

5.2.1.2 Forests

The forests situated in the Basho valley are classified as *Protected Forests*. This is a legal category proclaimed under the National Forest Act 1927, which implies that the government owns the forest, but that all types of uses by local communities are permitted unless explicitly restricted by the government (Niazi, 2004) (see section 6 of this thesis for a detailed discussion of forest legislation). The main forest tree species include *Pinus wallichiana*, *Betula Utilis*, *Juniperus excelsa* and *Juniperus macropoda*. The natural forests represent the main source of energy in Basho in terms of firewood for cooking and heating.

Women, especially young girls, hold the main responsibility for harvesting firewood (Nyborg, 2002). Men collect firewood from the forest only when women are too busy with agricultural chores, or when timber is needed in addition to firewood. The young girls collect one to two head loads or basket loads of wood daily. The first trip is made early in the morning before breakfast. Collecting firewood provides an opportunity for

women to be mobile and to build networks with other women from the entire village (*ibid.*). Due to the depletion of forests, the distances between the villages and the forest are increasing. This has direct repercussions on the workload of the young girls. In the past, the government and the NGOs consulted mainly men in terms of discussions concerning forest improvement and management. Given the specific situation with regard to gender roles in Basho, any attempts of forest conservation certainly need to take into account the significant role of women.

5.2.1.3 Pastures and livestock

People keep large mixed herds of sheep, goats and cattle, with the average herd size being 21 animals, in households that were surveyed (Zia, 1998). People sell animals and their products, mainly butter, in the Basho and Skardu markets, which supplements their income from agriculture practiced on small landholdings. Wool is used locally to make blankets and clothes for winter. Crossbreeds of yak and cow, the *zo* and *zomo* are considered to be the most valuable animals. This breed is more suited for higher pastures and tough terrains. All animals are stall-fed from November to May.

A total of 24 summer pastures are spread over the valley at between 3,000 and 4,000 meters elevation (Hoffman et al., 1998). The lower summer pastures serve multiple purposes, including cultivation, and grazing for lactating animals and calves. Farmers utilise the remote higher grazing grounds for the production of milk, butter, wool, meat and live animals. Small animals are herded and guarded, and return to the sheds in the evening. Lactating cows are taken to the nearby grazing areas and are collected in the evening. Dry cows and male cattle are left in the alpine pastures beyond the summer pastures, from early spring to late autumn. Dry animals are used for ploughing and threshing, and are therefore collected from the pastures after harvesting. The presence of a large number of livestock may have a negative impact on soil structure and plant growth (Hofmann et al., 1998; Synnestvedt and Thompson, 1999).

6 Natural resource management in the Basho Valley

This section deliberates on the main actors engaged in natural resource management in Basho Valley. It also explains some of the issues that impact on the regeneration of Basho forest, the central resource seeking attention in interventions related to conservation.

6.1 The main actors

As mentioned in section 3, there are many actors in the Basho Valley who have various issues at stake, and who may thus influence forest management practices. Many of these roles have been discussed, where relevant, in various sections in the introduction and in the papers included in this thesis. Three main actors currently lead debates concerning the management and conservation of natural resources in Basho, namely local communities, the Forest Department and conservation agencies. In addition, Aga Khan Rural Support Programme (AKRSP) has also been described in this section due to its significant role in promotion of participatory natural resource management in the valley for many years. These actors have diverse interests and they interact with each other at various levels. Each has a certain level of influence in natural resource management, e.g. the Forest Department and the communities have a more crucial role to play at local level, while the NGOs (such as AKRSP) are active both locally as well as at higher levels, thus influencing policies on various scales. This section attempts to describe the roles of each of the three groups of actors, followed by issues which arise as a result of their involvement in conservation.

6.1.1 Local Population

The local population is not a homogenous group (Nyborg, 2002), and they tend to have different local interests. For example, the upper villages and the lower villages have

different needs in terms of access to forest resources[25], and various groups – the traditional leadership vs. the young activists – have different interests in controlling decision making regarding development in Basho, particularly in terms of the conservation issue. A small group, consisting mainly of jeep owners, exhibits rent-seeking behaviour and colludes with officials in terms of the sale of wood. The majority of the population opposes such actions.

The local population is dependent on the forest for fuel, timber, grazing and minor forest produce. As the sale of wood is not legally permitted, a few benefit from illegal sales thereof. The local population has used the forest for centuries and has acquired certain attitudes, practices and techniques that enable the coexistence of the forest and the people. For example, a village is not allowed to harvest wood from areas which are exclusively used by other villages. Such a practice has developed on the basis of proximity. Also, some villages are not allowed to build summer huts in certain forest areas, while others do. These practices have integrated pasture and forest, which means that in some areas, it is hard to delineate forest areas from pastures.

The commercial harvesting of wood from the beginning of 1968 increased the involvement of the Forest Department in the governance of forest resources, which ultimately impacted on local practices (see Paper 1 and 2 and section 6). For example, communities which could not harvest trees from the upper Basho forest prior to the construction of the road, were able to freely access the forest after the road construction. This encouraged these communities to claim rights to the pastures adjacent to the forests they accessed. These new developments resulted in conflicts between communities, such as animal sheds built by people belonging to one village being demolished by people belonging to another village (Nyborg, 2002). It is extremely difficult to resolve such conflicts due to ambiguities of use rights, particularly where forest and pasture cannot be separated, i.e. where forest areas also serve as pastures. In some areas, the land to build a

[25] See Steinsholt et al., (1998) and Nyborg, (2002) for details on the various interests of groups and villages.

shed was purchased by one community from another[26], despite the fact that the forest land belonged to the government, according to the Forest Act of 1927 (Niazi, 2004). The local people have certain customary rights over the forest, which they have sub-divided among various groups (Steinsholt et al., 1998). However, the villagers have no rights in terms of formal decision making and they cannot change the formal management system. Furthermore, the ban on harvesting timber that was imposed by the Federal Government in 1991 limits any incentive for the local people to invest in forest regeneration (*ibid.*).

6.1.2 The Forest Department

Prior to the establishment of the Forest Department in Baltistan in 1958, forest management was controlled by the Government Revenue Department and the representatives of the local rulers, called *Rajas* (this system was abolished in 1972). In the beginning, there were no restrictions on the subsistence use of forests for firewood and timber. Forest regulations were not implemented till the establishment of the Forest Department, which established broad control over forest management in Basho after the construction of the forest road in 1968. Between 1958 and 1968, the department officials seldom visited the Basho Valley. After the construction of the road, the department confined its activities mainly to commercial harvesting of wood for use outside Basho, and imposed control over local use. Regeneration of the forest was not considered as a management option, except for a few unsuccessful attempts. An interesting and common example emerged from the department, in that some forest officials claim to have made occasional efforts to improve the forest, yet with hardly any technical guidance, which resulted in a waste of resources. Such a case is discussed below.

Rustam[27], a local elder recounted that a Range Forest Officer (RFO), once established a trial plot for growing pine at Goriaq in 1959,[28] despite cautions by local people that the

[26] See Nyborg (2002) for details on negotiations over resources.
[27] The names of the respondents belonging to Basho valley have been changed in the text to protect their privacy. Where designation are mentioned (for example, BDO officials, original names of the respondents have been mentioned)
[28] The dates given here were provided by the village elders who were interviewed. They were not sure if they remember the exact year of these incidents.

seed would not survive without irrigation. When Rustam, then only 24 years old, shared villagers' feeling with the RFO, but was told: "you are too young and non-technical to understand how trees grow". The seed sowing trial failed to survive soon after germination, which the RFO noticed to his embarrassment during his second posting in Skardu. After the posting of the RFO, another forest official unsuccessfully attempted the same experiment in the same area. Rustam recalled that the RFO asked some people present at the site how to explain the failure of trials if higher authorities inquired about the matter. The people: "well each year some forest areas receive damage by avalanches... the trial could be one of those. Alternatively, you could also declare the trial successful showing one of those in Goriaq where natural regeneration is profuse."

Although this is a relatively old story, such examples are common, even today. For example in 1999, tube plants were transported from nurseries situated in the lowlands to an altitude of 3200 meters in Basho for planting. The soil moisture was not considered as a determining factor for the success of the seedlings, which were planted on an open steep slope from where the forest had recently been removed during commercial harvesting. A visit to the plantation site by senior forest officials in 2001 revealed that not a single seedling had survived. This was due to the lack of moisture and non-adaptability of the juvenile seedlings transported from the lowlands, where they had been raised in an environment with moisture conditions conducive to their survival.

People in Basho also plant species of forest trees on their private land. The National Conservation Strategy (NCS) suggests that the Forest Department should support local communities in establishing plantations on private land and should play an advisory role on the selection of species (GoP, 1992a). However, the department has not been able to play this role, except for a minor contribution on request in parts of the NAs, where farm forestry projects are facilitated by NGOs. In Basho, the Forest Department has not been able to contribute such advice at all. The department in this valley concentrates mainly on the regulation of human intervention in the natural forests.

6.1.3 The AKRSP

The Aga Khan Rural Support Programme (AKRSP) was established by His Highness the Aga Khan in 1982 to help double the incomes of rural people living in the remote mountain valleys of the Chitral district of the NWFP and the NAs of Pakistan. It aimed to develop and test an approach to rural development that could be adapted by other organizations to address development challenges elsewhere (World Bank, 2002). The funding for the AKRSP came from a number of sources, including the World Bank, the Aga Khan Foundation (AKF), the Norwegian Agency for Development Cooperation (NORAD), the German Government Development Agency (GTZ), the Department for International Development, the United Kingdom (DFID) and the Canadian International Development Agency (CIDA). The AKRSP's main focus is on establishing viable local institutions in rural communities, such as Village Organizations (VOs), Women's Organizations (WOs), Local Development Organizations (LDOs) and Local Support Organizations (LSOs), at the valley and watershed levels. Through these institutions, the AKRSP has supported the local people in campaigning against the illegal harvesting of natural forests by outsiders. The AKRSP has helped communities, both technically and financially, in terms of crop improvement, afforestation, animal husbandry, the construction of irrigation channels and micro credit for small enterprise development.

The establishment of plantations has been an important component of the AKRSP's rural development programme (Ali, 2001). As elsewhere in the NAs, the AKRSP has facilitated the establishment of plantations in Basho as an alternate means of energy, fodder, timber and other multiple needs, in order to reduce pressure on natural forests. In Basho alone, local communities, with technical and financial support from the AKRSP, have planted more than 10,000 plants so far. The AKRSP has encouraged the community to establish plantations in newly developed land. Thousands of hectares of land have been developed in Basho through the construction of new irrigation channels.

Although the Forest Department occasionally collaborates with the AKRSP on

conservation issues, it tends to view the AKRSP as meddling with forest management issues. There are instances when the department resists the AKRSP's involvement in negotiation processes, particularly when disputes arise between the Forest Department and the communities on issues regarding forest use and management. Since organized communities (such as VOs and WOs) have become prominent in the village social landscape and are hard to ignore, the department has engaged them while negotiating on issues relevant to forests. The AKRSP therefore, directly or indirectly, remains a part of such negotiation processes. The AKRSP and the Forest Department are also institutional partners in the Mountain Areas Conservancy Project (MACP)[29] implemented by the International Union for Conservation of Nature (IUCN) in the NAs. Therefore both these institutions, despite occasional tensions, find common ground for collaboration[30].

6.1.4 Conservation and research-based organizations

The IUCN seeks to conserve the natural resources of the NAs through community participation in the MACP (UNDP, 1999). For this purpose, the IUCN has persuaded the Government of Pakistan to declare a huge area, including the Basho Valley (see paper 3 for details), as *protected.* The IUCN initially focussed its activities on the valleys, including Basho, where the scope for trophy hunting is high. The IUCN, unlike the AKRSP, has opted not to finance developmental activities, assuming that the latter would finance developmental schemes in the MACP areas. However, the assumption proved to be invalid, since the AKRSP's funding sources shrank due to the decreasing interests of donors in the NAs. This compelled the AKRSP to reduce its staff and development interventions.

Despite the fact that conservation agencies such as the IUCN are active in the NAs, the knowledge base on high pastures, their management and related livelihood systems is rather limited. As a result, conservation efforts are often limited to a few interventions (as

[29] A project funded by the UNDP GEF and implemented by the IUCN, in collaboration with the Federal Ministry of the Environment and the Forest Department.
[30] For a further discussion on actors, institutions and negotiations in the Basho Valley see Steinsholt et al. (1998) and Nyborg (2002).

was the case in the AKRSP which focused on farm forestry), and are not holistic enough (such as the MACP, which excluded development in its scope).

Another significant project was the High Altitude Natural Resource Management Project (HANRMP), which was implemented jointly by the Norwegian University of Life Sciences (UMB)[31] and the AKRSP (1998-2005)[32]. The HANRMP aimed to gain further insights into pasture and forest resources and their role in farmers' livelihood systems. The idea was to fill knowledge gaps with regard to the sustainable management of high pastures, and forestry resources for developing management and conservation strategies for the area. The project engaged local communities and the Forest Department in all the steps of invigorating participatory research. During a seven year research period, the research team interacted directly and indirectly with hundreds of men, women and children in Basho. Because of its long presence in Basho, the project was able to make some impact on people and resource management. For example, during experimentation, shepherds and researchers exchanged views on herding techniques that brought them together from dawn to dusk for months at a time. The continuous presence of female researchers in the villages, and their interaction with both men and women could have impacted on community thinking towards gender relations and resource management. Funding[33] for a girls school was secured by research intern Barbara Gamparel, and the community took responsibility for providing space for the school and its management. The project funded the construction of a guest house, which created some conflict among community elders in terms of who was awarded the construction contract. A positive outcome of the project was that illegal forest harvesting was reported to have reduced due to the presence of the researchers.

The HANRMP also provided a platform for the communities to deliberate on issues related to community development and resource management, and provided a number of opportunities for the voices of the people of Basho to be heard at senior levels, including

[31] The name of the Agricultural University of Norway (NLH) was changed to the Norwegian University of Life Sciences (UMB) in 2003.
[32] Funded by NORAD and the Royal Norwegian Embassy, Islamabad.
[33] Salary for the teacher.

in Skardu and Gilgit. The projects produced a number of publications (articles, reports, Masters and PhD dissertations) on resource management in the Basho Valley. It is, however, yet to be validated whether or not the knowledge generated by the project has been deployed in the sustainable management and conservation of natural resources in Basho and other parts of the NAs as expected, which something that is often resisted in policy circles (Blaikie and Muldavin, 2004).

6.2 Issues pertaining to conservation in Basho

6.2.1 Complete ban on timber harvesting – too late and unrealistic

During 1970-1990, Basho was subjected to severe deforestation, the major contributor being commercial exploitation conducted by the government (see Papers 1 and 2). A similar trend was seen in other rich forest areas in the NAs, the NWFP and Upper Punjab during the same period. In 1992, severe floods hit several parts of the NWFP and Punjab, resulting in large scale damage to lives and properties. The Government declared heavy deforestation, legal and illegal, to be a major contributor to these damages. A national ban was imposed on the commercial felling of green trees and the sale of timber, including in Basho. In the opinion of local people, the ban came too late, when the damage had already occurred. Besides, despite this ban, both the felling of green trees by locals for subsistence and the illegal sale to outsiders still continue, although limited in quantities (Paper 2). The current situation implies that in people's perceptions, a complete ban was not a realistic solution to solve a problem that occurred in the lowlands. People depend on the forests, and therefore had to manage their subsistence, be it through legal or illegal means.

6.2.2 Duality of resource ownership (control) and customary use

There is a complex relationship between the communities and natural resources (Steinsholt et al., 1998; Nyborg, 2002) in Basho. As mentioned in earlier sections, it is a straightforward reality that the communities are heavily dependent on the natural forests,

while the property rights regarding the forest are complex and often vaguely described. Communities belonging to different villages compete for access to, and control over pasture and forest areas. The trees and the forestland are the property of the government, while the communities have use rights over the forest, claimed through customary practices or as defined by the Forest Department under the *Protected Forest* regime. As a result of harvesting the forest without restriction for centuries till 1968, when the Forest Department first asserted its control, the communities have acquired *de facto* rights over both the land and the trees. Contrary to this, the government claims rights over all the 'natural species' (e.g. pine and juniper) even if they grow on private lands (Steinsholt et al., 1998). In practice government officials do not restrict the harvesting of juniper, even if harvested from government forestlands, while the harvesting of pine is restricted in every situation (see Paper 3 on this controversy).

6.2.3 Local perceptions about deforestation and the Forest Department

In Papers 1, 2 and throughout section 6, where relevant, local perceptions about the role of government institutions and deforestation have been discussed. This section presents some more specific examples of local perceptions of the Forest Department and its role in deforestation in the Basho Valley. The people of Basho, including the elders and religious leaders, are generally sceptical of the role of the department. One of the religious leaders, Sheikh Sohrab, interviewed for this study, had been active in terms of the conservation of natural resources in Basho. According to his account, prior to independence the people, being illiterate, had no idea of the existence of forest regulations and their contents. The revenue officials took advantage of their ignorance and harassed locals for alleged forest offences against them. A group of Basho elders was sent to Srinagar around 1945[34] (Baltistan was part of the Kashmir state at that time) to find out about legislation pertaining to local use, and to seek justice. They waited for a few days but failed to meet forest officials based in Srinagar. They then approached the justice department, which summoned forest officials. As a result, the elders were provided with *pata* (written permission with an official seal on a piece of paper, or a

[34] Sheikh Sohrab did not know the exact year.

wooden slate in this case) stating that the local people were permitted to collect firewood and harvest standing dead trees for timber requirements.

The revenue officials, however, continued to harass local people by seeking bribes, a legacy inherited by the forest officials after the establishment of the Forest Department in 1958. The forest officials, like the Political Agent[35] and his staff, used to be considered so 'royal' and powerful that no one dared to question their acts. People waited for days to meet forest officials in Skardu and during their tours to Basho. On the visits of officials to Basho, only a few notables could see them briefly, and then, only if permitted. The religious leader illustrated the royalty and power of the forest officials through an example illustrated below.

Once a jolly labourer working for a contractor who built the first Forest Rest House spread the rumour; with the help of his fellow labourers, that the Range Forest Officer (RFO) was visiting Basho. The rest house was being constructed in a dense forest area away from the villages. People were asked to provide food for the RFO, which was arranged. Some village elders requested a meeting with the RFO, which was denied mentioning that the RFO was not feeling well. For two days, rations were supplied by the villagers to the phoney RFO and his colleagues living in the tents. On the third day, the contractor came from Skardu and the news broke that there was no RFO on a visit. The villagers, despite their anger and rage, could not take any action, fearing that the labourer was working for forest officials through the contractor.

Ghulam, aged 45, narrated a story told by his father, that until the 1970s, a three kilometre area on either side of the Basho River in Sultanabad, upper Basho, was full of willow trees, sea-buckthorn bushes, and dead and fallen wood. People could not pass through this area due to the dense forest. When the teacher was young he could not figure out from which point the *Naqpo chashma* (Black spring) emerged, due to the dense willow forest in that area. He estimates that nearly 75 percent of the forest in Basho has

[35] Before the administrative reforms in 1972, the head of the district administration was called a Political Agent, a legacy of the colonial government – the title is now Deputy Commissioner.

been taken out during the last 30 years, with the remaining 25 percent consisting of 'individual trees' (meaning thinning of the remaining forest).

Zahir, another village elder narrated that, after the freedom of the NAs in 1948 from Indian occupation, the construction of large scale infrastructure was an 'emergent' need. The forest was therefore severely harvested to supply timber for the construction of buildings and bridges. In order to extract timber from a dense forest with such a sense of urgency, the clearing of carriage ways was required in a rather short time. Large scale damage to the forest was caused, particularly to willow, sea-buckthorn, poplars and young pine and juniper trees. At one point in time, 15 to 20 contractors were harvesting simultaneously in various parts of the forest. Since the forest was the property of the government, the locals had no authority to halt these steps. Some locals saw this as an opportunity for earning cash income, through providing waged labour. By selling the 'free wealth at gold rates', the carpenters became contractors and the forest officials became *Seth* (Urdu: filthy rich). Some of the locals purchased jeeps and continued selling wood even after large scale harvesting by contractors was stopped by the Forest Department.

The history of land revenue systems in the NAs, including Basho, shows that the Forest Department had enjoyed too much power in decision making regarding forest management and conservation. In the past, commercial harvesting was a large focus of practicing authority in which two parties, the department and the contractors, overruled the voice of the local people. This situation, however, has gradually been changing, in view of the decreasing forests, empowerment efforts made by NGOs and development projects, and the national ban on timber harvesting (1992). Gradual agitation by communities has created a self-realization in the department that they have lost their writ, owing to their own authoritative actions in the past, and the fact that they have no powers to take locally suitable decisions per specific situations, since policies are centralized at the national level. The formal frame conditions (formal policy conditions) at national level remain unchanged despite changing contextual indicators, even though many claims for change are made by conservation agencies.

6.2.4 Whose forest are they damaging anyway?

Steinsholt *et al.* (1998) state that there are many traditional practices for local people to claim rights to standing trees on government land. For example, "up to two meters of the tree base is sometimes carved away, to the very core of the log, to make the outer part of the trunk to imbue and the core to rot; this is a technique for production of wooden water half-pipes (Shina: *khur*) used in water mills and as aqueducts. On maturity, pine branches close to the top are cut approximately 40cm away from the main trunk, making the timber to imbue in a natural way (Balti: *zudoshing*, 'dry top'). Tree stumps are set on fire, and wounds on green trees are burned. Many such examples were observed of this, but so far we have not found any explanations" (p. 14).

People were interviewed during this study in order to seek explanations about such traditional practices. In summer 2003, around 200 freshly burnt juniper trees were observed beyond the agriculture field south of Sultanabad. The trees were scattered, hence it could not be the result of an accidental or intentional fire in a single incident. Five villagers were interviewed on the spot, as well as many others later, to investigate the cause of these burnt trees. All the respondents seemed to agree that it was intentionally done, presumably by young boys and girls. The respondents explained that young boys and girls are sent out to collect firewood and herd animals. They make such fires for many reasons, such as heating, and killing trees for collection of wood. They further explained that dead and dry wood is no longer available in the forest, since most of it was taken away during the period of commercial harvesting. Chopping standing trees for firewood is a laborious job for young boys and girls. Many of them go to the forest without food and water, which makes the job even harder. An easier way is to set a juniper tree on fire to fell it for the next day's wood collection assignment. The next day, the remnants of the tree are conveniently chopped and taken home. Respondents belonging to the village of Sultanabad blamed people from Nazimabad for sending young children who use such techniques. The respondents of the lower villages, however, blame residents of Sultanabad for the same damage. Yet others attribute the evolution of these

practices to the large scale commercial harvesting by the government. The perception is that the trees would be lost in any case to large scale harvesting for unknown beneficiaries; why then wait to benefit from the resource, which is at hand at a given moment.

People argue that before the broader control by the Forest Department in 1958, people had ownership of the forest and took care of it, since it was regarded as the property of the local people. During the period of commercial harvesting, the government provided both timber and firewood to outsiders on a large scale (see Paper 2 for details). In this way, the government established its control over the forest, while local communities lost their sense of affection and ownership for the forests. Before commercial harvesting was practiced, not even people from lower villages were allowed to harvest wood from the forest situated in Sultanabad. Not only did commercial harvesting open the door into the upper Basho forest for outsiders, the locals from lower villages also gained access to, and established rights to these forests, never claimed before. In the early years of commercial harvesting, the people from lower villages came to the upper Basho area to work as labourers for the contractors. They would return home in the evening with a head load of wood. The people from the upper villages could not resist this, as the labour force belonged to the contractors, who actually worked for the government. According to the elders of Sultanabad, when the government banned commercial harvesting, the forest had already been depleted. The people from the upper villages attempted to stop harvesting by the people from lower villages, but they did not succeed in preventing the practice that had continued for 20 years.

The communities included in Basho Development Organisation (BDO) are divided into two groups: the upper three villages which claim more rights to the upper Basho forests; and the lower four villages which contest these claims and suggest equal rights for all. The Basho forest rest house, the only accommodation facility for outsiders, also plays an important role in opinion making and negotiating over resources in Basho. Since the rest house is situated in upper Basho, the outsiders frequently interact with the people belonging to the upper three villages. At the same time, since the upper Basho forests are

easily accessibly by road, they attract more attention. The people of upper Basho are more active in conservation activities, while with the exception of a few activists, the people of the lower villages remain isolated from any discussion concerning conservation in Basho. Bridging this gap remains a challenge, still unrecognized, for the conservation and developmental agencies currently working in Basho.

6.2.5 Revenue system in Baltistan

Historically, Baltistan has been influenced by the land revenue system prevailing in Kashmir, which was introduced by the independent *Rajas*, *Sikhs* and *Dogras*, and served as an important source of income for the state (Afridi, 1988; Dani, 2000). Baltistan was annexed to Kashmir in 1840 when it was conquered by *Wazir Zorawar Singh*. Before its annexation to Kashmir, the *Rajas* received two *Kharwars* (one *Kharwar* equals approximately 74 kilograms) of wheat and barley, six seers (approximately 5.5 kilograms) of butter and one goat as land revenue for one *Yul* (3 acres) of cultivated land. The land given to the *Wazirs*[36] and others state functionaries was tax-free. In addition to tax, the villagers were responsible for feeding the state-appointed crop watchers. Under the Sikhs' rule, the state took 3/5 of the gross produce of the *Kharif*[37] and *Rabi* crops, including tax on fruit crops, sheep and goats. Under such an exploitative tax regime, the farmers survived on berries, fruits, extensive grazing areas for animal production, and forest produce.

The *Dogra* followed the *Sikh* procedure of revenue. The land records from 1902 presented by Afridi (1988) indicate that during the *Dogra* administration in Baltistan, village influentials had their lands assessed rather leniently, and hence no taxes were imposed on them by the revenue authorities. This was also the case for state officials and *Rajas*, who did not pay revenue on the vast lands they held. "The peasant under these circumstances did not know what revenue he was responsible for, nor did he know the

[36] Deputies of Rajas

[37] Summer crops, mainly rice and maize, are grown in the double cropping area in the plains. Wheat is grown during the Rabi season which stretches from October to February. However, in the single cropping areas in the mountains, wheat in grown during the Kharif season which stretches from March to September, depending on altitude.

number of instalments and dates of payments, which rested in the *Rajas*, officials and *Lambardars*[38] collecting with impunity all they could do" (p. 240). Afridi (1988) also notes that the indiscriminate cutting of fruit and other trees in Baltistan by the people to supply firewood, could explain the decreased rainfall recorded in 1967, as compared to 1901.

Two other systems, *Res* and *Begar* introduced by the *Dogras* also prevailed in Baltistan. *Begar* refers to a system in which the villages were expected to take turns in providing 50 porters and five horses at each *Parao*[39] for the transportation of government equipment and luggage. The porters were paid a meagre amount of fixed wages in return for their labour. The *Res* system required that a villager would wait for his turn at the *Parao*, waiting for travelling officials, even if there was no traveller expected till the next villager replaced him. The forced labour under *Res* and *Begar* systems played havoc in the NAs. People were forced into this labour practice under any circumstances, hot or cold, and many died under these conditions. "They fall on the road to perish of hunger and thirst, and, thinly clad as they are, destroyed in hundreds at a time by the cold on the snowy passes. When a man is seized for this kind of *begar*, his wives[40] and children hang upon him, weeping, taking it almost for granted that they will never see him anymore" (Knight, 1905, quoted by Afridi, 1988, p. 251).

After independence in 1947, in addition to the above draconian revenue and labour systems', the Frontier Crimes Regulation (FCR) 1901, was extended to the NAs (Ali and Rehman, 2001) and abolished in 1972. The FCR comprised a set of laws designed by the colonial government for the Pakhtoon-inhabited tribal areas of Pakistan. The Constitution of Pakistan (GoP, 2008) protects the fundamental rights of citizens by giving them the right to approach the high courts and the Supreme Court. However, people convicted under the FCR cannot file an appeal against the judgement in the superior courts (Ali and

[38] Also called *Nambardar* – a village elder, nominated by the government as the representative of the government and the *Raja* (local ruler) in the village responsible for collecting land revenue (Steinsholt, et al., 1998).
[39] A place where the traveller would stop for an overnight stay. The distance from on *Parao* to the next was usually 16 miles. Rest houses were built at these points during the British rule.
[40] The author has used. Very few people practice polygamy in the NAs

Rehman, 2001). This is due to Article 247 (7) of the constitution, which bars the jurisdiction of the higher courts where the FCR is enforced. There are numerous provisions in the FCR which make it a brutal law – for example, the seizure and confiscation of property and arrest or detention of an individual without due process, the removal of a person from his residence or locality, the imposition of fines on the entire community for crimes committed by individuals. According to Afridi's (1988) description of the revenue and administrative structure of the Laddakh district (Baltistan was a *tehsil* of Laddakh) during the *Dogra*, there was no specific official for forest management in the district. The revenue officers were responsible for all land-related issues, including farming and natural resources. A separate Forest Department was established in 1958[41], which according to the local people interviewed for this study, sustained the conventional management style set by the Revenue Department.

6.2.6 The impact of the revenue system on resource management in Basho

The people of Basho experienced the brutality of the past inhuman revenue regulations and the FCR. Taking advantage of those regulations, officials could make any allegation against the local people and misuse their power by taking bribes. Whenever an official would visit Basho, he would stay at the house of the *Nambardar*[42] and the locals would be asked to collect rations (food) for him. The *Rakha*[43] (Game Watcher), the *Patwari*[44] and police officials were frequent visitors. The *Nambardar*'s house often served as a venue for holding negotiations between the officials and the alleged local offenders. The *Rakha* and other officials due to visit Basho, would announce their visit in advance to the *Nambardar*, adding that they would visit the forest to check for possible offences, although they seldom actually went to the forest to do so. This was merely a trick to

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[41] Read 1958, which was mistakenly written as 1968 on page 17 in paper 2.
[42] See footnote 9.
[43] The *Rakha* was a government employee responsible for controlling wildlife and forest offences. This position is still retained by the Forest Department. *Rakha* (Game Watcher) and Forest Guard are synonyms used to describe the guards responsible for the respective protection of wildlife and forests.
[44] A junior land settlement officer who keeps records pertaining to land. "The Patwari is traditionally something of a mythic person on the sub-continent. The Patwari's judgement and recordings directly affect people's daily life, primarily by making decisions on land disputes. Before the abolition of the land revenue system [in 1972], the Patwari also determined the amount of the burdensome land revenues (Steinsholt et al.,1998).

collect bribes (most of the time butter), from the alleged offenders, who were often from the poorest households in the village. "Once butter, chickens and eggs were collected, the forest was declared undamaged", said Haji Rustam. Around the 1960s, the Assistant Political Agent (APA) posted to Skardu visited Basho and told people that while flying from Islamabad to Skardu, he had noticed great damage to the Basho forest. The *Nambardar* was then asked to gather people to discover the offenders. The official of the APA office stayed overnight in Basho. During that night, 250 grams of butter and one Pakistani rupee (PKR) from each household were collected and gifted to the official and his staff, who then returned without conducting the enquiry.

Some officials were fond of hunting wild animals. They took advantage of the *Begar* and *Res* systems to mobilise the labour needed for such convenience hunts. The villagers would herd wild animals, particularly Asiatic ibex (*Capra ibex sibirica),* to specified hunting places so the officials could have the pleasure of hunting them without having to search for them. This required people to keep awake all night at various points, in order to keep the ibex confined to the hunting area. Any villagers not contributing to such an effort were fined and at times insulted by means of physical punishment publicly. In addition, village-based unpaid hunters were responsible for doing the hunting for the officials. These village hunters shared the hunt with the officials and were considered to be influential due to their being in the 'good books' of the officials.

After the completion of the forest road in 1968, the Forest Department opened forest for commercial harvesting. Haji Rustam, recalled the first commercial harvesting and said: "the forest road in Basho in my opinion was like removing the lid of a milk pot and letting the cat free". Local people observed that a particular contractor commissioned by the Department took many times more wood than he was contracted for. They concluded that this could only materialize with the connivance of the forest officials on duty with the contractor in Basho. Some daring locals sent an anonymous application to the Divisional Forest Officer (DFO), seeking his intervention in the matter. The DFO sent a police officer to hold an investigation, who came with his men and threatened the locals with dire consequences if they dared to send anonymous applications in future. He

charged them with steeling and using illegal timber to build a mosque in the village (this timber had actually been taken from trees damaged by an avalanche). He collected butter and fruits and left without further investigation. After this bitter episode, illegal harvesting further increased in Basho. The villagers, however, sent yet another anonymous application to the DFO. Finally, the DFO went to Basho personally to check on the situation. Ten villagers accompanied the DFO to the forest and showed him numerous trees that had been cut illegally and the logs hidden under dead branches in some parts of the upper Basho forest. The forest officer on duty insisted that these were older trees that had been cut down by the villagers, while the fresh bark on the ground confirmed villagers' stance. The DFO, embarrassed, pushed the RFO in the belly with his stick saying to him "you don't even know how to steel". The senior duty officer simply pointed at his junior as being responsible for the anomaly. The junior, refuting his senior officer, informed the DFO that the trees had been cut by the contractor with the consent of the senior officer. In one area alone, twenty trees had been chopped down instead of only two marked by officials for harvesting. The DFO ordered the duty officer to thoroughly check the entire forest area and submit a detailed report to him. Haji Rustam smiled while recalling.... "it was like making a wolf into a shepherd". Haji Saqib, another village elder, said that the forest wealth was stolen by the "rich bigger thieves while the cases were made against the poor little thieves[45]", who stole a little, due to lengthy procedures which engaged a large amount of bribery and time loss, yet eventually failed to harvest a tree legally. Indeed legal and illegal harvesting of the forest by locals continued behind tussles between the Forest Department and the community. Some worked as labourers and petty contractors for the felling and extraction from the forest to the road, while others were transporters from Basho to the main Bridge. They earned cash incomes, something which was scarce in Basho. Poverty, the lack of infrastructure for marketing agricultural produce, and few off-farm income opportunities left people with no choice but to engage in activities that benefited both the contractors and the poor, at the expense of the degradation of the forest (Knudsen, 1999a). Haji Rustam also recalled the construction of the Basho Bridge over the Indus, for which harvesting of 7 to 10 trees

[45] 'Small thieves' refers to the villagers who built the mosque utilising the timber that was deemed to be illegally harvested. For villagers, though, this remained a grey area, as to whether it was legal or illegal.

was allowed; yet the contractor took away about 60 to 70 trees... "the contractor was earning more by selling trees than from the bridge contract itself". The Forest Department considered the Basho forest so ample that the contractor, who built a forest hut in Basho, was paid in kind with timber rather than in cash (Steinsholt et al. 1998). All these acts by forest officials consistently contributed to losing the goodwill, ownership and benevolence of communities towards the department, something which this thesis covers in later chapters.

6.2.7 Land tenure, rights and access to natural resources

The main feature of the land tenure system is a combination of state claimed ownership to land, and community and household user rights, established through a mix of local customs, legislations, legal practices and ongoing informal appropriations (Steinsholt et al., 1998; Hoffman et al., 1998; Velle, 1998). All land, including pastures outside the privately owned cultivated area, is classified as government property and is called *Khalisa sarkar*. The government, however, manages only the forests, through the Forest Department. Three tree species are given prominence in terms of management priorities, namely blue pine, juniper and birch. Other species, such as various species of willow, *Juniperus communis*, are not regarded by the government as being equally important, although they grow on the same state land. Blue pine, even if it grows on private land, is considered to be state property (possibly because of its commercial value as timber).

The alpine pastures are managed communally by seven villages without any interference by the state. This system has evolved according to local needs and the environment. Grazing rights in the outfields are restricted to the legitimate users of the fields. The tenants of the *Raja*, the legitimate user of the fields, can practice free grazing in the outfields. However, the *Raja* does not have rights to bring in animals from outside Basho. Thus the ownership of cultivated fields alone does not automatically give access to pastures within the villages.

Groups of villages, individual villages or groups of households have rights to free grazing

in their respective *broqs* (summer farm pastures). Rights to grazing in the *broqs* are restricted to defined membership. Only the legitimate users can practice free grazing within the *broq* and in the outfields (crop cultivation is practiced in the *broqs*). In some areas, cultivation may not be practiced at all. In this case those having a *Khlas* (summer shed) can practice resident free grazing, while others practice recessive grazing (animals returning to the village, or any other place, in the evening). Some *khlas* are jointly owned by a number of households. The areas above the *broqs* are called *sosa* where an entire village or group of villages hold rights to free grazing, regardless of the *khlases*. In some areas, any Basho resident villager can perform recessive grazing. Such areas are assigned mainly to grazing by weak and diseased animals. The high pasture in the upper part of the valley is free for all inhabitants of Basho, where animals graze freely during the summer months.

Steinsholt et al. (1998) reported that as a result of land fragmentation, per household land holdings would decrease[46] from six kanals in 1948 to three in 2008, the number of small ruminants would remain unchanged at 10[47], the large ruminants would increase from 10 to 20, and forest cover would decrease from 10 to 5, which in 1998 had already decreased to 3. The increase in forest cover in 2008, when compared to 1998, was expected due to large-scale afforestation initiated in Basho by the communities, with support extended by NGOs.

6.2.8 Local institutions, conflict resolution and decision-making

Basho has a variety of formal and non-formal organizations and notable individuals that influence decision making and conflict resolution. A number of organizations, including government departments and NGOs, are contributing to the development of Basho. These include the Education Department, the Health Department, the Local Bodies and Rural Development (LBRD) Department, the Public Works Department (PWD), the Forest Department, the World Conservation Union (IUCN) and the Aga Khan Rural Support

[46] Predictions for 2008 by the villagers interviewed, considering the current trends.
[47] Taking 10 as an arbitrary number in 1948, as a starting point.

Programme (AKRSP). The role of formal institutions with regard to natural resource management was discussed in sections 6.1.2, 6.2.3, 6.2.5, 6.2.6 and 7.

Unlike in the past, when the Revenue Department influenced decision making and resource management in Basho, other departments are becoming increasingly influential, in particular the Forest, Public Works and Education departments. The presence of the AKRSP and the IUCN has empowered community institutions, thus weakening the grip of the Revenue Department, police, traditional power structures and local institutions. This does not mean that all these actors are redundant for Basho. They still play a crucial role, particularly in instances where local conflicts need to be settled. It is during such disputes that illegal tree harvesting increases, mainly for the purpose of bribing officials. During any conflict, the newly created organizations, including the office bearers of the locally established Basho Development Organization (BDO), face tremendous pressure to loosen the ban on wood transportation outside Basho.

The authorities can also fuel local conflicts – reports against BDO members are activated whenever necessary. However, some BDO members are also on the District Conservation Committee (DCC)[48] of Skardu and directly interact with the most senior officials of the district. This gives them an advantage over junior government officials. However, when the senior officials need wood, the BDO officials loose the support of the senior officials. Taking advantage, the junior officials harass the BDO members to serve their interests.

On one such occasion, a community elder known for his 'wisdom' and interested in easing control over the community ban on illegal logging, suggested to a young enthusiastic young community member "it is sinful to offend the junior officials". The junior experienced the elder's wisdom when he was harassed for speaking against senior officials in a DCC meeting and writing a letter to the members of the NAs Legislative Council (NALC) about illegal harvesting practices in Basho. Infuriated by the letter to the NALC, the senior officials asked the junior officials to report some 'offences' on part of

[48] A district-level forum headed by the Deputy Commissioner (administrative head of the district) to deliberate on conservation issues in the respective districts.

the young community member, so that he could be punished for his courage. The junior officials who were local (from Baltistan), and on the advice of the wise elder, used delaying tactics so that the seniors (mainly from other parts in the NAs), could soften their attitude with time, or be transferred to other areas.

According to Munir, a conservation activist, "Basho forests, being rare in Baltistan, attract the attention of the outsiders; the forest is full of economic opportunities and hence the forest management here is much more complicated and challenging". A number of police cases are registered against Munir as a result of his activities against big and small thieves. According to Dr. Abbas[49]: "Basho is a valley of many secret places" (quoted by Steinsholt et al., 1998, p. ii).

The struggle to control the BDO and other decision-making forums remains between the elders, who traditionally enjoy connections with officials, and the local youngsters who are largely influenced by NGOs and exposure[50]. Compromises are however, often made – the young oblige the elders by allowing them cash benefits from communal undertakings, for instance, daily wages for elders during the construction of irrigation channels without them making any contribution, while the elders tame the officials when the young are charged with offences they might not have committed. Steinsholt *et al.* (1998) argue that the BDO, an umbrella organization established in 1997 representing the village male and female organizations (VOs and WOs) and supported by the AKRSP, has become the focus of social organizations in Basho. Despite the increasing significance of the VOs, WOs and the BDO, traditional actors such as the elders and religious hardliners remain in the centre. The villagers appreciate the democratic nature of new organizations, yet the so-called village elders continue to hold a central place in these new organizations.

The elders, mainly well-off members from every village, assist the *Nambardar* in collecting revenue and mediating conflicts. They were, and still are instrumental in

[49] Dr. Abbas is a veterinarian working with the Aga Khan Rural Support Programme in Baltistan.
[50] BDO officials represent Basho in workshops and meetings on conservation, organised outside Basho.

making decisions about farming-related activities, including cleaning of irrigation channels, *Lokhat*, *Bakhat* and *Biakhat*. These terms refer to systems used for controlling small and large ruminants and poultry respectively. Through the system of *Lokhat*, every household has to take turns to take goats and sheep from the entire village for grazing to the pastures outside the cultivated areas during the day in the cultivation season – a system called *Nores*. Under this system, a member of the community, called the *Lorapa*, is assigned by the village elders to check for any damage to crops by livestock. If crop damage is observed, the *Lorapa* estimates the extent of the damages which the owner of the animal is obliged to pay to the crop owner. In addition, the *Lorapa* charges his own wages, called *Phatak*, from the owner of the animal. If the owner of the animal does not pay the fine and/or damages, mostly expected in kind, the *Lorapa* is free to pick any household item as a warrant, usually pots and utensils, which are returned upon payment of the fine. Such actions are usually not resisted. In the case of any conflict among the three parties, the village elders step in to resolve the differences.

The *Bakhat* system necessitates that every household evacuates its cattle from the cultivated area to the higher pastures before a fixed date, and returns them, but not before 20th September when all the crops have been harvested and threshed. The elders also control the irrigation system through the tradition of *Harkongres* – annual and occasional repair of irrigation channels and water distribution. Absentee landowners are charged a fixed fee called *Loqfess* during the repair work, which is usually spent on the same day, on purchasing food for the people working on the repair of the channel. The *Biakhat* is not implemented as regress as the other systems. The owner of the land and the poultry usually settle disputes mutually.

The roles of elders and religious leaders overlap with each other. The religious leaders perform their normal religious duties, such as leading prayers and preaching. However, their role becomes crucial in instances when the elders fail to resolve conflicts, or if they are divided over an issue. Religious leaders were also consulted when some people had reservations about the AKRSP/NLH research project in Basho. The issue was resolved after a series of dialogues between the AKRSP staff and the religious leaders.

Religion in itself plays an important role in determining the validity of certain practices. The entire community in Basho belongs to the *Shiat* Muslim faith. According to the *Shiat* faith[51], local rights holders can take over government property by paying a small fee called *Mal-i-Imam*. This concept could be equally crucial if applied to the use and management of natural resources. For instance; some villagers who were held responsible by the BDO for illicit cutting of the forest, argued that since the forests and wildlife are government property, they had a right to use these resources by paying *Mal-i-Imam*. Some religious leaders argued in turn, that since the government, the BDO and the Valley Conservation Committee (VCC) of Basho entered into an agreement for jointly managing the forest and for distributing trophy hunting income between the community and government in the ratio of 80:20, the forest and wildlife were no longer exclusively government property[52]. Appropriating forest products and wildlife without the VCC's permission therefore, is *Haram* (not permissible in Islam and under the concept of *Mal-i-Imam*). Although this incident cannot be taken as a final verdict about the issue, since no formal decree was given, it does indicate that religious leaders have an important role in Basho regarding resource management, and in the development of Basho in general.

Women play a crucial role and often take important decisions regarding resource management activities and development (Nyborg, 2002). Women are mainly responsible for the collection of firewood from the forest. They have also contributed enormously to the establishment and protection of recent irrigated plantations. They are highly mobile within the villages. Contrary to these ground realities, women are not represented directly in decision-making forums. Thanks to the AKRSP support, women have strengthened their social organization through establishing Women Organizations (WOs) in the valley. However, as far as the BDO is concerned, women are only indirectly represented through their male counterparts in the VOs, who take decisions on their behalf (Steinsholt et al., 1998). It can therefore be argued that the BDO, as an umbrella organization, is a step in a backward direction, as far as gender representation is concerned in valley-based decision

[51] Discussion with Sheikh Sohrab, religious leader, Sultanabad Basho.
[52] Discussion with Younus Shehzad, Chairman the VCC, Basho.

making.

7 Policy environment and legislation in the NAs

In a country with a federal parliamentary democracy, in which army influence has remained strong since its birth (in 60 years of its existence, Pakistan remained under military rule for more than 30 years), it is a mocking debate as to whether or not appropriate legislation would have made a difference. Heavy military engagement often results in suspending constitutional and the parliament allowing free passage for the central authorities in Islamabad to follow their own interpretations, excuses and loopholes. The NAs, being a politically unsettled region of Pakistan, receives all policy guidance from the Federal Government in Islamabad. Most government organizations, including departments concerned with natural resource management, are expected to simply implement instructions from the Federal Capital. This chapter discusses the major legislation / rules setting the policy umbrella in the NAs and their implications for natural resources and on government organizations that implement these frame conditions. The implications have been addressed in detail in Paper 3.

7.1 Forestry legislation enforced in the NAs

The forests in the NAs fall under two categories namely Protected and Privately owned. This thesis focuses on the management of Protected Forests in the NAs, while referring to private forests only where relevant. Both legal categories of forests are managed through the Forest Act 1927, and the Northern Areas Forest Transit Rules 1983. Wildlife is managed through the Wildlife Preservation Act 1975. These regulations provide enormous powers to the Forest Department and its officials. The regulations prescribe whatever coercive tools are necessary, which are in line with the aim of protecting forests and wildlife from intruders, even if it is the local community requiring subsistence from the resources. The ability to implement the regulations, however, depends on several factors such as history, tenure, political, economic and cultural factors, which together create a particular context for governing natural resources. The following sections present

a brief introduction to the most relevant sections of the Forest Act 1927 and the Northern Areas Forest Transit Rules 1983, as well as a description of the evolution of forest services and conservation efforts in the NAs.

7.1.1 Forest Act 1927

The Forest Act 1927 was inherited by Pakistan from undivided British-ruled India, when Pakistan became independent in 1947. The Act is still in force in the NAs, notwithstanding the fact that it has been over sixty years since independence. Some of the salient features of the Act are as follows:

A. Legal Categories of Forests

Four legal categories are legislated as follows:

1. Reserved Forests (Chapter II) – The provincial governments have powers to declare any forestland or wasteland which is the property of the government, or over which the government has propriety rights, a Reserved Forest. In general terms, the government prohibits practicing any sort of rights in Reserved Forests until such rights are permitted. At the time of declaration of a Reserved Forest, even rights once permitted (rights to communities such as grazing, collection of firewood and other minor forest produce), are denied until proof of evidence is produced for existence of these rights prior to the notification.

2. Village Forests (Chapter III) – Village Forests are also called *Guzara* forests (Urdu: Subsistence). These are forests in which the rights of communities are not interfered with, unless suspended on account of fire. Provincial governments may change the status of a Reserved Forest into a Village Forest and make rules for regulating the management of Village Forests by prescribing the conditions under which timber or other forest produce or pasture will be used, as well as the duties of the community in terms of the protection of such forests.

3. **Protected Forests (Chapter IV)** – These are also the property of government; however in these forests a number of rights are permitted, until prohibited by the government. However, unlike in Village Forests, the government may declare any trees or class of trees in a Protected Forest to be Reserved, and may declare any portion of the forest to be closed for use for a certain period not exceeding thirty years, by suspending the rights of private people. The provincial government may declare any forestland or wasteland a Protected Forest, which is not included in a Reserved Forest, but over which the government has proprietary rights. The government may make rules to regulate the management of Protected Forests, by prescribing the conditions under which timber or other forest produce or pastures used, as well as payments to be made for use rights, and the duties of the community in terms of the protection of such forests.

4. **Forest and land not the property of the government (Chapter V)** – In this case, if deemed necessary for special purposes, or for the protection of this category of forest, the provincial government may regulate or prohibit in any forest or wasteland breaking up or clearing of land for cultivation, grazing, and setting fire for clearing vegetation. If regulations prescribed by the government are violated by the owners, the government may assume management of such forests after serving notice and considering the owner's objections. If deemed necessary, the government may also apply strict regulations as for Reserved Forests.

B. Regulations

The Forest Act 1927 gives details regarding penalties imposed for certain illegal acts, as well as the powers of forest officers. In Protected Forests, offenders can be subjected to up to six months in jail, and/or a fine amounting to Pak. Rs.500. In the case of fires in a Protected Forest, in addition to jail and a fine, the rights of the offender can be suspended for a period as proclaimed by the court.

The Act bestows enormous powers on forest officers and provides indemnity for the

following powers, acted upon in 'good faith':

Power to enter upon any land and to survey, demarcate and map the same;

Powers of a Civil Court, to compel the attendance of witnesses and production of documents and material objects;

Powers to issue search warrants under the Code of Criminal Procedure;

Powers to hold an inquiry into forest offences and in the course of such inquiry to receive and record evidence.

7.1.2 Northern Areas Forest Transit Rules 1983

Even though the Forest Act has existed since 1927, there were no clearly defined rules to protect forests and regulate the movement of forest produce until 1983. In 1983, rules were formulated using the powers vested under Section 32 of the Forest Act 1927, which were titled the "Northern Areas Forest Transit Rules 1983". These rules are applicable to the Protected Forests of the NAs. Under these rules, the rights of the local people were more clearly defined than they were in the Forest Act 1927. The important features of the Northern Areas Forest Transit Rules 1983 are as follows:

Section 2 (a) defines a 'concessionist' as a person owning cultivated land, or as a tenant. Artisans without land, permanently residing in a village, are included in this category. As per ***Section 3***, the concessionist may at any time collect dry wood and cut brushwood for personal use and not for sale or barter. They may not remove reserved trees, young or mature, except with permission from the competent {Read: relevant, authorities may not be competent} authorities. ***Section 4*** (sub section 5) deals with the procedure for seeking permission by the concessionist from the forest authorities for cutting trees. The procedure described in this section is lengthy and complicated. Felling licences "shall be granted to concessionaries in the forest, which lies within five miles from the boundaries of the village where the concessionist resides" provided that the number of trees in the forest is 'sufficient' to meet the demands of the concessionist. The restriction of distance seems to be an attempt to restrict outsiders from harvesting trees.

Section 5 gives powers to the Divisional Forest Officers (DFOs) to grant licences to fell and remove trees and other forest produce for trade, in a forest which falls in the Protected Forest category. ***Section 6*** makes a discretionary distinction between districts, in terms of rules regarding the felling of trees. For example, for concessionists in the Baltistan region and the Gilgit Subdivision of the Gilgit district, it defines a fee of 12.5 percent of the standard rate for timber prescribed from time to time by the government. For concessionists in the Astore, Hunza and Ghizar districts, however, trees will be granted free of any charge. Furthermore, the Conservator of Forests may allow cutting at full standard rates to persons other than concessionists.

According to ***Section 8,*** no camel, sheep or goat shall be pastured in the Protected Forests, but other animals of concessionists may be pastured in the forest over which they exercise concession.

7.1.3 Wildlife Preservation Act NAs 1975

The salient features of this Act are as follows:

Section 4 instructs the provincial government to constitute a board called the Northern Areas Wildlife Board as soon as the Act came into force.
Section 5 gives powers to the provincial government in terms of notifying or declaring any area as a National Park, Wildlife Reserve or Wildlife Sanctuary, or to alter the boundaries of such areas from time to time, as deemed necessary. According to ***Section 6 (1)***, the Chief Wildlife Warden shall make provision for members of the public to have access to such part of a National Park where their presence will not conflict with its primary purpose of preserving fauna and flora in their natural state. Notwithstanding the provision of ***sub-section (1)*** of this section, no person shall enter a National Park without obtaining a ticket at the entry gate in case such an arrangement exists, or the written permission of an authorized officer, and then only subject to such conditions as may be endorsed on that permit.

Section 7 defines do's and don'ts in national parks:

No person shall:

1. Reside in a National Park;

2. Hunt, kill, or capture, or be found in circumstances showing that it is his intention to hunt, kill or capture any animal in a National Park;

3. Introduce any domestic animals or allow a domestic animal to stray into a National Park. Any domestic animal found in a park may be destroyed or seized by, or on the orders of an authorized officer, and shall be disposed of in accordance with the instructions of the Chief Wildlife Warden;

4. Pick any flower or remove any plant, animal, stone or other natural object from a National Park. Provided that the provincial government may, for scientific purposes or for the betterment of the park, or in exceptional circumstances, authorise or direct the doing of any act prohibited by this section.

The rest of the section provides formidable powers to the authorities as mentioned above, including restrictions on killing animals, granting licences for shooting, powers for search, seizure and arrest without warrant, and penalties for offenders. Penalties may be in the form of a maximum of two years in prison, or a fine which may extend to PKR two thousand, or both.

7.1.4 Local variations

In addition to national and regional legislation, each valley in the NAs has its own legal history of natural resource management. In Astore, the forests, wildlife, pasture and wasteland were declared state property in 1932, and the people were given concessions including free grazing, collection of timber and firewood for domestic use, and collection of medicinal plants. In Gilgit, all forests, wildlife, pasture and wasteland were declared government property in 1941. Such rules have not been extended to the rest of the districts in the NAs, namely Diamir, Ghizar and Hunza (including the Nagar valley). Except for Diamir where the forests are private property, forests in the rest of the NAs are proclaimed as Protected and owned by the government.

7.2 Evolution of forest services in the NAs

The Forest Department is responsible for implementing the legal framework described above in the Northern Areas. The department in the NAs, however, has a peculiar history when compared to the rest of Pakistan. Gohar (2002) traces the history of forest management and the evolution of forest services in the NAs. The people of the NAs have historically used forests and pasture without much external intervention. The first intervention by the state was made in 1901 in Gilgit, the current capital of the NAs, when forests were put under the control of the Revenue Department through the 'Gilgit Forest Rules 1901', promulgated by the states of Jammu and Kashmir. The Revenue Department officials based in the town of Gilgit mainly issue permits for felling trees, and maintain avenue plantations.

In the rest of the NAs[53], the forests were under the control of the local rulers (called *Rajas* or *Mirs*), or were managed by the respective communities through their communal systems. Following the visit of H.L. Wright, the then Conservator of Forests of the NWFP in 1937, the Imperial Government established a temporary Forest Department in the NAs. Four employees were appointed, although they were not trained foresters. Although the forests were being managed under the Forest Act 1927, the main emphasis remained on the establishment of irrigated plantations on wastelands.

Prior to independence in 1947, local rulers did not focus much attention on the forests. After independence, however, they attempted to establish their ownership through charging fees for harvesting timber during the 1960s. However, the communities continued to use the forests without much restriction and without paying fees until 1972,

[53] Some evidence shows that the forests in the Astor District in 1937 were already under the Sindh Forest Division based at Bandipur (the town of Bandipur is currently in the Indian part of Kashmir) (Gohar, 2002).

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B. Regulations

The Forest Act 1927 gives details regarding penalties imposed for certain illegal acts, as well as the powers of forest officers. In Protected Forests, offenders can be subjected to up to six months in jail, and/or a fine amounting to Pak. Rs.500. In the case of fires in a Protected Forest, in addition to jail and a fine, the rights of the offender can be suspended for a period as proclaimed by the court.

The Act bestows enormous powers on forest officers and provides indemnity for the

when the local rulers were abolished by the central government and the control by forest services became stronger.

Until 1950, the areas currently constituting the Diamir District, where most of the NAs forests exist, and its adjoining valleys (which are currently within the district of Kohistan in the NWFP, but were then managed under NA administration) were treated as un-administered. An accession deed was signed by the government of the NAs with the condition that the communities should retain private ownership of the forests. According to the deed, the NAs government resumed responsibility for managing the forests and charged a nominal fee (royalty) on the sale of timber. Three forest divisions, i.e. Chilas (for Diamir), Baltistan and Gilgit were established in the NAs by 1954. Therefore, unlike in the rest of the country and India, where forest services were organized as early as 1864, state intervention in forest management in the NAs through the Forest Service and its regulations, is rather recent.

7.3 Focus of international conservation agencies

Another important aspect in the NAs is the presence of international conservation agencies which sponsor and provide technical support for the preservation of wildlife, particularly in areas where forest resources are not abundant or do not exist. Some examples of such projects are the creation of the Khunjerab National Park (KNP) for the preservation of Marco Polo sheep, the Deosai National Park (DNP) for the conservation of the brown bear, the Central Karakorum National Park (CKNP) for conservation of wildlife in general, the Mountain Areas Conservancy Project (MACP) with a focus on wildlife conservation and trophy hunting, the Snow Leopard Project in Baltistan, and WWF sponsored projects in the Hunza and Ghizar districts.

The conservation and management of forests have only been given high significance in these situations since they represent habitats for some prime wildlife species. On the contrary, those who have strong interests in forest management are the local communities and the timber mafia, albeit for completely different reasons. These opposing interests are

pursued from different levels, earlier from global and/or national perspectives in the case of communities, or from the local perspective in the case of the timber mafia.

7.4 Implications of the policy framework in the NAs

Following the above brief overview of the legislation, the evolution of the Forest Department, and the interest of international conservation agencies, this section aims to summarize the debate on the impact of forest legislation on forest and wildlife management in the NAs. Based on a few example of forest management, the implications of the Forest Act 1927 and the Northern Areas Forest Transit Rules 1983 are discussed.

7.4.1 Administrative powers in the NAs

The forest and wildlife regulations, as stated in their texts, are to be exercized and amended when required by the provincial governments. As mentioned earlier, the NAs is not recognized as a province, and is controlled by the Federal Government in Islamabad. The Wildlife Act 1975 declares the Resident Commissioner of the NAs equivalent to the Provincial Government ***(Section 2, sub section g)*** with the authority to declare any area a National Park, Wildlife Reserve or Wildlife Sanctuary and to alter the boundaries of such areas from time to time as deemed necessary ***(Section 5).*** In 1979, the post of Resident Commissioner was abolished and was replaced by a Commissioner (Dani, 2001). Contrary to government claims, the abolition of the local Rajas and the appointment of a Chief Secretary has shifted powers from Gilgit to Islamabad. The Chief Secretaries in all four provinces of Pakistan[54] report to their respective provincial governments, i.e. governors and chief ministers. On the other hand, the Chief Secretary of the NAs reports directly to the Federal Minister for Kashmir and NAs Affairs in Islamabad, who is also the Chief Executive of the NAs (GoP, 1999).

While the central government claims to be committed to providing more autonomy to the

[54] Pakistan consists of four provinces (Sindh, Balochistan, Punjab and the North-West Frontier Province), plus the NAs, and the Pakistani administered Kashmir. Kashmir however, is referred to as an 'independent' state by Pakistani authorities.

administration of the NAs, in practice, the powers have actually been shifted to the central government in Islamabad. The Wildlife Act mentions a post of Chief Wildlife Warden, which never existed in the past in the NAs.

The Conservator of Forests who reports to the Secretary of Forests NAs, is the head of the Forest and Wildlife Department, excluding National Parks which are headed by respective park Directors reporting directly to the same Secretary. When analyzed, it appears that in fact the Wildlife Act of the NWFP was extended to the NAs by simply replacing the words 'NWFP' with 'NAs' and 'Provincial Government' with 'Resident Commissioner'.

The Act continues to use the term 'province' for the NAs although it is a federally administered area having no provincial identity, something the people of the NAs have been expecting since its independence from Kashmir and annexation with Pakistan in 1948 (Haines, 2000).

7.4.2 The structure of the Forest Department and its implications

The Wildlife Preservation Act NAs 1975 mandated a separate Wildlife Department and a Wildlife Board, but as in three of the four provinces[55] of Pakistan, these institutions do not exist in the NAs. The five Divisional Forest Officers (DFOs) and sometimes the sub-DFOs are rotated to assume charge of the office of DFO Wildlife[56]. A separate directorate was set up for the Khunjerab National Park (KNP) in 1975. The two most senior forest officials on grade-19[57] are rotated to fill the positions of Director KNP and the Conservator of Forests (CF), both reporting to the Secretary Forests NAs. Usually a more resourceful official acquires the position of CF as it carries more power and resources. Two more positions of park directors were created a few years ago in the Deosai National Park (DNP) and the Central Karakorum National Park (CKNP). However no one has yet been recruited to fill these positions. Both these positions are currently held by the DFO Baltistan. The Director KNP (grade 19) manages only the

[55] Only in the NWFP was the Wildlife Department separated in 1990 (notified in 1995) from the Forest Department during the institutional reform process.
[56] See paper 3 for details on the organisational set-up.
[57] In the Pakistan civil service hierarchy system, grade 1 is the most junior and grade 22 is the most senior official.

KNP. The DFO Wildlife (a grade 17 or 18 official) on the other hand, controls the management of wildlife in the entire NAs, except in the national parks. This situation presents an interesting management structure of the NAs Forest, Wildlife and Parks Department[58].

7.4.3 Implications related to the Forest Act and Transit Rules

7.4.3.1 Commercial harvesting

Although the Forest Act 1927 in many ways seems to represent legislation for the conservation of forest resources, it was deployed from its inception to protect the forest from local users and to ensure timber supply and revenue generation for the state, without considering sustainability issues (Khattak, 1976; Tucker, 1982). As elsewhere in the Himalayas, soon after its establishment, the forest services in the NAs continued along these lines. Large-scale harvesting from the few forest patches in the NAs was implemented, despite the fact that the NAs did not have much forest available for commercial harvesting (Gohar, 2002). In the presence of earlier revenue regulations, (see section 6.2) which empowered the government to control natural resources, the Forest Act 1927 became just an additional instrument for control and harvesting.

The political agent of Baltistan in 1956, after a brief reconnaissance survey of all forest patches known to him, recommended that some of the relatively easily accessible forest patches should be extracted from the valleys by means of the construction of forest roads, and floated down into the Indus River to fulfil urban needs down-country (Afridi, 1988). The political agent completely ignored the fact that Baltistan had only a few patches of conifer forest (Afridi, 1988), covering only 0.3 percent of its total geographical area (Gohar, 2002). Therefore, even if there had not yet been a Forest Department in place, the Revenue Department would have harvested the forest to fulfil the needs of the government elsewhere in the country.

[58] For simplicity referred to hereafter only as the 'Forest Department'.

7.4.3.2 Livestock grazing

Chapter IV of the Forest Act 1927 states that the rights of communities where granted, cannot be interfered with. However, the government may declare any trees or any portion of the forest closed for use for a certain period not exceeding thirty years; and rights of concessionists suspended (local subsistence farmers qualify as concessionists). Using these powers, ***section 8*** of the Forest Transect Rules 1983 seems to terminate grazing rights of the concessionists in the entire NAs, for certain livestock species. ***Section 8*** states that no camel, sheep or goat shall be grazed in Protected Forests, but other animals belonging to concessionists may graze in the forest over which they exercise concessions.

However, these restrictions are not implemented in practice, and the department has not been able to enforce them in the entire NAs. This is evident from the fact that in 1998 there were a total of 2,610,617 animals in the NAs, including 1,047,285 goats, 518,082 sheep and 111 camels (GoP, 1998), which were mostly freely grazed in the Protected Forests[59] (GoP, 1995; UNDP, 1999; Ali, 1997; Rao and Marwat, 2003). Except in the case of the KNP; there is no evidence that the government has restricted free grazing in the NAs, or if the people are even aware of legislation which prohibits them from freely grazing their animals in the wastelands (Steinsholt et al., 1998).

7.4.3.3 Exercise of powers by forest officials for issuing harvesting permits

The Forest Act 1927 **section 4** and **section 5** of the Northern Areas Forest Transit Rules 1983 vest formidable powers in the Forest Department and declare it to be the custodian of the forest. Except those allowed by the regulations, no action in the forest can be taken without the permission of departmental officials. However, this is no longer the case in reality. In a number of valleys the communities have taken over control of the forest and have put a ban on the entry of forest officials into the forest.

[59] There is no clear demarcation as to which areas constitute Protected Forests. However all areas outside private lands, i.e. wastelands and forests outside irrigation areas, are considered to be Protected Forests (Rao and Marwat, 2003; Sheikh and Aleem, 1975).

The first such documented example is the control of the Chaprote forest by the people of Chalt in the Nagar Valley (Knudsen, 1995; Gohar, 2002). Alarmed by the large-scale legal and illegal harvesting endorsed by the department, the community of Chalt took control of the government Protected Forest in Chaprote in 1986. After establishing its control, a committee formed by the community began to issue permits for felling trees for local use, mainly timber (Gohar, 2002). The Forest Department has not been able to stop this practice, which according to the forest legislation should be a prerogative of the Forest Department. Other such examples are found in the Gudai and Rama valleys in the Astore and Basho districts, and in the Ganji valleys in the Skardu district (personal observation). In Rama, Ganji and Basho after large-scale harvesting endorsed by the Forest Department, the communities have resisted the department issuing permits to outsiders for commercial harvesting.

As in Basho (see Papers 1 and 2), forest was extracted[60] from the Gudai Valley[61] by the department during the 1970s-90s to supply firewood to the army posted at Gorikot Astore, and timber for the construction of government building and private houses in other parts of the Astore and Gilgit districts. In the Gudai Valley some people resisted clearing of government property (pine and juniper trees) standing on and around their private property. Today one can see a number of juniper and pine stands on privately owned irrigated pastures and around cultivated fields. In Gudai, as in Chalt, a local committee decided to ban the entrance of forest officials. Timber issued to outsiders (including senior government officials based in Gilgit) by the department, including that based on legal permits, was confiscated by the local community and used for the construction of communal buildings within the Gudai valley.

Once a stand of pine trees on the right side of the Khomay Bridge on the Gudai River; was removed by contractors on government permission, mainly for the construction of government buildings. The last pine tree from this stand was removed by a contractor

[60] Personal observation and experience.
[61] This is the village where I was born and grew up.

during the night in summer 1990, after the initial uprising of the local people. People from Gudai and Khomay rushed to the spot to find labourers making logs out of the felled trees. People would have resisted if the tree had been cut down during the day time. This incident shocked many people in the two villages of Gudai and Khomay. Legally, the contractor was not guilty. However, being a local, and knowing what the people's response would be, he had no courage to face the public for some time.

At the entrance to Gudai, just 1 km upstream from the last pine tree, a controversial forest check post[62] is located. It was erected primarily by the local people who were subsequently joined by the Forest Department, to stop wood transportation altogether beyond that point. The people of Gudai have taken over control of the transportation of wood, which ironically, according to forest legislation, is an illegal activity. The department issues permits for timber for local use, but only to those recommended by the village committee, which has no legal powers. In October each year, when people store wood for the winter, the village committee examines the wood stacks for each household to ensure that no green trees have been felled. Offenders are fined on the spot.

Such cases open an interesting discussion on the distinction between ownership and control of resources, and the power vested by legislation in the Forest Department of the NAs. Quoting Ali (1990), on the dispute between the Forest Department and the community in Chaprote, Knudsen (1995) wrote: "alarmed by the uncontrolled felling of their forest, and angered by the corrupt system for allocating felling permits, the surrounding villages formed their own forest committee in March 1986.....the committee agreed to a self-imposed ban" (p. 33-34). And Gohar (2002) observed that "the local committee framed rules for the management of Chaprote forest ... in reaction to the autocratic attitude of the new conservator, [the community] decided to ban the entry of forest staff and started issuing permits to the locals" (p. 151-152).

[62] Some communities beyond this point agitated for this action as they believe that they also have a right to harvest wood from the Gudai forest. The tussles between the two communities over access to the forest resulted in severe conflict. The notables in the area intervened to resolve this situation, but this has been unsuccessful to date.

In the above quotations, referring to the community, Knudsen used the term 'their forest', while Gohar wrote that "the community made their own rules and banned the forest official from entering the forest". According to the forest regulations outlined earlier, the forest in the NAs, except for Diamir, is the property of the government. In principle, the community can neither make rules for regulating timber, nor can they ban the government, represented by the Forest Department, from entering the forest. However, the above examples illustrate that the forest regulations alone do not serve to fully empower the Forest Department.

7.4.3.4 Establishment of irrigated plantations and the forest regulations

In the NAs, except for Diamir, wastelands immediately outside the irrigation system are legally government property and are classified as government-owned wastelands (*Khalisa sarkar*) or Protected Forests (Gohar 2002; Rao and Marwat, 2003). For centuries however, these lands have been accessed by the communities particularly for grazing livestock, as common property without interference by any external authority. It is because of this customary practice that wastelands were brought under cultivation; plantations were established and irrigation channels were constructed by the community. The land so developed is divided equally among households, regardless of the number of members in each household (Gohar, 2002).

The Forest Department has unofficially shown resentment over such initiatives, especially after the AKRSP's intervention in 1982 when hundreds of irrigation channels were constructed, and large scale plantations were established on wastelands (personal observation). The Forest Department has helplessly witnessed all these developments progressing without their involvement or consent. The only power the forest officials could exercise was to advise communities not to plant trees within three meters from the road, which the department claimed to be space allocated for roadside avenue plantations.

7.5 Implications of the Wildlife Preservation Act – National Parks

The KNP was established through notification by the then Prime Minister of Pakistan in 1975. The notification however, does not make any amendment to the Forest Act 1927, which provides a time limit of 30 years for reserving trees or any area in a Protected Forest and closing it for local use. The restriction on local use in the KNP therefore, stands illegal after the year 2005; yet local use in the KNP is still restricted to date. Six villages in the Gojal valley, which initially resisted the creation of the KNP and the restriction on local use (Knudsen, 1999b); formed a local development organization, namely the Khyber Village Organization (KVO).

The KVO struck a deal with the government in the form of considerable benefits from conservation in the KNP, including a share of the park's annual entry fee and income from trophy hunting carried out in areas adjacent to the park (Mir, 2006). The people of the Shamshal valley on the other hand, never accepted the creation of the KNP and the restriction on local use, and continued exercising their traditional grazing rights[63]. The Forest Department, despite having enormous powers proclaimed by the Forest Act 1927 and the Forest and Wildlife Preservation Act NAs 1975, has not been able to restrict the communities of Shamshal from their practices; while on the other hand, the KVO cooperates with the department in response to incentives offered by the KNP management.

7.5.1 Conservation agencies and the powers of the Forest Department

The Forest Department officials attribute the reasons for the muddle in the organizational set-up noted above to several reasons. According to the officials, these include: the lack of resources; the lack of decision making power in the NAs; the influence of the forest mafia; the power base being in Islamabad and the NWFP (Knudsen, 1995; Gohar, 2002) which influences the NAs administration and thus the Forest Department (Gohar, 2002); the tendency of conservation agencies to implement projects with little involvement of the department (UNDP, 1999; Hussain, 2000); and the influence of forest policies and

[63] As the Regional Project Manager MACP during 2005-2006, I personally participated in negotiations between KNP management and representatives of the Shamshal. village and communicated with Shafqat Hussain, a researcher working in Shamshal on these issues. See also Wegge (1989).

strategies at the national level which implicate the NAs (Blaikie and Muldavin, 2004).

Powerful contractors and the conservation agencies have an influence in Islamabad, which affects transfers and posting of forest officials and forces the department to legitimize actions of the contractors and conservation agencies. For example, the KNP was created in 1975 by the then prime minister, following the recommendation of a renowned American biologist George Schaller. Schaller argued that the wildlife in the NAs was fast deteriorating and that humanity must act before the world's highest mountains turn into 'stones of silence' (Schaller, 1980). Schaller suggested that conservation must serve both 'idealism' and 'realism'; therefore the rights of the local people for grazing and the protection of livestock against predators should be respected.

These suggestions, however, were not considered because the government, at the behest of conservation agencies, wanted to make the KNP strictly a conservation park (Wegge, 1989; Knudsen, 1999b), and the Forest Department was used as an implementing apparatus for their decisions. The DNP was also created due to the pressure of a local NGO, the Himalayan Wildlife Foundation (HWP) based in Islamabad, which was interested in the conservation of the brown bear (HWP, 2008). The HWP established and ran the project in Deosai during 1993-2005 as long as funds were available to them. Once the park was established, rules for the park were fixed, including fees for visitors, and the management of the park was transferred to the Forest Department. The current active stakeholders for the establishment of the Central Karakorum National Park (CKNP) are: the IUCN, the WWF, the ICIMOD, the CHESVI (an Italian NGO) and finally the Forest Department. The Project Snow Leopard, which offers compensation for livestock killed in order to reduce communities' retaliatory attacks on snow leopard in Baltistan, is run by an individual researcher (Hussain, 2000). A number of other smaller projects in the NAs are run by other NGOs in various valleys with community participation, for which there is no valid legislation available.

7.5.2 Community-Based Conservation and its implications

As mentioned earlier, community-driven or Community-Based Conservation (CBC) is a highly prominent trend in the NAs, initiated either by communities themselves or by NGOs with a conservation agenda. The largest conservation project in the NAs, the Mountain Area Conservancy Project (MACP), was implemented by the IUCN during 1999-2006 and stretches over an area of 9760 square kilometers (UNDP, 1999). This project was also implemented in the NWFP. To justify the project, the proposal mentioned relevant articles from the Convention on Biological Diversity (CBD). Since there was no straight forward legal basis for the MACP, the project proposal sold itself as being consistent with the Pakistan Biodiversity Action Plan and the National Conservation Strategy. It argued for a more flexible approach to conservation, instead of continuing with the conventional protected area approach which has a history of creating conflicts with local users. The proposal states: "Protected Areas have been established without accommodating the needs and views of local communities, and the focus has been on enforcement of legislations by the state apparatus" (p. 20). This statement however, contradicts the IUCN's current support for the creation of national parks in the NAs, the recent examples being the DNP and the CKNP. The IUCN is actively involved in surveys and the development of the CKNP's management plan (Fuller, 1996).

The MACP suggested the involvement of the Forest Department in the management and implementation of the project. A 15-member National Steering Committee (PSC) was constituted in Islamabad with two members from the NAs, namely the Chief Secretary NAs and the Secretary Forest NAs, neither of them being from the Forest Department. The assumption was that the Chief Secretary NAs, being the administrative head of the NAs, and the Secretary Forests NAs, being the administrative head of the NAs Forest Department, would represent the department. Two Project Management Committees (PMCs) were established, one each for the NAs and the NWFP. Two members from the Forest Department were recommended to be on the PMC for the NAs, namely the Secretary Forests and the Chief Conservator of Forests (CCF). In the absence of the CCF position in case of the NAs, the Chief Secretary enjoys the powers of the CCF. The Chief Secretary therefore, could delegate powers to the Conservator of Forests to attend such meetings (GoP, 1999).

The project proposal argues that the government structure in the NAs is rather weak. Taking advantage of this weakness, the MACP effectively sidelined the Forest Department from the management structure of the MACP introduced in the NAs. Initially, two staff members from the NAs Forest Department were seconded to the MACP, but they left after two years. Contrary to this, the management set-up of the MACP in the NWFP chapter consisted of staff from the Government Wildlife Department throughout the project period.

One of the MACP's objectives was to formulate legislation for community participation in conservation. The MACP proposal states: "The constitution of the Islamic Republic of Pakistan (1973), having been drawn up before the concept of 'biodiversity' gained wide currency, contains no reference to biodiversity and only limited reference to the environment" (p. 116). Further, the proposal recognizes that "there are only 3 categories of protected areas recognized by the Forest Act 1927: National Parks, Wildlife Sanctuaries and Game Reserves" (footnote, p. 34). Therefore, the MACP will provide "legal recognition (through gazetting) of the conservancies; the project will assist the government to extend the existing Protected Area categories to accommodate a range of management objectives from strict preservation (IUCN Category 1) to **community-based conservation** areas or extension of appropriate authority (in the form of tenure, lease or other options) to DCCs[64], local communities and other traditional groups of users" (p. 34).

By the time the MACP was winding up in 2006, neither the IUCN nor the government, were able to tender the legislations identified in the proposal. Without having essential legislation, the IUCN established three conservancies, a centralized Mountain Areas Conservancy Fund for the NAs and the NWFP, 47 Valley Conservation Committees and Valley Conservation Funds. Although there is no legal cover for these initiatives, and the Forest Department has earlier shown resentment for similar 'illegal' activities elsewhere,

[64] DCC – District Conservation Committees headed by the respective Deputy Commissioners, formed during the MACP's pilot phase to manage resources in the districts, with membership from communities, the Forest Department and NGOs operating in the respective districts (UNDP, 1999).

it has endorsed all these actions by virtue of being a member of the PMC and the PSC.

The Terminal Evaluation Mission of the MACP noted that: "enabling policy framework and the indicators selected for it [MACP] may have been somewhat ambitious since the results targeted are beyond the influence of the project – it is only governments that can adopt policy, enact laws and promulgate rules and regulations. The mission acknowledges the work done by the MACP in drafting various legal instruments and training government personnel, and there are many signs within the federal and provincial government set-ups that could make the MACP team optimistic about the eventual acceptance of the project's proposals for legislation and similar instruments. However, we are not optimistic that the new legislation, regulations and procedures will be adopted by Government before the end of the MACP and this places many of the project's outcomes in jeopardy" (Tortell et al., 2006, p. 10).

7.5.3 Legitimizing CBC – a missed opportunity for the Forest Department to regain

Earlier sections of this thesis gave examples to show that forest and wildlife regulations are becoming increasingly irrelevant in the NAs when confronted with a long history of community use, increasing influence of conservation agencies, lack of resources, lack of powers in the NAs, community empowerment and the influence of forest contractors. Even if the Forest Department wanted to devolve powers, it does not have the authority to do so (in addition to examples in this section, see paper 3 for further details).

Prior to the establishment of the Forest Department in the NAs, the government had formidable powers through its revenue regulations and Frontier Crime Regulations FCR, which ensured that communities were alienated from decision making in any sector the state targeted. The state did not interfere in the management of pastures and forests, as far as local use was concerned and as long as forests were not harvested by the state. From the 1960s onwards, the government began to exercise a lot powers in forest management due to its large-scale timber needs for building infrastructure. It was the Forest Department which served as a hub to practice these powers. However, the government

had never been able to, or had never intended to restrict communities from harvesting the forest for subsistence use, although the regulations restrict certain actions by the community, including hunting, grazing animals in forest areas, and harvesting of green trees for timber.

After 1992, despite its willingness, the Forest Department was not able to exercise its powers provided by the legislation. What the legislation does instead is that it constrains the constructive participation of the community in various ways. For example, according to the Forest Act 1927, all pine and juniper trees are government property even if they grow on private land. One would assume that private land owners would not allow someone else's trees on their land; however, one can see pine and juniper trees growing on private lands in Basho, an indication of community care for nature and any other benefits (e.g. fuel wood and timber) they may see from these trees.

Agitation by communities against government policies after 1947 is known to have begun in the Gojal (Wegge, 1992; Knudsen, 1999b) and Bar Valleys (Gohar, 2002), and then spread elsewhere to the Rama and Gudai Valleys in Astore and Basho. None of the examples of community arrangements (in the Bar Valley, Gudai, Rama, Basho) restricting illegal wood harvesting are recognized as being legal under forest legislation, since they do not provide for any other party taking over the powers vested in the Forest Department. In practice though, the Forest Department now reluctantly and informally recognizes such 'illegal' acts as being useful. Despite this, communities cannot claim that the actions they take are legal, since no arrangements have provided any legal basis so far (Tortell et al., 2006). Furthermore, such arrangements can be withdrawn by the next official, on the transfer of the previous official, regardless of whether or not the communities honour such withdrawals (Gohar, 2002).

Interestingly, with the passage of time, and as a result of a history of tense relationships with communities (Shamshal, Basho, Gudai), the department finds it important to seek their goodwill, as indicated by the local arrangements made by individual forest officers. Although the department may be willing to allow communities to participate in the co-

management of resources, it has no authority to amend legislation, nor does anyone in the NAs. The responsibility for Provincial Government shifted from the Resident Commissioner (currently the Chief Secretary) to the Minister for Kashmir and the Northern Areas Affairs, in Islamabad. However, he has his own constituency to take care of and does not find time to reform the administration of the NAs. In such a situation it is up to the individual officers to resort to local arrangements when confronted by NGO and community pressure and resentment, and to use their own judgement. For example, the Valley Conservation Plans developed by the MACP were signed by the DFO Baltistan and the DFO Gilgit, although the DFO Astore would not sign them, declaring it an illegal action as the Wildlife Act 1975 does not provide for such an arrangement.

The MACP supported initiatives namely District Conservation Committee (DCC), Village Conservation Committees (VCCs), and Village Conservation Fund (VCF) are steps in the direction of community-based conservation, but they have no legislative cover. Despite an internal resistance within the Forest Department, it was not able to stop these 'illegal' actions since the department was a partner in the implementation of the MACP, even though it was sidelined by the IUCN. After the general wave of awareness and resentment, the communities are now taking part in forest management, mainly controlling harvesting by outsiders, which may occur with or without the connivance of the Forest Department. The general wave of awareness gained further strength after the AKRSP's interventions in terms of social mobilization throughout the NAs (except in Diamir). The AKRSP however, did not interfere directly in natural forest and wildlife management. The AKRSP's initiatives were followed by conservation projects supported by the World Wide Fund (WWF), the IUCN and others[65]. The IUCN and the WWF claim to empower communities through facilitating policy dialogue, and ultimately changing or introducing legislation. This has however, not materialized so far in the NAs, including Basho. Trophy hunting procedures developed by the Forest Department in 2003 to involve the community in wildlife management waited until December 2006 for approval from higher authorities.

[65] The WWF and the IUCN were present in the NAs even before the AKRSP, but with a limited role.

All the above examples indicate that the Forest Department itself and the forest and wildlife legislation are becoming increasingly irrelevant in the Protected Forests of the NAs. NGOs with resources and influence in Islamabad can run their projects in the NAs by ignoring the legislation and the Forest Department. The Forest Department implements projects on the instruction of superiors in the Federal Government, even if it was not involved in conceiving and developing the projects, and without internalising the project proposals and their implications. The Forest Department of the NAs and the legislation which aim at empowering this department, reflect the state of governance in the country, where the constitution provides no powers to the parliament and judiciary. As a result, communities have partially taken over the management of the forests.

Pakistan remained under military rule for more than 30 years of its 62 years life. Each president in Pakistan has tried centralizing power for himself. Since 1959, the military ruled the country in intervals for more than 30 years by imposing martial law and abrogating the Constitution. On the 3rd November 2007, General Pervez Musharraf, the then acting Chief of the Army Staff took over as the Chief Executive of the country. He imposed a state of emergency through suspending the constitution twice in his eight year tenure, and replaced the Judges of the Supreme Court of Pakistan and the High Courts (Dawn, 2007). Several extra-constitutional steps were introduced including hand picking judges for the superior courts. Justice Nasir Aslam Zahid, former judge of the Supreme Court of Pakistan, was quoted telling the nationwide Geo Television network in Pakistan on the 4th June 2008: "when the Supreme Court judges went to take their oath [fresh] of office under the Musharraf's military government in 2000, they were presented with empty pieces of paper from which to read" (Naveed, 2008). The former military dictator General Zia-ul Haq was quoted as saying 'the Constitution is a piece of paper that I can tear up" (Kureshi, 2008). Is the Forest Department in certain geographical jurisdictions, being a single small player, an exception in this state of governance? This is a question to ponder upon!

7.6 Implications for the Private Forests in the NAs Diamir District

This section briefly describes the history of commercial harvesting, regulations in place and their impact on privately owned, government managed forests in the Diamir District of the NAs.

Commercial harvesting was carried out in the Darel and Tangir Valleys of Diamir, even before 1947, by traders from the North-West Frontier Province (NWFP) (Gohar, 2002). These traders purchased forests from the local owners for harvesting and transported timber to the central timber market in the NWFP. This practice continues even today. Sheikh and Aleem (1975) describe the brief history of commercial harvesting of the private forests situated in Diamir, which consists of three main valleys, namely Chilas, Darel and Tangir. They found that although the forests in Chilas were not commercially harvested [by the government] before 1947, the state of forests showed that local use was unsustainable[66]. In 1943, however, the then Political Agent had ordered the trees to be removed by a contractor, with the permission of the government[67].

The first commercial harvesting began in 1949, when the then Assistant Political Agent allowed harvesting at the rate of PKR 5 per tree. In the absence of a Forest Department, trees were marked for harvesting by police officials with the understanding that 50 percent of the revenue would be shared with the government. In the Darel and Tangir valleys, which are relatively closer to the NWFP, the forest was ruthlessly cut by forest traders, even before 1952 when these valleys acceded to Pakistan. In 1953, the NAs administration struck a deal with the local communities for intervening in the future management of the forests. According to the deal, the powers of signing contracts and fixing rates for commercial harvesting were vested in the NAs administration[68], while marking of trees and checking of transportation was assigned to the Forest Department. Diamir is a tribal society and law enforcement has always been difficult, particularly in

[66] Although records were not available and Sheikh and Aleem (1975) were not able to visit the forest areas, they made conclusions on their assumption that local use was unsustainable. "These forests have, however, remained subject to misuse by the locals in the form of grazing, browsing, lopping, girdling, setting of fires, clearing of land for cultivation, cutting of valuable deodar for terracing, fencing and constructions of their dwellings. Use of wood has been extravagant" (p. 300).

[67] This means that before this time, either there was no commercial harvesting, or it was negligible, as Sheikh and Aleem (1975) could not find any written records.

[68] The Forest Department subsequently took over.

relation to the Forest Department attempting to regulate forest management.

Soon after the government took over, large scale commercial harvesting of the forest was recommended. Sheikh and Aleem (1975) suggested fixing cable cranes to enable the speedy extraction of timber from the forest. The first such cable crane was fixed in the Baregah forest, in the Thor Valley in Chilas, to extract 3857 m^3 of timber from a forest covering 5.6x1.6 km (Ishaq, 1969). According to Ishaq, the forest was considered as 'healthy' and harvesting of only dead, dry and over-matured trees from areas with dense growth was recommended. The government charged a royalty of PKR 25 per log, regardless of its size and species, in addition to its 50 percent share of the total revenue.

Today, the forests in Diamir are held under private ownership, as joint property of the community. The Forest Department manages the forest by charging management fees and sharing revenue (Gohar, 2002). The community share is divided among forest owners (old settlers), while the new settlers only have rights to local use. Inequalities in distribution exist among the owners – some own big forest chunks, while others only small patches. The community share is divided among male members, implying that households with more male members receive more shares. In some areas, shares are divided among various groups. Groups having fewer members get higher shares per person.

Influential members of the community manipulate forest contracts with the contractors, in lieu of cash incentives from the contractors. The forest owners make a direct deal with the contractors, with the consent of at least 60 percent of the members. The contracts are then approved by the district head of administration (Deputy Commissioner)[69], and the Forest Department proceeds to prepare a working scheme[70] for the forest that has been taken on lease by the contractor. Unlike in the past when the NAs administration approved working schemes, these powers are currently vested in the Minister for the NAs

[69] This is the new designation for the Assistant Political Agents, the heads of district administration, after the political reforms in 1972.

[70] A working scheme is a short term plan (usually for a period of 10 years) to regulate commercial harvesting based on the principle of a 'perpetual' supply of timber. It gives details on the total stock of timber, and the quantity of timber to be extracted (around 10 percent) (Gohar, 2002).

and Kashmir Affairs (KANA).

The Forest Act 1927 was extended to Diamir in 1971 and the Gilgit Private Forest Regulations were promulgated in 1972. The royalty rates were revised at the rate of PKR.3.3, 2.5, and 1.5 respectively for deodar, blue pine and fir/spruce, in addition to the 50 percent government share in the total revenue. In 1983, using powers as given in Chapters V and VI of the Forest Act 1927, a number of trees were declared as Reserved. These were: *Pinus wallichiana* (blue pine) *Pinus gerardiana* (chilghoza pine), *Picea smithiana* (spruce), *Abies webbiana* (silver fir), *Juniperous macropoda* (juniper), *Fraxcinus xanthoxyloides* (ash), *Betula utilis* (birch), *Olea cuspidate* (olive), *Prunus amygdalus* (wild almond) and *Pistatia niger* (wild pistachio).

In addition to the Forest Act 1927 and the Gilgit Private Forest Regulations 1972, strict rules were enacted in 1992 (Gohar, 2002). Gohar describes the salient features of the 1992 rules:

According to **Section 1,** any forest or police official may, without approved orders from a magistrate, issue arrest a warrant for any person against whom a reasonable suspicion exists of his having been involved in any offence punishable with imprisonment. **Section 4** provides powers of civil courts to the forest officials not below the rank of Assistant Conservator of Forest or the DFO. Officers of these ranks can hold enquiries concerning forest offences and record evidence to be presented to magistrates in subsequent trials. As per **Section 5,** no tree can be felled without the permission of the Conservator of the Forest or DFOs. **Section 11** says that harvesting of green trees for local use shall be granted only by the Conservator of Forest. **Section 19** strictly forbids grazing and herding of livestock in the forest. **Section 31** bars prosecuting any case in the court of law without the written permission of the DFO. **Section 2 (4.C)** defines Provincial Government as the Chief Commissioner[71] NAs (note: the head of the NAs government is the Minister KANA in Islamabad). **Section (1) of Section 26 (a)** increases punishments – imprisonment from 6 months to 2 years, cash penalty from PKR.500 to 10,000 and in

[71] Currently the Chief Secretary.

case of any subsequent offence, 4 years imprisonment and/or a PKR 20,000 fine.

Gohar (2000) noted that the above legislation [amounting to termination of basic human rights] has neither been successful in empowering the Forest Department, nor in reducing deforestation in the Diamir District. Contrary to increasing its powers on paper, the department has instead lost control over forests. Deforestation has increased, particularly after the sectarian clashes in the NAs during the 1980s. The timber traders, belonging mainly to the NWFP, and their local supporters, collude with the senior authorities based in Islamabad and Gilgit and harvest the forest at their will. The strategy adopted by the timber traders and their local accomplices is that they first harvest timber illegally, pile it along the Karakoram Highway (KKH) and persuade the authorities in Islamabad to formulate interim policies for the legal disposal of the illegally cut timber, often in the name of wood lost and rescued after natural disasters. An example of such a natural disaster was the earthquake of 2002, which was responsible for uprooting thousands of trees (Intercooperation, 2004). Until 2002, a volume of 5 million cubic meters of illegally cut timber was allowed for marketing, through four interim policies[72]. The first policy allowed the sale of such timber without any penalty, while the subsequent policies charged nominal penalties.

Gohar's (2002) main findings about the management of Private Forests in Diamir are:
1. The social environment of Diamir is founded on a tribal system; hence the government has never been able to establish its control through legislation. Even the army has not been able to establish its authority, despite being the most powerful actor in the country.
2. Local owners do not accept the authority of the Forest Department, despite the latter's enormous powers vested on paper in 'barefooted' officials. Large-scale deforestation therefore continues, at the will of local owners.
3. The traditional approaches of using coercive measures to control deforestation have been counterproductive. With the increasing powers of the Forest Department on paper, the owners of the forest have lost even more of their sense of ownership, and have thus

[72] Policy here refers to a notification by the KANA Ministry in Islamabad to allow illegally cut wood to be transported to the markets for sale.

become 'free riders' instead of being committed to protecting their forest.
4. The forest offenders are so strong that the patron-client relationship has caused even the local community institutions to be dysfunctional.
5. The sectarian tension has further supported opportunistic offenders who have increased illegal harvesting in order to buy weapons (an excuse to increase cash income through selling the forest).
6. The construction of the KKH has further enabled the timber traders to strengthen their ties, both locally and in Islamabad, and has sidelined both the community institutions and the Forest Department.
7. The closer availability of the market for timber harvested from Diamir, compared to other areas in the NAs, plays a crucial role in accelerating deforestation in Diamir.

8 Research methods and fieldwork

8.1 Research methods

The study takes mainly a qualitative methodological approach in the collection of data and its interpretation, using both qualitative and quantitative methods. For qualitative approaches "it is possible for either qualitative methods or quantitative methods, or both, to serve our purpose" (Crotty, 1998, p. 15). This study puts an emphasis on understanding the following: power relations in forest management and local perceptions; local knowledge concerning deforestation; the role of various actors in resource management; and the daily life realities of those responsible for resource management. In order to understand environmental changes in the Basho Valley, this study generated empirical information using a number of methods.

Denzin and Lincoln (2003) state: "Qualitative research is a situated activity that locates the observer in the world. They [researchers] turn the world into a series of representations, including field notes, interviews, conversations, photographs, recordings, and memos to the self. Qualitative studies require combinations of a number of tools to investigate a problem in question. At this level, qualitative research involves an

interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or to interpret phenomena in terms of the meanings people bring to them" (p. 5). In line with this approach, this study combines the author's 15 years of experience working with development and conservation agencies in the NAs, participant observation, group and individual interviews, workshops, village and valley level meetings, household fuelwood surveys, interpretation of satellite images and secondary data. The data for the three papers and the introductory chapter in this study are therefore, both qualitative and quantitative, and the specific methods used to collect and analyze this data are specified in each paper.

Some guiding questions were formulated before commencing the fieldwork for this study. The methods used, however, were decided in the field. Following Becker (1998), Denzin and Lincoln (2003) argue that qualitative researchers are like 'quilt makers' and use "the aesthetic and material tools of his or her craft, deploying whatever strategies, methods, or empirical materials are at hand" (p. 6). This implies that unlike economic surveys or laboratory experiments, where methods are pre-determined, qualitative research requires the researcher to decide on suitable methods in the field. For example, the use of satellite images to measure forest loss was found to be necessary after the first year of field work for this study. This was mainly due to contradictory statements from different actors regarding the loss of forest area.

8.1.1 The case

The rationale behind using a case-study[73] approach was to be able to investigate several phenomena: the complexity of environmental issues that involve the interests of many actors[74]; the contesting interests of local people within the villages as well as between the different villages in the Basho Valley; government vs. community interests; international conservation interests; and the interests of the timber mafia. Selecting the Basho Valley

[73] According to Ragin (1992): "every study is a case study because it is an analysis of social phenomena specific to time and place" (p. 2).
[74] See Paper 3 for a discussion of the use of an actor-oriented approach.

for this case study does not confine the study to the physical borders of the Basho Valley. Rather it relates the experiences of both the local people and other actors engaged in resource management in the Basho Valley with experiences of actors outside Basho.

According to Yin (2003), a case study is a primary unit of analysis used in social science when 'how' or 'why' questions are to be asked: "when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context" (p. 1). The case study method is said to be appropriate when researchers need to: "(a) define topics broadly and not narrowly, (b) cover contextual conditions and not just the phenomenon of study, and (c) rely on multiple and not singular sources of evidence" (Yin, 1993, p. xi). The point of departure for this study is an interest in the relationship between population pressures and deforestation in the Hindukush Himalaya region (HKH). A broad topic such as this needs to be contextualized in terms of the broader socio-economic conditions that shape the environment and its management, in order for us to make sense of the meaning of broader issues in peoples' everyday lives, whether they be villagers, government officials, or international actors.

Previous studies, which assumed that deforestation in the HKH region was due to population growth, were based on larger areas and were then generalized for the entire HKH region. Other studies conducted in smaller areas, produced contrasting results and argued that the causes of deforestation could be different for different areas. This case study was therefore conducted in a smaller geographical valley consisting of seven villages, in order to obtain data as reliable as possible, on natural resource management practices and policy. However, whether one small area can be representative is debatable. For example: "If one knows which African regions were representative, there would be no need to undertake the study, since we would also have enough data about the relationships in question" (Benjaminsen, 1998, p. 27). By choosing a case, however, and describing and analyzing its contextual findings, we are nevertheless able to reflect on the implications of this case in relation to other cases, and, in the end, to inform broader theoretical perspectives. Keeping this principle in mind, the Basho Valley was selected for this study due to previous reports of widespread deforestation, as well as other

reasons which are discussed below.

8.1.2 Selection of the site and fieldwork

At the time of the inception of this study, I had been working with the AKRSP for 9 years, primarily to provide technical assistance in establishing irrigated plantations on private and communal lands, and training farmers in basic forestry techniques. From 1991 to 1995 the AKRSP concentrated on these activities. After 1995, the AKRSP initiated new projects, focussing on the management of natural resources and environmental education. Remaining closely associated with the local communities and the Forest Department since 1991 on environmental issues, I believed that the new initiatives needed further cooperation, particularly from the Forest Department, as they were involved in discussions on pasture, wildlife and natural forests. Through these interactions, I became more aware of the broader environmental issues, particularly on deforestation in the area. I participated in many discussions aimed at improving the sustainability of natural forests. Meanwhile, the AKRSP initiated a new project in collaboration with the Norwegian University of Life Sciences (UMB), namely the High Altitude Integrated Natural Resource Management Project (HAINRM), in the Basho Valley.

The aims and objective of the HAINRM project are discussed in section 6.1.4. I was appointed by the AKRSP as the co-ordinator for the forest component of the project. During this assignment I had the opportunity to work and stay in the Basho Valley for certain periods, over three consecutive years until 2000. I attended many group, village and valley level meetings during this period, together with other researchers. In many of these meetings, deforestation and corruption in the Forest Department were frequently discussed topics. In March 2000, the UMB advertised a research position to investigate deforestation and institutions in the Baltistan region. I considered that such a research project would be suitable for investigating some of the unanswered questions during previous discussions in the Basho Valley. My proposal to investigate deforestation and institutional issues, taking the Basho Valley as a case study, was accepted.

One important reason why the Basho Valley has attracted many researchers is because it is one of the few in the Baltistan region which has natural pine forests, in a region which otherwise has extremely low vegetation cover. Baltistan, due to its high peaks and glaciers, has attracted many foreign and Pakistani tourists. However, this is not the main reason for outsiders to travel to Basho. Rather, the main attraction of the valley is its forest. Many of its 'visitors' are forest contractors and jeep drivers who transport wood from Basho to elsewhere for sale. My previous familiarity with the environmental issues in the Basho Valley was a comparative advantage, besides the importance of its forests, both for the local people and outsiders. These were the main reasons for selecting the Basho Valley for this case study.

The main fieldwork for this study was carried out during spring (April-May), summer (June-August), and winter (December-January) 2001; summer (June-August) and autumn (September-November) 2002, and summer (June-August) 2003. During these periods I travelled to the other parts of the NAs to interview officials of the Forest Department and conservation agencies. Moreover, this study brings together my observations concerning environmental problems in the Basho Valley during the last eight years. Since I speak Urdu, the national language of Pakistan, which the majority of men in Basho and in the NAs understand, it was possible for me to directly interview the respondents and to take notes during meetings that I attended as a participant observer[75]. In Basho, two local languages are spoken – Balti and Shina. Shina is my mother tongue, and I can also converse in Balti. Therefore, I was able to communicate directly with local people in their own languages.

Due to cultural reasons, I faced a limitation in communicating directly and frequently with women; therefore, I sought help from two female colleagues to interview women.

[75] Participant observation is considered fundamental for learning and collecting material in social and behavioural science research (Alder and Alder, 1994). The observer can participate in four ways (Atkinson and Hammersley, 1995): a complete observer, an observer as participant, a participant as observer, and a complete participant. Since the intention of participation in this study was to learn and acquire information from other participants, the researcher in this case could be classified as a participant observer.

Both of the colleagues, while working with the AKRSP for years, had been assisting researchers in translating and collecting data. Therefore, they were familiar with Basho and with qualitative research methods. Their past experiences, combined with our discussions, resulted in formulating guiding questions that they used for collecting data from the women. I did communicate directly with a few women, both elderly and young. Due to this communication, I was able to cross check information I collected during my interactions with men. This also provided me with an opportunity to understand the important role of women and their perspectives on forest management in the Basho Valley.

8.2 Reliability and validity

Reliability and validity are the criteria often used to assess the quality of research designs. According to Yin (1993), reliability can be achieved through clearly describing the methods used in a case study, so that other investigators could use the same procedure and methods to investigate the same question. The objective of this strategy is to reduce possible bias in a study. In order to deal with the reliability issue, it is important to ask the same question in various ways (Ragin, 1994). However, problems of reliability are said to be less in case studies, which investigate on a few cases, compared to quantitative studies which investigate many cases (Benjaminsen, 1998). In a single case study, or in studies with few cases, researchers would be more familiar with their cases.

Despite all caution, some bias cannot be avoided. For example; one argument for selecting the Basho Valley for this study, was to investigate the perceived deforestation due to population growth. However, my past familiarity with the Basho Valley led me to select Basho compared to any other valley, which could also have similar environmental issues to be investigated. Further, the assumption, that a later researcher will arrive at the same conclusion if the procedure adopted by a former researcher is followed, is questionable. This is because social phenomena, as well as our perceptions of natural phenomena, are socially constructed (Simmons, 1993), and contextually specific. Therefore, different actors value the same resource differently, based on interests and

preconceived ideas. For example, "Like beauty, sustainability is in the eye of the beholder....it is inevitable that assessments of relative sustainability are socially constructed, which is why there are so many definitions" (Campbell, 1994, quoted by Pimbert and Pretty, 1997).

Researchers, as do any actors, have their own background, interests and perspectives, which influence the collection and analysis of the data. Self-reflection over one's own perspectives is therefore an important step in ensuring reliability. One must also be aware of disciplinary bias – for example, addressing only issues seen by one discipline or actor. One such example of disciplinary bias is shown in Paper 2, regarding environmental degradation. The forest services focus mainly on protecting the forest from local people – that is what the forest services were created for. Therefore, they consider population growth and fuelwood collection by local people to be the main cause of environmental degradation, and they collect data and formulate policy accordingly. Likewise, Paper 3 shows that those writers who argue for a greater local role in resource management have focussed mainly on community issues, and the forest service has not been included in their analysis. Each of these perspectives provides a rather one-sided view of the issues, which taken on their own would result in serious biases. In this study I have attempted to strike a balance between these two perspectives – including analysis of both community issues and the forest services.

Validity is another important issue considered in assessing the quality of research. "Validity pertains to the degree that a method investigates what it is intended to investigate to the extent to which our observation indeed reflects the phenomenon or variables of interest to us" (Pervin, 1984, quoted by Kvale, 1996, p. 238). This raises the question: are the data collected suitable for answering the research question? In this study the point of departure in the generalizations of the THED that population growth is the main cause of deforestation. The question is then, whether the case of the Basho Valley can be used to test the validity of the neo-Malthusian assumption of environmental degradation due to population growth. There are few alternative cases for investigation in

the Baltistan region[76]. Therefore, one critique could be that other valleys could provide an example of deforestation due to population growth. Therefore, I do not claim that the case of Basho is the final test for investigating the deforestation due to population growth narrative projected by the THED. Instead, this case verifies the findings from several other valleys in the NAs that deforestation has occurred due to changes in socio-economic conditions, and not because of population growth.

It could be argued that this study does not provide all the data necessary for evaluating the degradation of forests; for example data on the impact of livestock grazing on forest regeneration is also relevant. However the variable "fuelwood collection for local consumption" was the main cause indicated by the THED, of environmental degradation in the HKH region. Therefore the narrative itself provides the basis for the selection of variables (Benjaminsen, 1998). In Paper 3, the lack of resources has been indicated as the main cause of the emergence of 'alternative systems'. The focus of the paper is corruption due to high commercial interests, which are often linked in the literature. While it has become fashionable to consider the forest services 'corrupt' in most of the studies concerning forest management, I decided to make an in-depth examination of the workings of the Forest Department and its officials. It was because of my interaction with the forest officials, particularly the junior officials, before and during the field work, which motivated me to investigate the widespread generalizations about corruption in the forest services. Hence, as researchers, both our selection of cases and data interpretation is biased by our disciplinary backgrounds and many other factors, as described above.

8.3 Methodological challenges

Since reliability and validity issues are context dependent, data collected for any study could be interpreted in many ways. This is also true for studies conducted on fuelwood estimations, as data on fuelwood consumption is often fraught with mistakes. Thompson and Warburton (1985) argued that quantification of fuelwood has been problematic due

[76] In the Baltistan region, natural forests exist in only a few other valleys. Therefore alternative cases for investigation are very few.

to a number of reasons, including that people tend to give answers they think the researcher would like hear, or they are influenced by fear of officials who would like to see less consumption. Therefore, "though 'proper' research methods are supposed to control sources of bias such as these, they have clearly met their match in the Himalaya" (p. 118).

Thompson and Warburton (1985) further argued that most scientific methods are designed such that they serve the interest of the policy makers and have no place for the perceptions of the rural poor. However, there is not necessarily an either/or choice between conventional scientific methods more common in the natural sciences, and exploratory methods, often more prominent in the social sciences[77] – their usefulness depends on the research questions posed and the type of data required to address these questions. Given the uncertainty around the environmental changes in the Himalayas and their causes, Thompson and Warburton (1985) suggest the use of exploratory models that are "tolerant of contradictions not in a spirit of anything goes eclecticism, but with a view to uncovering patterns of contradictions and contentions (such as those that are generated through local credibility and global incredibility). ...learning, mediating, facilitating, interacting – these are the sorts of processes that characterise the exploratory mode" (p. 134).

In the absence of forest inventories for Basho, it is difficult to estimate loss of forest cover due to harvesting, both for domestic and commercial consumption. Due to these difficulties a variety of methods - interviews, population data, fuelwood surveys, satellite images, and secondary data were collected for this study. Through triangulation, conclusions were reached and presented in the three papers and relevant sections included in this study. For each of the methods chosen, however, there were challenges in terms of their ability to give an accurate and reliable representation of forest cover loss. For example, individual estimates of forest cover loss by village elders range from 30 to 60 percent. Two local elders from Sultanabad, where the upper Basho forest is situated,

[77] For example, social research based on a constructivist paradigm, and using qualitative methods of inquiry (see Guba and Lincoln, 1994).

estimated a 60 and 45 percent (average 52.5 percent) loss of the entire upper Basho forest cover. A consensus of village elders on the quantity of total wood taken out during the commercial harvesting period was, for example, ten times higher (Paper 2) when compared to official records (Paper 1). This range of estimates made it important to be able to interpret properly the responses by the local elders (see the next section on reflexivity and interpretation challenges).

The use of satellite images also involved a number of challenges. Due to the political and strategic nature of the NAs, satellite images that could show greater details on the ground are not readily available, especially for the period before 1980. Unsuccessful attempts were made using facilities available at the Department of Land Use Planning at the Norwegian University of Life Sciences (UMB), to trace better satellite images. The best image available was a poor 30x30 meter Landsat Multi-spectral Scanner image from 1976, which showed poor ground details only for the southeast slope of the valley. As a result of poor images, forest cover change could not be accurately determined. A total of 52.5 percent loss of forest cover was estimated (Paper 2) for the areas visible in the 1976 image, compared to the 2002 image.

In 2001 and 2002, loss to the remaining forest due to thinning could not be ascertained from any sources (satellite images, interviews and previous studies). The remaining forest consists of individual scattered trees and is in such a damaged condition that management of individual trees has been suggested (Synnestvedt and Thompson, 1999). Gudbrandsson (2002) could assess loss only in those areas where some pine and juniper forest patches are still left, and projected a 30 percent loss for these species, based on stump analysis.

A fuelwood survey was conducted for the entire Basho valley to estimate forest loss due to local consumption, as compared to commercial harvesting. Despite the somewhat incomplete official records of harvesting, and the lack of data on fuelwood consumption in the past, it was possible to make a comparison between commercial harvesting and local use, based on the upper Basho forest, in order to assess the impact of these uses on the forest cover. The Basho forest was selected for three reasons: wood during the

commercial harvesting was extracted mainly from upper Basho; an inventory was carried out for these forests in 1998 (Velle, 1998); and the three uppermost villages harvest wood from the upper Basho forest.

Despite the range of methods used in this study and others (Velle, 1998; Synnestvedt and Thompson, 1999; Gudbrandsson, 2002), we are still not able to provide a complete picture of forest cover change in Basho. Nevertheless, the data provided through these methods, properly analyzed and compared, give some clear indications. Due to the complexities of the context and the limitations of the various methods, the data presented in Papers 1 and 2 could be interpreted in many ways, where, for example, interpretation using one set of data and not considering others, could be misleading. Three examples of how the data collected for this study might be interpreted are presented in the concluding chapter, along with a discussion of the implications of these interpretations for forest management.

In the end, considering all the above observations on the use of different methods and the miss management of the forest by the Forest Department (use of timber even to fund official tasks through alternative systems, see Paper 3) the estimation of 14 elders suggesting that during commercial harvesting (27 years), ten times more wood was taken out by the contractors compared to what official records show, in fact seems to be the most reliable estimate. It suggests that the proximity of the local populations to the resources for centuries could provide a richer and more reliable description of change in forest cover in a given locality over a period of time. Only locals, for example, can tell where regeneration could be successful, which area in Basho has profuse natural regeneration (see sections 6.2.3 and 6.2.4), and relate details of the history of forest management in Basho (section 6 in general).

8.4 Implications of the researcher's background

As mentioned above, I had been working with the AKRSP for many years before I began my research in Basho. My affiliation with the AKRSP, working closely with the

communities for 14 years on various development projects, my academic background, and my association with the HAINRM project have shaped my research and has been both helpful and problematic[78] in terms of data collection for this study. For many years, I worked with the communities in the establishment of plantations, community mobilization and empowerment. With this background, I interacted with the community representatives in Basho and forest officials in the NAs as a researcher. In an actor-oriented approach (Long 1992), the actors or interests to be examined, including the researcher and his values and interests, as opposed to a positivist research tradition in which the subject is the focus of investigation. In an actor-oriented approach, the researcher is not a detached observer and the role he is given as an insider, outsider, a friend or a threat, by the local social system, cannot be ignored.

The communities have seen me both as an insider and outsider. As an AKRSP employee, a member of the HAINRM research team, and for not being a native of Basho, I was an outsider. Due to the presence of other foreign members in the HAINRM team and my earlier acquaintance with the area and community elders, I was also considered an insider. In this position; particularly the men in the community, could share with me some of the rumours and gossip that they would not share with many other team members who had shorter stays in Basho. When compared with other members who spent more time and had more interaction, for example, female members of the team, I was again, not considered as an insider. As a native Shina speaker, the language spoken in Sultanabad, the uppermost village in Basho, I had more informal interaction and discussion with the Shina community members when compared to my Balti colleagues. Since my research topic focuses on forest management in the upper Basho Valley, the members of lower villages could have viewed this as problematic, since the upper and lower communities have contested access to the upper Basho forest (Steinsholt et al., 1998; Nyborg, 2002). However, my interactions with the activists of the lower villages in connection with the AKRSP-supported interventions, may have balanced such feelings.

[78] For a detailed discussion on problems and rumors about the HAINRM research team and resulting negotiations by the AKRSP with the elders of Basho, see Nyborg (2002, p. 134-137).

I was also both an insider and outsider to the officials of the Forest Department. As with all foresters[79], I am a graduate of the Pakistan Forest Institute (PFI). As graduates of this institution, foresters maintain close cooperation and consider themselves a 'community'. As members of this community, forest officials often openly share their views and concerns with each other on forest management and community practices. This is demonstrated by a number of incidents in which I was approached by junior forest officials and asked to pretend to be a senior forest official and confiscate wood harvesting tools from offenders in Basho. It was also relatively easy for me to access official information concerning commercial harvesting and other records at the forest offices.

In the literature concerning common property management, forest services are generally discussed in a single sentence or paragraph, where they are portrayed as being corrupt and inefficient; it is generally not considered worth discussing their issues and problems. Allocating considerable space in this document for the life-world of forest officials could be due to my own affiliation with the 'community' within the forest services. On the other hand, my affiliation with the local communities also goes back in time through my work with the AKRSP. During this period, I encountered situations where forest officials resisted community efforts supported by the AKRSP for the establishment of irrigated plantations on *Khalisa Sarker* (government wastelands), including in Basho. Working as a member of the AKRSP's forestry section, the government forest officials saw me as an outsider, motivating communities to encroach on their territory. In this capacity, I had known a number of community elders for some time, which enabled me to exchange views with them on resource management in Basho in an informal and friendly environment.

"Rather than seeing this double role [insider and outsider at the same time] as negative and a limitation to research as in a positivist tradition, a constructionist approach focuses on the insights gained through examining these relationships as a part of the life-worlds of local men and women. In order to be able to learn from the experiences of interactions,

[79] The PFI is the only institution in Pakistan which offers courses in B.Sc and M.Sc. forestry for senior officials. Diploma level education for junior officials is offered by various forest schools.

however, requires a reflexive approach by the researcher, who critically explores his own role in both interpreting and influencing events in the field, making his experiences as researcher relevant in terms of both methodological and theoretical discussions" (Nyborg 2002, p. 49). It is in this way that I have attempted to move in and out of the roles assigned to me, constantly evaluating the significance of my own background, views and affiliations in the interpretation of the research process and findings.

9 Conclusions

The three papers in this thesis are summarized below in the order they were written. In addition, the data and synthesis included in the introduction chapter, particularly in section 6 – Natural resource management in Basho Valley; section 4.1.2 - Farm forestry in Pakistan; and section 7 - Policy environment and legislation in the NAs are also summarized. An overall conclusion of the study is presented at the end of this chapter.

9.1 Fuelwood, deforestation and population growth (Papers 1 and 2)

Paper 1 presents the impact of fuelwood consumption by local people on forest regeneration. Using empirical evidence on deforestation from the Basho Valley, it questions the Theory of Himalayan Environmental Degradation (THED), which assumes that environmental degradation in Himalaya is caused by population growth followed by increased fuelwood collection by local people. In addition to local fuelwood consumption, the paper discusses local timber consumption. The data show that local fuelwood and timber collection are not the main causes of deforestation. Population growth in Basho has remained rather low due to harsh living conditions over the course of history. Other studies carried out in similar high-mountain environments, for instance in the Braldo Valley, Baltistan and Laddakh, have also concluded that population growth is low.

Commercial harvesting conducted by the Forest Department is the reason why much of the wood was taken out of the forest during the 1970s and 1980s. Due to the lack of any

forest inventory, the forest authorities did not have a sufficient overview of how much wood was available for harvesting, and how much was actually harvested. The maximum number of trees was cut from easily accessible areas, without scientifically considering the annual increment of the forest. As a result of the political and administrative reforms during the late 1960s and early 1970s, the government increased its presence in the area, and there was a huge increase in demand for timber for the construction of administrative buildings and bridges. Although local factors such as grazing and the conversion of forestland to agriculture have also most likely negatively influenced the forest cover to some degree, these factors remain secondary to large scale commercial harvesting.

Prior to commercial harvesting, dead and fallen wood was available for local fuelwood needs. However, most of the dead and fallen wood was sold during the period of commercial harvesting in the 1970s and 80s and local people compensated their need through harvesting green trees, both for timber and fuelwood. Commercial harvesting was banned in 1992; however small quantities of wood are still harvested illegally. The present forest has been left in a degraded form, and if the current pace of extraction continues, the forest will disappear in 15 to 20 years (Papers 1 and 2), unless alternative sources of energy or wood are made available to check the pace of this decline. The large-scale planting of trees on farms by the communities since 1991, in addition to the existing tradition of raising private plantations will also serve to decrease pressure on natural resources in the future.

Paper 2 combines oral history with satellite images to investigate the timing, scale and causes of deforestation in the Basho Valley. Estimation of forest loss in Basho using satellite images, closely confirmed by oral history given by village elders, reveals that until the 1960s the forest in the Basho Valley was intact. Both sources indicate that the forest has been reduced by nearly 50 percent over the last 30 years. Before 1968, except twice when the army harvested a few trees, outsiders did not impact the local forest. It was only used by a well-defined group of users, mainly the inhabitants of Basho. After the construction of the road and a bridge over the Indus River in 1968, large-scale legal and illegal harvesting was carried out, endorsed by the Forest Department.

Considerable damage to the forest has occurred due to the misuse of legal powers by the Forest Department and the contractors engaged by the department. Contractors and other outsiders using informal permits called *chits* (see Paper 2 for an explanation) removed most of the dead, fallen and green wood from the Basho forest. The forest was used as an open access resource during the commercial harvesting period, which continued until 1992, when a ban was imposed on commercial harvesting. These results reiterate the fact that deforestation in the Basho Valley is a recent phenomenon and has occurred due to mismanagement by the Forest Department, rather than increased population growth as projected by the THED. The theory of massive deforestation due to rapid population growth is thus not supported by the data in Paper 2, since the population has not increased significantly in Basho. However, authorities still consider that local communities are responsible for deforestation, and continue to use this as a justification to increase regulatory control on local use. The local communities have campaigned against the exploitation of the forest by outsiders; however, illegal harvesting on a small scale still continues by outsiders.

9.2 Resources, incentive structures and the 'alternate system' (Paper 3)

Paper 3 uses the term 'alternative system' to describe extra-legal transactions in forest management in the NAs. Due to the lack of resources, the forest officials have to find an 'alternative system', often described as 'corruption' in the literature, for securing resources to finance legitimate official tasks. This is true for employees of all levels, from the most senior to the most junior. Staff members who manage to secure funds within an 'alternative system' are regarded by senior officials as being efficient.

Given the scarce natural forests in the NAs, the focus of the Forest Department has remained on harvesting from the few forest patches situated high up in the valleys, including Basho. The powers vested within the Forest Department, their competencies, and the resources allocated to them, have a direct bearing on sustainable forest management. Paper 3 assesses the workings of the Forest Department in the NAs and its

employees. Despite claims made by conservation agencies regarding their success in introducing and mainstreaming decentralization of resource management, the government, through the Forest Department, still controls the management of forests. Therefore, the department remains an important actor in forest management in the NAs and elsewhere in the HKH region. However, most of the analyses regarding forest management have focussed mainly on community issues, and the forest services have been sidelined because they have been considered to be corrupt and incapable.

Taking an actor-oriented approach, Paper 3 analyzes the causes of corruption in the forest services, taking the Forest Department of the NAs as an example. The data in Paper 3 show that the Forest Department of the NAs has deteriorated due to the lack of powers to take decisions in terms of introducing reforms in the organization, the incentive structure, the availability of resources, and training opportunities. Because of the disputed status of the NAs, there is no local representation in decision making at higher levels, and no institution with real decision-making powers in the area. The Forest Department is compelled to follow instructions from Islamabad. The problems of the Forest Department are so severe that its employees have difficulty even in drawing their monthly salaries. Furthermore, they seldom get promoted. Whenever there is a promotion opportunity, it results in intense contests among the staff, owing to the political pressures and influences from various directions that are required to convince the authorities in Islamabad. Due to the lack of training and education facilities and the outdated curriculum that is still taught in forest education institutions, the forest officials still work according to old conservation beliefs and practices.

So far, no serious efforts have been made to reform the Forest Department in terms of the present incentive and promotion structures. Taking advantage of a weak Forest Department, the conservation agencies have become *de facto* managers of the natural resources, mainly wildlife, in the NAs. Despite claims of community development through conservation, conservation agencies implement projects that focus mainly on the conservation of endangered animals. During this process, the Forest Department is losing power and is likely to decay further by the time NGOs accomplish their time-bound

projects, leaving a huge institutional gap in the region. In order to avoid this upcoming crisis, the paper suggests that instead of portraying the Forest Department as exclusively corrupt, there is a need to focus on the potential positive role of the Forest Department, which remains an important actor in forest management. In order to enable the Forest Department to become a viable partner in co-management, it requires reforms in three sectors: incentive structure, competence building and institutional powers to make timely decisions. These reforms must also investigate the old and outdated legislation that currently defines the frame conditions under which Forest Department is expected to play its role, with few resources and without much initiative of its own.

9.3 Methodological challenges and data interpretation

Methodological challenges particularly on estimation of fuelwood have always been there since fuelwood estimations are fraught with mistakes. These challenges are explained in detail in the methodology section (8.3) in the introduction. Despite a more careful methodological approach adopted for estimation of fuelwood for this study, the results could be interpreted by various actors in different ways. Three possible examples are given below:

If we only rely on the fuelwood survey (Paper 1) and data from satellite imageries (Paper 2) ignoring the estimation provided by local elders and the official records for commercial harvesting (Papers 1 and 2) and assume that the Basho forest was 50 percent larger in 1974 than in 2001 (considering only cover and not the density since only cover was estimated using the satellite image), we can conclude: The Mean Annual Increment (MAI) of the upper Basho forest in 1974 was 436 m^3 (roughly projecting from 218 m^3 in 1998). The local use in upper Basho in 2001 was 1900 m^3 (both timber and fuelwood). Since there has been no significant change in population, the Basho forest could have been in decline over a longer period, even before the initiations of commercial harvesting. Therefore the claim (Papers 1 and 2) that Basho forest has reduced due to commercial harvesting might not be true.

According to official records, mean commercial harvesting for 27 years (Paper 1), was 1914 m^3 (disregarding the unofficial or illegal harvesting). Local harvesting in 2001 for upper Basho was 1900 m^3. This could have been even less in the past as local wood consumption owing to changing socio-economic conditions has increased over time (Paper 1). This implies that commercial harvesting for 27 years has been significantly more than the local use. Therefore, without commercial harvesting, the forest cover in 2001 could have been in a far better condition and it would have reached the degraded condition observed in 2001 only after 35 years with the pace reached with local use only (27 years for commercial harvesting and assuming around 10 years for less local use in the past).

Combining all data sources given in paper 1 and 2, the following can be concluded:
The local use in upper Basho in 2001 was 1900 m^3 while recorded (legal) mean annual commercial harvesting volume was 1914 m^3 (Paper 1). Local elders estimated that on ground harvesting was 10 times higher than the recorded and legally permitted harvesting (Paper 2) i.e. 19140 m^3 per year. This alone would account for ten years of legal commercial harvesting. Satellite imageries from 1976 covered only some part of the forest. The forest inventory conducted in 1998 indicates that the forest was already reduced to a small patch when compared with the quantity of wood harvested during the last 27 years (local and commercial harvesting). This implies that if commercial harvesting was not carried out, and assuming that the current local use had continued, the forest could take 271 years to reduce to the condition as observed in 2001. Therefore, the claim made in paper 1 and 2 that the forest has declined due to commercial harvesting is correct. The data from Basho therefore, do not support the assumption made by the THED that deforestation in Himalayas occurred mainly due to population pressure. The claim made in paper 1 and 2 is further strengthened when data in these papers is combined with the qualitative information presented in paper 3 and in the introductory chapters particularly in sections 6 and 7.

The above discussion suggests that any interpretation considering one set of data at a time and not the others could be misleading. This is particularly true in cases where previous

records for commercial harvesting and local fuelwood consumption are not available and estimation are made on the basis of quantitative data collected only on fuelwood consumption. Such data can be interpreted differently by various actors (Ives and Messerili 1989), or to repeat Thomson et al. (1986), "do not ask what the facts are, ask what you would like them to be" (p. 73).

The government, including the Forest Department established in 1958, has no records concerning the extent of forest cover in Basho except for recording by Banat Gul Afridi, Political Agent of Baltistan in 1968, who after a brief visit to Basho guessed the upper Basho forest to be two square miles (Afridi 1988). From Afridi's description it is not clear if he included the entire Basho forest in his estimation or only estimated parts of upper Basho forest, which were easily accessible compared to the other parts of the forest. In this situation, the only reliable source which remains is the local elders who know their villages, pastures and forest. Therefore, most reliable source for estimating forest cover change in this document is the local elders. Combining their accounts with that of commercial harvesting elsewhere in the NAs initiated around the same period as in Basho, it is argued in paper 1 and 2 that much of the forest from Basho has been harvested by the government during 1968-1992.

9.4 Actors and interests

The data in section 6 describe the main actors and the associated issues in natural resource management in Basho. These actors are: the local communities, the Forest Department, and the conservation and developmental agencies (e.g. the AKRSP and the IUCN). These actors have diverse interests, even within their groups, and interact with one another at different levels. Each actor has a certain degree of influence in natural resource management: the communities at local level, the Forest Department at local and the NAs level, and the NGOs at international, national, regional (NAs) and local levels. The local communities value resources for local use, including fuel, timber, grazing areas and minor forest produce. The Forest Department is the legal custodian of the natural resources, including the forests, and has focussed mainly on harvesting forests for

commercial use, without much consideration of the sustainability of the resource in the longer term. The international conservation agencies claim to have an interest in ecosystem management and to pursue the participatory approach at the community level; however, they focus mainly on the conservation of endangered wild animals of global significance. Despite the fact that forests provide the habitat for these wild animals, conservation agencies have not considered interventions related to the regeneration of forests, except for a token mention of the significance of forests in their project documents.

Although the forest is the property of the government; the communities have use rights over the forest. Communities from different villages compete over access and rights to use different forest and pasture areas. The open access use of the forest during the period when commercial harvesting was at its peak; has intensified these contests and claims. In one area, a community sold government owned forestland to another community for building summer farms and animal sheds. Although the communities have resisted external pressures on the forest and have attempted to restore its previous common property status, they have not been able to settle their own internal conflicts as effectively. Such conflicts have resulted in the emergence of local harvesting practices that are considered to be detrimental to the sustainability of the forest. The communities blame each other for these practices. This shows that communities are united in the face of external threats, while they tend to be relatively fragmented when it is about their internal issues.

The communities have a history of implementing successful management practices in common property, across all social segments in village populations. As an example, in Basho, even the deposed ruler of Skardu is not allowed to bring his livestock for grazing despite the fact that he owns lands in Basho, since he is not considered to be a legitimate resident of Basho. His tenants, however, who live in Basho, cultivate his fields and contribute to the communal management of irrigation channels, pastures and other systems, are allowed to graze their livestock in communal pastures. This example indicates that because of long-standing traditions, communities possess inherent

capacities and willingness to define frame conditions in terms of the use of property. They are also prepared for possible disputes that may arise and even settle those, especially when they are confronted by sudden interventions by a powerful outsider, such as the Forest Department. This conclusion is confirmed by recent successful examples, where communities implemented restrictions both on local use of fuelwood and wood harvesting by outsiders, in a number of valleys in the NAs.

9.5 Implications for the THED

Since the mid 1980s, a number of studies have emerged from across the Himalayas – including Nepal, India, China and Pakistan. Using empirical evidence, these studies have shown that population growth and perceived deleterious practices as projected by the THED, are not the main causes of deforestation in the HKH regions. This particular study contributes to this discussion and confirms the findings of the other studies. The population in Basho has not grown rapidly, as opposed to deforestation in the area, which has been much more rapid and extensive. This was as evident in Basho as elsewhere in the NAs, where deforestation was triggered as a result of the construction of road networks after the 1960s.

Contrary to the THED assumptions, the local people have generally resisted removal of the forest by the government. Blue pine, juniper and birch trees, the three species declared as government property, are disappearing from the government lands, while the farmers in some areas have managed to protect these species present on their private lands and pastures. The THED assumes that hill farmers remove trees in order to clear land for cultivation and grazing. This claim is not supported by data from Basho and other valleys in the NAs. After a brief but ruinous period of harvesting by the government, the communities took the initiative and successfully implemented a ban on the harvesting of forest for the use of timber outside the valleys. In some areas even local use is regulated by the communities, where cutting green trees without permission from local village committees is restricted. Offenders have to pay fines, something the Forest Department could never enforce. The establishment of plantations on communal lands

and their communal management is yet another example of hill farmers caring for the environment, whereas the Pakistan National Conservation Strategy (1992) assumed that hill farmers were removing the vegetation, "bit by bit" (p. 171).

Forests; both natural and planted, are vital for the subsistence of hill farmers and it is for this reason that they care for forests. However, forest officials may not see multipurpose trees planted by communities as 'trees' – for the officials only trees having commercial value as timber seem to qualify under the definition of a 'tree'[80]. This fact is evident from the contrasting definitions of deforestation given by various actors. The forest officials in Basho; care mainly about blue pine which is a commercially valuable timber tree species. Birch and juniper are not considered worth conserving, although juniper is classified as an endangered species.

The THED's main argument has been that the removal of vegetation by hill farmers has resulted in silting of rivers and water reservoirs, and consequently floods in the plains. Studies of the Tarbela water reservoir in Pakistan (WCD, 2000) show that silt in the Indus is carried mainly from high peaks in the Karakoram which is devoid of vegetation, as opposed to the THED's assumption that siltation in Tarbela has increased as a result of deforestation in the Himalayas. During the period when the government harvested the scarce natural forest in the NAs, the communities planted 26 million plants in the NAs on private lands. One would expect that planting millions of trees on private lands in the hills would certainly have reduced siltation, if the case projected by the THED was accurate.

The data in section 4.1.2 concerning farm forestry in Pakistan indicate that the state-owned natural forests contribute only 0.5 million cubic meters of fuelwood and 0.2 million cubic meters of timber per annum, compared to 2.6 million cubic meters from privately raised plantations (Myers and Bass, 1999). Where the management of natural forests has been a failure, farm forestry projects in Pakistan have shown exceptionally successful results. Data concerning the contribution of wood supply from natural and

[80] See Dove (1993) for a discussion on perceptions of trees and shade.

farm forests for the NAs are not available, except for the Basho Valley, where surprisingly the contribution of natural forests is higher than farm forests (see Paper 1). However, the case of Basho is exceptional since Basho is one of the few valleys in the NAs which have rich natural forests. The rest of the NAs have extremely low vegetation cover – less than 5 percent of the total land area. Even in Basho, large scale afforestation has begun since 1998, which is managed communally. Wood harvesting from these plantations in the future could reduce pressure on the natural forest for local needs.

A further argument is that in the NAs, where wildlife had decreased mainly due to hunting by officials, it has now shown an increase (see section 5.1) as a result of community efforts and sustainable management of pasture over the centuries. This evidence nullifies the argument that communities may have degraded communal pastures due to overstocking.

9.6 Implications for property rights theories

This thesis does not deal with the property rights debate, and detailed data from Basho are not available on this topic; it is therefore difficult to arrive at clear conclusions. Nevertheless, the following brief summary is presented, based on the data in the introduction (sections 5, 6 and 7 in general, sections 6.1.1, 6.2.7, 6.2.8, 7.4.3.3 and 7.5.3 in particular).

The conceptual basis of the privatization of common property resources is the belief that private ownership of resources will secure property rights and guarantee future returns. In addition, it is believed that private property becomes an incentive for individual owners to manage their property on a sustainable basis (Demsetz, 1967; Smith, 1981; Welch, 1983), whereas common property degenerates into open access – free for all (Hardin, 1968). The Basho case cannot be explained on the basis of these assumptions. The forest in Basho is the property of the government, and a well-defined group of users (the communities of Basho) have used it for centuries without the forest and pasture degenerating into open access.

The use of natural forests and pastures is determined by various factors and established communal regulations. The herd size cannot be increased to an unlimited extent to gain maximum use from communal pastures, as assumed by Hardin (1968). Herd size is determined by a number of factors – amongst others, limited autumn/spring pastures near the villages, the availability of household labour, winter fodder, summer houses, and space both for human beings and animals in a vertical grazing system[81]. Such grazing systems start from the village in spring and end in the alpine pastures in summer, which necessitates pauses in between (middle zones with cultivable land in some instances). These systems are governed by local traditional institutions. There is no free-for-all property in Basho, be it the forest or pastures, as assumed by property rights theories. All studies conducted in the NAs (Nusser and Clemens, 1996; Gohar, 2002; Kreutzmann, 2004; Schmidt, 2004) argue that natural resources in the NAs are not free-for-all, but have been managed by a well-defined group of interdependent resource users for centuries. Individual strategies for animal husbandry are guided by communal customs with regard to the utilization of common pastures. The private pastures around the cultivated fields are also used communally by a defined, but limited group of users.

The forest in Basho remained free-for-all during the period of commercial harvesting by the government. This situation, however, was soon arrested as a result of community agitation. The emergence of community conflicts over rights to access certain parts of the forest is an example of an identifiable group of users claiming their rights. Despite the fact that the forests are government property, the communities have resisted their exploitation by outsiders sponsored by the government. Further, communities will derive better benefit from the forest for longer, if the forest is managed communally. Dividing the forest, or converting it into private property are neither solutions nor legally possible, since the forestland is government property.

The communal system compels all in Basho to cooperate with each other, for the mutual

[81] Also known as *Staffel wirtschaft* (altitudinal zonation of land use) or *Almwirtschaft* (high pasture economy) (Kreutzmann, 1989; Uhlig, 1976; 1995 quoted by Nusser and Clemens, 1996, p. 122). Also see Kreutzmann (2004) for details of this system.

benefit of households. It is illustrated by the fact that the households which maintain dual residences in Basho and Skardu have to surrender their right to use forest since its use is communal and is enjoyed only by virtue of people's presence in the village. The households shifting to Skardu have argued that they have a right to harvest wood from Basho for their domestic use in Skardu. But this claim has been successfully resisted by the remaining community in Basho. In the argument for private property school, households shifting to Skardu or elsewhere, could have easily harvested and sold or used their share of the forest. In a subsistence economy like that of Basho, only a communal system could prevent the resources from being exploited by others. Therefore, the sustainability of natural resources in Basho is strongly founded on a communal system of rights and obligations that have existed for centuries.

9.7 Implications for co-management and community-based management

Co-management is described as the sharing of decision-making power by the state with non-traditional actors (such as local resource users, environmental groups, or local people) in the process of resource management, while community-based management stresses the devolution of more decision-making powers to the community (Campbell, 1996). For co-management to succeed, two conditions are essential: A. that the partners have the authority and required resources to implement regulations, and B. that regulations are amended to address changed realities on the ground. The following paragraphs describe the case of Basho in this regard:

A. Partners

The community

The natural resources in Basho are used as common property by a well-defined group of users. Use and access are governed by the exclusion of non-owners; it is an endogenous authority system which ensures that the expectation of rights holders are met – one of the essentials for common property management (Bromley and Cernea, 1989). The authority of local institutions remains intact. Decisions regarding resource management are

controlled by local systems ensuring that rights and obligation are balanced. The natural forest has decreased as a result of commercial harvesting; however, the communities have planted extensively in order to compensate for harvesting and sustain the forest. The increase in forest cover in 2008 (see sections 4.1.2 and 6.2.7) when compared to 1998 was expected, due to large scale afforestation initiated in Basho by the communities, with the support of NGOs. The main feature of the land tenure system is a combination of state claimed ownership to land, and community and household user rights, established through a mix of local customs, legislation, legal practices and ongoing informal appropriations. The alpine pastures are managed communally by seven villages in Basho without any interference by the state, a system which has evolved according to the local needs and environment. Only the legitimate users can practice free grazing within the *broq* and around the cultivation area. The areas above the *broqs,* called *sosa,* are used by the entire village, or group of villages, for free grazing during the summer months. Separate areas are assigned for all residents of Basho to perform recessive grazing by weak and diseased animals. Grazing by healthy animals in these areas is restricted. The local institutions are also instrumental in deciding farming related activities, including *Harkongres Lokhat, Bakhat* and *Biakhat* (see sections 6.2.7 and 6.2.8).

Every household is supposed to respect and contribute to the communal systems which ensure that the socio-economic system in the valley runs smoothly. In case of disputes not settled by local elders, religious leaders at the local level are consulted. For example, in the case of 'free riding' attitudes towards forest resources, the religious leaders declared that the forest is communal property; therefore, selling wood is *Haram.* Through negotiation involving the traditional institutions, religious teachings, and new emerging institutions (for example, the BDO and VCC), the communities of Basho have been able to deal with emerging challenges. For example, the simultaneous practice of sustainable use and commercial harvesting is a new concept, still to be tested for viability in Basho.

The above description of the community institutions in Basho is not intended to paint an ideal situation. The data collected from Basho (Paper 3) indicate the presence of conflicts on access to forest resources which surfaced mainly during the free-for-all commercial

harvesting of the forest during 1960-1993. Despite such internal conflicts regarding access to forest resources, the systems described above do indicate that local institutions have the inherent capacity and potential to become a viable partner in the co-management or community-based management of natural resources.

The Forest Department

The main critique of common property approaches to resource management has been that these approaches treat communities as homogenous entities without conflicts (Leach et al., 1997), and that they assign an important role to communities, which may not be applicable everywhere (Hanna et al., 1996). The role of state institutions therefore, is considered crucial in establishing property rights regimes that fit a particular cultural, economic, geographical, and ecological context (Hanna et al., 1996).

In the case of the NAs including Basho, the Forest Department is the custodian of the forest and could play a meaningful role in establishing property rights regimes where applicable, as suggested by Hanna et al. (1996). For centuries, the communities have used forest resources without much external influence. Thus, the department is a relatively new addition to the existing landscape of government institutions. Initially, the communities considered the Forest Department to be an addition to the existing powerful Revenue Department, and did not resist its control over the forest. Soon, however, the Forest Department and its actions, mainly commercial harvesting, were checked by the communities in Basho and elsewhere in the NAs. It is interesting to note that the Forest Department, after its establishment in the 1950s, carried out its traditional role to harvest timber to fulfil government's needs, in a forest that was not meant for large-scale harvesting. If the purpose of establishing the Forest Department was to carry out commercial harvesting, this could have been done by the Revenue Department instead, which had more resources and power to enforce government regulations. In the private forest of Diamir, the Revenue Department is still in charge of important decision making regarding commercial harvesting. The role of the Forest Department therefore, is no different from any other law-enforcing government agency.

B. Regulations

The main instruments that empower the Forest Department are the Forest Act 1927, the Wildlife Act 1975, and other regulations enacted during the last 60 years. With decreasing forest resources, owing mainly to mismanagement by the Forest Department to fulfil demands of the government, regulations were increased to strengthen the department. Notwithstanding the increase in regulations, the authority of the Forest Department has eroded further. In the Protected Forests, the communities have developed their own regulations and the Forest Department officials have to follow these regulations if they wish to remain relevant in forest management. The activities of the department have also been restricted by the communities in many valleys. Wood harvested legally with the permission of the department was confiscated and check posts were established by the communities. Department officials have unwillingly made local arrangements with the communities to ensure their own presence in the valleys. In Diamir, the department has been empowered with unprecedented powers (even amounting to termination of rights to appeal); however, the timber traders continue to harvest millions of cubic meters of timber, despite the ban imposed by the government. Interim policies for legal disposal of illegally wood help the traders. In the National Parks, some communities respect regulations only in response to incentives provided by the department, while others practice their traditional use rights in the park areas.

The conservation agencies have shown great interest in the NAs since the 1970s. A number of agencies are currently implementing small to large-scale projects. There is no legal provision for these projects and the Forest Department has to cooperate unwillingly, as most of the projects are implemented with support from higher authorities in Islamabad. The conservation agencies are so influential that they even temporarily restructure the Forest Department to facilitate their project implementation.

Co-management suggests negotiations rather than litigation as a means to resolve conflict (Campbell, 1996), but this is not yet the case in the NAs. The current legislation only empowers the department to engage in litigation, as was evident in case of the KNP, and

the Bar, Gudai and Basho Valleys. By increasing the powers of the department, which it has not been able to exercise, the central government has pushed the department into a situation where it can neither enforce the legislation, nor shun it, even if it wanted to do so. By sidelining the department, and with the lack of appropriate legislation, the communities and the conservation agencies have taken an active role in resource management. In some instances, arguably, the communities have even taken over control of the forest resources.

In view of the long history of community management of resources, coupled with the recent trends, community-based resource management seems to be a more viable option instead of co-management in the NAs. However, the role of the state, through its institutions, remains important in the wake of conflicts that could arise as a result of greater involvement of conservation agencies. For example, the population of the entire district is expected to participate in the conservation of wild animals, yet the benefits of commercial harvesting (e.g. trophy hunting) are then provided only to a single village. Such situations could create conflicts and a feeling of exclusion among the communities, particularly in cases where some commercial activities may not be feasible. In addition to this, there are opposing arguments on community based wildlife conservation and incentives regulation. If the poor are offered incentives from conservation, as is the case elsewhere in the NAs, cash income from conservation activities becomes an incentive for the communities to participate in conservation (Tortell et al., 2006). In an opposing opinion, Hussain (2007) reported that the promotion of trophy hunting based on the increasing population of ibex, has been counterproductive to the conservation of the ecosystem as a whole. The communities tend to be protective towards animals which serve as a source of cash income and retaliate against carnivores, particularly the snow leopard, which preys on ibex and other trophy animals in the NAs.

9.8 The Basho case – as opposed to other forest divisions of the NAs

The Forest Department manages forest and wildlife resources in the entire NAs. With the exception of Diamir, the forests in all the other divisions fall under the same category.

Forest cover in the entire NA is scarce and crucial for the subsistence of the local communities. Commercial harvesting throughout the NAs was initiated at more or less the same period. The main actors described for Basho, except the HAINRMP, are the same as anywhere else in the NAs. Similarly, the forest legislation is applicable to the rest of the forest divisions (with Protected Forests) in the NAs. Therefore the discussions in sections 9.4 to 9.7 above apply to other forest divisions in the NAs.

However, diversity in socio-economic conditions and political activism exists from district to district, which may influence resource management in the various areas rather differently. For example, the communities in Nagar and Astore have been able to garner more resistance against commercial harvesting, when compared to those in Basho. One reason for this could be the relatively higher exposure of the communities in these areas to the outside world. Historically, Astore was the hub of trade between the NAs and Kashmir before 1947. The jeep road between Gilgit and Srinagar passed through Astore before 1947. The political activism of the people in the Astore Valley is well known in the NAs. Due to its proximity to Srinagar, the people of Astore had more opportunities for education and trade before 1947. Nagar has also resisted external influences and has a recent history of rebellion against local rulers (Gohar 2002). In addition, the AKRSP's influence only reached the Nagar and Basho Valleys in the early and late 1980s respectively. Despite these diversities, the communities all over the NAs have resisted state influence in forest management and have cooperated with NGOs and conservation agencies in pursuit of the sustainable management of resources. Therefore, the discussions and findings of this study could apply to other forest divisions in the NAs.

9.9 Implications for Private Forestry as opposed to communal management

Diamir and Basho present the two opposing cases of private and communal management of forest resources respectively. The Forest Department in Diamir manages the forest (mainly in the form of control of commercial harvesting) by charging a fee per unit of wood harvested. Diamir is a tribal society and NGOs have not been able to operate in the district. Attempts by the AKRSP to implement its rural development programme in

Diamir were met with social resistance. A government controlled programme funded by the International Fund for Agriculture Development (IFAD) also known to have faced difficulties due to resistance by religious leaders. The Forest Department in Diamir has not been able to regulate the harvesting of timber. In Diamir, the community is reported to have agitated against the ban on commercial harvesting, while in Basho the community supported the ban.

Due to the differences in land tenure, and cultural diversities, the findings from Basho would not apply directly to Diamir. However, what is common is that in both Protected and Private Forests in the NAs, including Diamir, the government has mismanaged resources through large-scale commercial harvesting. Therefore the government is mainly responsible for the large scale deforestation both in Protected and Private Forests.

10 Overall conclusion and directions for future research

The results of all three papers and the sections summarized above are combined in this section, to present a holistic picture of the past approaches to forest management and potential future research areas.

This study took the Theory of Himalayan Environmental Degradation (THED) as the starting hypothesis. It used a political ecology approach, including an in-depth analysis of actors and conflicts, following an actor-oriented approach.

The study has shown that local use and practices are not necessarily harmful to the sustainability of forests, as projected by the THED. The population in the Basho Valley has not increased significantly as generalized by the THED for the entire Himalayas. The local communities in Basho have managed their communal resources for centuries, based on the principles of sustainable use. Before the establishment of the Forest Department, the forests were managed by the communities. Local use of wood and grazing could have some impact on forest regeneration; however there is no evidence of large-scale deforestation during this period. After the Forest Department established its control over

forests and made various interventions, the forest became an open access resource. This resulted in severe degradation of the forest, to the extent that the remaining forest can no longer withstand even the current local pressure for timber and firewood. The open access use of the forest also created conflicts among the communities, which resulted in practices that could be regarded as detrimental to the regeneration of the forest.

The points discussed above lead to the conclusion that natural forests can be better managed through enabling communities to become a lead partner in community-based conservation. Three main actors are identified for community-based conservation – the communities, the Forest Department, and conservation agencies. The communities have centuries of proven experience in the successful implementation of regulations that balance rights and obligations in the use of common pool resources. The Forest Department can provide legal support for the implementation of regulations and can facilitate conflict resolution. Since the conservation agencies are able to influence international and national policy making forums, their role would be more effective in facilitating the decentralization process. However, the decentralization process needs to take into consideration the problems faced by the Forest Department as a whole, and its employees at all levels. It is crucial to recognize that the Forest Department has no actual powers to decentralize. The Forest Department is just a tool to legalize actions taken by the central government and the conservation agencies. The department has neither resources nor actual powers to enforce the enormous control suggested by forest legislation. Instead, the century-old and outdated legislation has become counterproductive for the department. Therefore, there is a need to empower both the communities and the Forest Department, if community-based conservation is adopted and there is the political goodwill to make it a success.

Conservation agencies have attempted to restructure the department in a fragmented way, in order to facilitate the implementation of conservation projects. Many conservation projects in the NAs, including those in the Basho Valley, are run by the conservation agencies (e.g. the IUCN and the WWF), without any major input from, or involvement of the Forest Department. It is evident that a certain shift in power has occurred in the NAs;

however power has shifted in a wrong direction, i.e. from the Forest Department to the conservation agencies, rather than to the local communities.

The strengthening of the power of international conservation agencies in this manner, at the expense of a national resource management institution, will undermine community interests in the long run. This is due to the fact that in reality, the approach of the international conservation agencies remains as centralized as is the Forestry Department's current approach. This can be seen from the large areas of forest which are reserved for conservation purposes, much like the Forest Department reserved areas for commercial exploitation – both following the rule blindly and acting rigidly. In both cases, community interests become secondary, with local women and men given no real share in decision making. Therefore, caution should be observed when defining the roles of the different actors, especially when it involves shifting power amongst large state and international institutions.

A final conclusion of this study is that the centralized forest policies in Pakistan have traditionally focussed on the management of natural forests. Farm forestry, which currently is the main source of wood in the country (except in Basho where the natural forest currently serves as the main source of wood), has not been recognized as a significant contributor. Even in the Basho Valley there is not much natural forest left for future use. Therefore, this study identifies the need for greater policy attention to supporting farm forestry as an integral component of the farming system. This is concluded on the basis that previous efforts at establishing farm plantations supported by NGOs and development projects, both in Basho and elsewhere in the country, have shown remarkable results and have significantly supplemented the supply of wood from natural forests in the country. This will also be an important contribution towards the conservation of the remaining natural forests, by means of reducing the pressure that they are facing today.

Having said that, it is also important to mention that since forests are degraded to the extent that they cannot sustain increasing local pressure, they are absolutely not ready to

sustain yet another wave of commercial harvesting, if the timber harvesting ban (imposed in 1992) were to be lifted. It goes without saying that some harvesting may be necessary for the scientific management of forests. However, the studies show that it was extra-legal intervention into the forests that was more harmful than legal felling.

This study confirms the finding of previous studies that deforestation in the NAs has occurred due to mismanagement, and that the traditional local systems of control and access are more efficient in sustainable resource management than centralized government control. Given the diversity that prevails from valley to valley, the results of this study cannot be generalized for the entire NAs. However, some similarities are noted for the valleys where Protected Forests exist – the communities are able to manage common pool resources, natural forests are scarce in the NAs, the Forest Department is the custodian of natural forests and is currently institutionally deteriorated. Furthermore, currently implemented legislation does not acknowledge socio-economic and resource abundance diversity from district to district; hence the legislation supports commercial harvesting and a ban thereon, at the same time throughout the NAs. It is in this context that the findings of this study could apply to other valleys.

Finally, this study suggests that the local traditional systems of common pool resources should be studied in greater detail. It is necessary to understand their usefulness and viability for community-based resource management, and their incorporation into forest and wildlife legislation. The legislation is considered to be outdated and amendments are currently under discussion in the NAs.

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PAPER I

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Fuelwood, Timber and Deforestation in the Himalayas

The Case of Basho Valley, Baltistan Region, Pakistan

During the past century the "Theory of Himalayan Environmental Degradation" has dominated mainstream views concerning natural resource management in the Himalayan region. The main tenet of this theory is that increased human population has resulted in increased demands for natural resources, leading to severe resource depletion, especially deforestation. In this article, we use local data on fuelwood consumption and timber extraction from Basho Valley in northern Pakistan to investigate whether such general perceptions regarding forest depletion can be supported by an empirical case study. The results of this study indicate that local fuelwood collection is not the main cause of deforestation. Instead, the estimated deforestation of about 30% during the last 3 decades is primarily due to commercial harvesting and mismanagement by the government. A large amount of dead fallen wood and green trees was sold by the government or was taken out by a "timber mafia" that emerged during the main period of commercial harvesting in the 1970s and 80s. Thus, it is commercial and illegal harvesting that has left the forest in such a depleted state that it can no longer withstand the pressure from local use.

Keywords: *Deforestation; fuelwood; timber; "timber mafia"; Himalayas; Pakistan.*

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Introduction

Fuelwood is an important component of household economies in Pakistan: it covers about 53% of total annual domestic energy needs (Government of Pakistan 1997). It has also been estimated that 70–79% of Pakistani households use fuelwood as a main source of energy (Hafeez 2000; Siddiqui 2000). This reliance on fuelwood is expected to remain high in Pakistan in the foreseeable future, mainly because the country's economic development is not strong enough for a shift from traditional to modern fuels (Siddiqui and Amjad 1993). The high demand for domestic fuelwood is believed to be the cause of Pakistan's rapid depletion of forests (Government of Pakistan 1992). The deforestation rate in the country is estimated to be the second highest in the world (IUCN 2002). The World Conservation Union (IUCN) has estimated that with the current population growth, wood consumption in Pakistan would increase by 3% per year. Hence, IUCN believes (2002), if the present rate of deforestation continues, Pakistan's forests may vanish within the next 10–15 years.

In Asia, the forests in the Himalayan region are considered to be among the most depleted (Tucker 1987; Duke 1994; Schickhoff 1995). Deforestation in the Himalayan region is also often attributed to increasing human population (Eckholm 1975, 1976; Sterling 1976; Lall and Moddie 1981; Myers 1986). Ives and Messerli (1989) called this explanation "overly simplistic" and have named it the "Theory of Himalayan Environmental Degradation." They argue that environmental degradation has been overdramatised, and often mere correlations between environmental degradation and other factors have been represented as a causal relationship. In this way, the conservationist literature has diverted the discussion from the main issues and the real causes of deforestation.

Despite the importance of fuelwood collection for the national economy, reliable data for Pakistan on fuelwood collection and its impact on natural forests are not available. This is especially true for the Western Himalayan region in the Northern Areas (NAs), where few—if any—empirical studies of fuelwood consumption have been conducted so far. The present study has been undertaken to respond to this lack of reliable data and to gain an understanding of how fuelwood collection by the local communities impacts on forests in the NAs of Pakistan. While other factors such as livestock grazing and conversion of forest to agricultural land may in some cases also be reported to contribute to deforestation, firewood consumption by local people is often mentioned in the literature as the main cause of deforestation in this region.

This study provides local data on fuelwood consumption from Basho Valley, and investigates whether general perceptions that forest depletion is caused by local fuelwood collection can be supported by this case study. In addition, the local extraction of timber was also estimated in order to be able to present a more complete picture of the causes of deforestation in the area. Indeed, overuse and mismanagement have been reported to have seriously impacted on natural forests in Basho Valley (Velle 1998).

Study area

Basho Valley is located in the Baltistan region in the NAs of Pakistan at 75°15′ E, 35°25′ N (Figure 1). The valley ascends from the southern side of the Indus river at an altitude of approximately 2150 m above sea level to the peak of Banak La (5520 m). Situated in the westernmost arm of the Himalayan range, Basho lies within a semi-arid and rugged mountain landscape. It is within

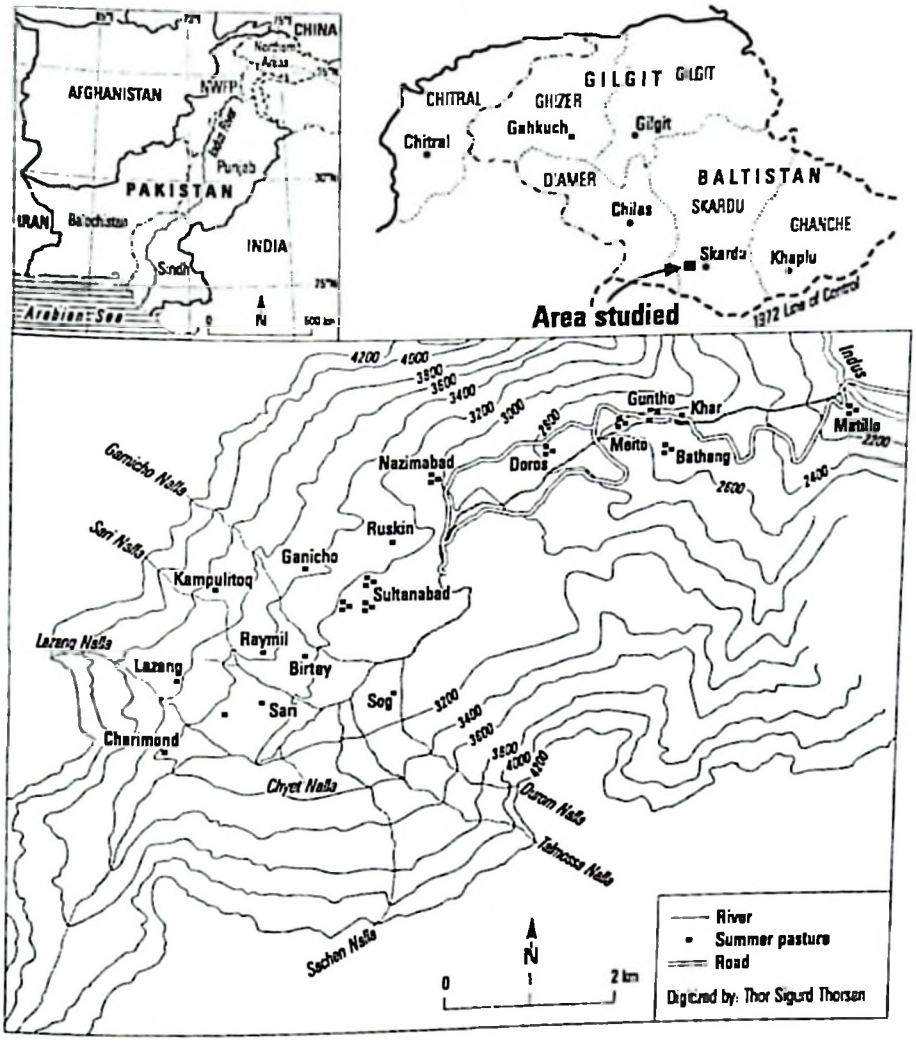


FIGURE 1 Map of Basho Valley and its location within Pakistan. Note: some borders on the location maps are not officially recognized. (Source of map: Velie 1998; redrawn by Andreas Brodbeck)

the rainshadow of the Himalayas. Average rainfall is estimated to be between 100 and 200 mm in the bottom of the valley but rises with elevation, thus creating a moister environment in the extensive, high-altitude rangelands. Because of the altitude, the area has a marked seasonal climate comparable to that of the temperate zone. The mean maximum temperature during summer revolves around 30–35°C, while the mercury may drop to –25°C in winter.

People in Basho live in 7 villages distributed in the zone of permanent habitation along the Khar Nalla stream: Sultanabad (highest village), Nazimabad, Meito, Guntho, Khar, Bathang, and Matillo (lowest village). The total number of households in Basho Valley was counted to be 286 during the fieldwork for this study and the total population was estimated to be 1950. Agriculture and livestock production are the major sources of livelihood. Crop cultivation is based on irrigation carried out by constructing irrigation channels that are fed by glacial snowmelt or springs.

Basho Valley falls under 3 vegetation types (Schweinfurth 1957). The lower northeastern part from the Indus river to about 2500 m is described as sub-tropical semi-desert. The area further up is classified as Artemisia steppe, dominated by scrubs such as *Artemisia maritime* and *Eurotia ceratoides*. The vegetation in the uppermost part of Basho varies greatly from the drier southeastern facing slopes to the moist northwestern slopes. Natural blue pine forest covers the northeastern facing moraine slopes (Figure 2). The forested moraine slopes are characterized by gulches and glacifluvial gravel fans, with sparse vegetation consisting of blue pine, willow, and other shrubs. Grassy slopes and *Juniper macropoda* cover areas where the forest has been cut. Above the pine forest, patches of *Betula utilis* delineate the upper forest line at about 3800 m.

Methodology

Assessments of annual wood consumption were carried out during the summer and winter of 2001. The consumption of fuelwood and timber for local use and commercial wood was assessed to calculate total annual consumption. The 7 villages in Basho Valley are diverse as a result of altitude, annual precipitation, and length of growing season. With rising altitude, the winter becomes longer and more severe, while the growing season is shorter. The upper 3 villages need fuelwood for heating for longer periods compared to the lower 4 villages. Therefore, the upper 3 and lower 4 villages were grouped separately. For each group of villages, a 25% sample of households was taken randomly. Altogether 72 households were sampled out of the total of 286.

For the estimation of fuelwood consumption, a weight survey method was adopted (Benjaminsen 1993). Two surveys were conducted, one in August for summer consumption and one in December for winter consumption. During the surveys, woodstocks in each sampled household were weighed at noon and the people were asked to burn wood only from that bundle. At noon the next day, the remaining part of the stock was weighed again and one day's consumption was calculated.

No records were available for timber harvested, as most of the wood used is harvested illegally. The best possible alternative method to estimate the timber used locally was to assess the amount of timber used in the local buildings. All the houses and animal sheds built during the last 5 years were counted and the total number of rooms in all these houses was recorded. From these data, the average number of rooms built in 1 year was calculated. One house and an animal shed in each village were sampled randomly for the estimation of wood used in the construction. A carpenter was hired to measure the wood used in each room of a sampled house.

To assess commercial wood consumption, Government Forest Department (FD) officials, local village elders, local jeep owners (who transport both legal and illegal wood), village forest conservation volunteers, and the owner of the only sawmill in Basho were interviewed. Through these interviews, the annual commercial wood consumption was estimated. Descriptive statistics for the average, standard deviation, and coefficient of variation were calculated using the MINITAB procedures.

Forest cover change in the valley was estimated through interviews to analyze historical trends in the deforestation rate in Basho Valley. Fourteen elders, 2 from each village, were interviewed for this purpose. In addition, 11 foresters that had served in Basho Valley were interviewed to obtain general information on forest use.

FIGURE 2 The upper Basho forest: local elders estimate loss of forest cover. Blue pine and juniper forest patches are visible northeast of Basho Stream. The village of Sultanabad with cultivated fields (barley) is situated southeast of the stream. (Photo by Tor A. Benjaminsen)

FIGURE 3 Daily fuelwood consumption in kg per capita in Basho Valley during the year 2001

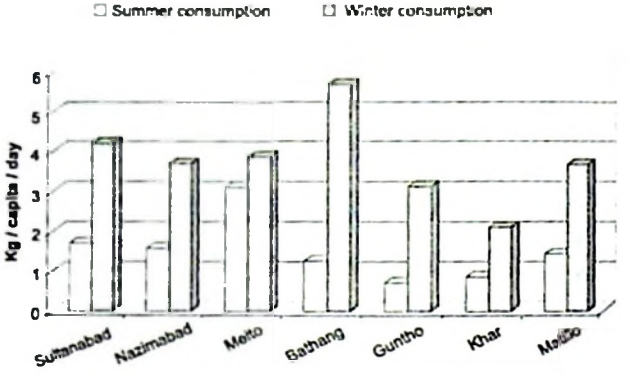
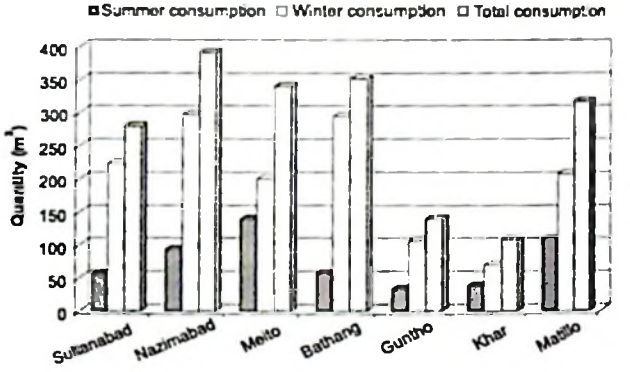


FIGURE 4 Yearly fuelwood consumption in m^3 in Basho Valley in 2001



For the Basho forests, no studies were available before Velle (1998), as no inventory or forest management plan has been prepared in the past. Therefore, an estimation of forest change was not possible through field measurements in the absence of records for comparison.

Results and discussion

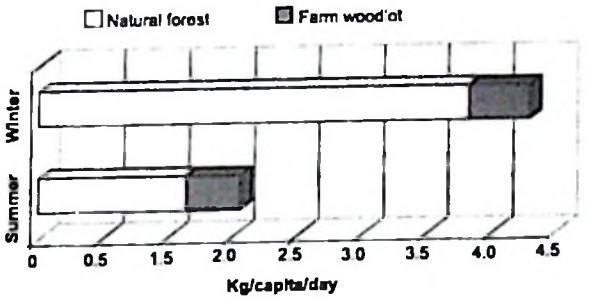
Fuelwood for local use

The survey recorded the source of fuelwood from both private and natural forests. The total wood measured in tons was converted into m^3. The measurements showed that a total of approximately 3044 m^3 of wood was harvested from the natural forest, while 635 m^3 came from farm woodlots in 2001.

The data for daily and yearly fuelwood consumption (Figures 3 and 4) show that wood consumption for the upper 3 villages—Sultanabad, Nazimabad and Maito—is higher compared to the lower 4 villages, except Bathang where winter consumption is higher than in all other villages. This village lies just below the Gorikh forest, which means that the villagers from Bathang do not have to carry wood over long distances. Bathang is also situated in the eastern part of the valley and remains under shade for most of the daytime especially during winter. Easy access to the forest and its location in the shade appear to increase wood consumption in Bathang. Fuelwood consumption in Basho Valley is associated with both village altitude and its distance to the natural forest. People in villages situated in higher elevations consume more wood because of longer winters than villagers at lower elevations. Also, the people in villages situated near the forest consume more wood compared to the villagers situated at a further distance. Inhabitants of the upper 3 villages harvest wood mainly from the upper Basho forest, which is accessible by jeep road. The villagers situated in the middle villages, Guntho and Khar, collect wood both from upper Basho and other forest areas (Gorikh and Farah), which have no jeep road. Both Guntho and Khar do not have easy access to any of the forests in Basho and hence have the lowest wood consumption rate. Matillo, which is situated at the entrance to the valley, has a longer summer and milder winter compared to the rest of the villages. Despite this, wood consumption in Matillo is higher than what is the case in Khar and Guntho. This is most likely due to easy accessibility of wood from farm woodlots in Matillo.

Wood harvesting from farm woodlots remains almost the same throughout the year. However, harvesting from natural forests increases by a factor of 3 during winter (Figure 5). Four villages—Sultanabad, Nazimabad, Khar, and Bathang—depend only on natural forests during winter. In Sultanabad and Nazimabad

FIGURE 5 Comparison between summer and winter fuelwood consumption in kg per capita per day in 2001.



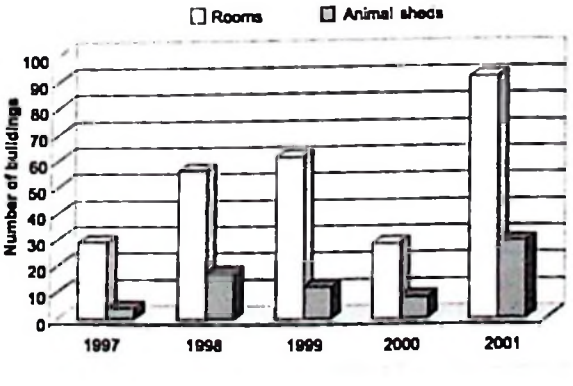
very few trees are grown in the farms due to the short growing season. In the lower villages including Khar and Bathang, more trees are grown in farm woodlots. Farm forest products are sold on the market in Skardu, the nearest town, especially during winter when there is a high demand for fuelwood.

Timber for local construction

A total of 265 rooms and 70 animal sheds were built in the last 5 years. We noted an increasing construction trend of new buildings from 1997 to 2001, except for the year 2000 (Figure 6). This increase could, for example, be due to an increasing number of people engaged in off-farm employment. Those who engage in off-farm employment add a new room to their existing house or build a new house mainly to cater for guests. Though limited, off-farm employment opportunities have increased in Basho over the years.

On average about 360 m^3 of wood was used each year for construction of the houses and animal sheds. Wood for construction is generally harvested from the natural forests without formal permission. During the years 2000 and 2001 no permits for harvesting timber from the Basho forests were issued by the government. However, 59 poles damaged by natural hazards were distributed by the FD among the local people during this period. Considering the number of rooms built during

FIGURE 6 Construction trends in Basho Valley (1997–2001).



2000 and 2001, this seems an underestimation. Access to a permit to harvest timber is very difficult due to complicated procedures. Therefore people generally do not apply for permits.

Commercial wood and the "timber mafia"

The natural forests in Basho fall under the category "protected forest." Protected forests are a legal category; they are government property but local communities have all the use rights unless the government explicitly restricts them (Rao and Marwat 2003). Commercial harvesting in these forests is not permitted in principle. However, harvesting on a large scale was carried out in Basho forests in the past to cater to the government's construction needs. In this process, private people from outside Basho were also given permits. The government does not classify such harvesting as commercial. In this paper, "commercial harvesting" is used to describe harvesting that brings wood (timber and/or fuelwood) out of Basho Valley either for government use or for sale.

The official records at the Divisional Forest Office Baltistan (files concerning timber harvests from Basho) show that commercial harvesting started in 1974 and was banned in 1987. From 1974 to 2001, a total of 2002 trees (approximately 24,885 m^3, ie 1914 m^3 per year) were officially harvested. This does not include timber and dead fallen wood taken out without a permit. The local residents and some FD officials interviewed for this study believe that the FD records do not reflect the actual harvest. In Basho Valley most of the timber and fuelwood harvesting is carried out unofficially by what is locally known as the "timber mafia," which emerged during the period of commercial harvesting. This "mafia" (Yusufzai 1992) consists of an informal cooperation of contractors and some local people who earn cash from illegal wood sales supported by some government officials.

Before commercial harvesting started in the early 1970s, dead and fallen wood was abundant in Basho forest. The "mafia" collected dead and fallen wood either for free or by paying nominal charges, and sold it on the Skardu market where wood prices are the highest in the country. In 2001 for example, the tax to be paid to the government was Pakistani Rupees (PKR) 7.5 (US$ 0.12) per 100 kg firewood and PKR 304 (US$ 4.80) per m^3 timber. On the market in Skardu, the same amounts of fuelwood and timber cost PKR 350 (US$ 5.52) and PKR 2650 (US$ 41.80), respectively. In total, transportation, labor charges, and the government tax for 100 kg firewood would cost approximately PKR 77 (US$ 1.21). This obviously implies an attractive profit to be extracted in the wood business, and this profit was by and large appropriated by the "timber mafia."

By 1992, all the dead and fallen wood had been taken out of the forest and local people started cutting standing trees for fuel. Even though a ban has been put on commercial harvesting since 1987, the "mafia" is still active despite occasional resistance from the local population. In spite of the ban, the "mafia" members and other influential people still get a *chit* (hand written permit issued by FD officials) to export wood. A *chit* is different from a formal permit insofar as there are no records for *chits*. The 14 local elders, 4 jeep owners and 3 forest conservation volunteers interviewed estimated that on average 70 jeep loads of timber/firewood were transported out of Basho Valley each year illegally or using *chits*. Each load consists on average of 3 m^3 of wood. Therefore, around 210 m^3 wood would be taken out of Basho for commercial purposes annually. The standard deviation of the estimation made by the respondents for the number of jeep loads transported illegally was 5.8, with an 8.3% variation coefficient. From the statistical point of view this standard deviation is within the expected range (Montgomery 2001).

Further discussion

Estimating the impact of fuelwood collection on forests in Basho is a difficult task. Since the standing volume for the entire Basho forest is not available, it is not possible to compare this figure with the Mean Annual Increment (MAI) of the whole forest. However, inhabitants of the upper 3 villages in Basho collect fuelwood mainly from the upper Basho forest and since standing volume for this forest is known, the impact of fuelwood collection on the upper Basho forest can be estimated.

The figures for wood harvesting and consumption in the upper Basho forest paint a dismal picture for the future of the forest. Two decades of commercial harvesting have depleted the forest to a stage where local use is also starting to have an impact on the forest. The present study shows that a total of 4249 m^3 of wood is currently consumed each year in Basho. Out of the total, 635 m^3 wood is harvested from farm woodlots while 3614 m^3 comes from natural forests. Inhabitants of the upper 3 villages, who depend mainly on the natural forest, harvest 1746 m^3 fuelwood each year from the forest. The total standing volume in the upper Basho forest has been calculated at 18,176 m^3 and the MAI has been estimated to be 218 m^3 (Velle 1998). Therefore, even if only the inhabitants of the upper 3 villages continue to collect wood from the forest as they are doing at present and without taking into account wood harvested for construction and commercial wood, the remaining forest might disappear within 15–20 years at the current speed of extraction, unless alternative sources of energy or wood are made available.

The local population maintains that deforestation would not have occurred if commercial exploitation had not been carried out. The fact that certain age classes in the forest are missing corroborates the per-

ception that commercial harvesting has had an impact in addition to local use. Some areas have over-mature trees while other areas have been opened to the extent that new seedlings cannot survive due to direct sunlight and lack of moisture (Synnestvedt and Thompson 1999; Velle 1998). In 1998, normal regeneration was observed only in 5.5% of the forest area, some regeneration in 24% of the area, while no regeneration was observed in 70.5% of the area (Velle 1998).

According to a qualitative assessment by 14 elders, both Gorakh and upper Basho forests (Sultanabad) have been reduced by about 30% since extensive commercial harvesting started in 1974. The answers given by the elders do not deviate much except for 2 elders from Sultanabad, one of whom estimated the reduction to be 45% while the other estimated it to be 60% in the last 30 years. This could be explained by the fact that the upper Basho forests situated near Sultanabad are easily accessible and have been depleted more than the other forest areas in Basho. Interestingly, the estimation made by the elders match the findings of Gudbrandsson (2002), who reported a 31% forest loss in Basho from 1968–2001, based on stump analyses. However, these stump analyses were carried out only for the dense pine patches excluding open areas and most of the juniper forests. Inclusion of these areas could result in even a higher percentage of harvests for the period 1968–2001.

We conclude that during and after the period of extensive commercial harvesting a large amount of wood was sold by the government to outsiders or was taken illegally by the "timber mafia." At present, dead fallen wood no longer exists in the Basho forest. Therefore, the local population has no choice but to harvest green wood both for fuel and construction. The forest is classified as "protected forest" and has been too small in size for such large-scale commercial harvesting as was carried out in the past. Due to lack of any forest inventory, the forest authorities did not have sufficient information about how much wood was available for harvesting and how much was actually being harvested. A maximum number of trees were cut in easily accessible areas without considering the annual increment of the forest. Therefore, our conclusions confirm the local opinion that deforestation in Basho is primarily due to government mismanagement and extensive commercial harvesting endorsed by the FD.

Conclusions and relevance of the results to other areas in the Himalayas

Demand for timber from Basho and other forested valleys in the Northern Areas (NAs) increased as a result of the political and administrative reforms during the late 1960s (Afridi 1988) and early 1970s (Dani 2001). For example, the NAs consisted of 2 Political Agencies in 1971 and were divided into 3 districts in 1972 and 4 districts in 1974. This led to a huge demand for timber to construct new buildings in the newly created districts. Timber for construction in Skardu in addition to many other buildings and bridges elsewhere in Baltistan was mainly harvested from Basho. Deforestation in Basho started during the early 1970s, after the construction of a jeep road that was specifically built to access the forest to meet increasing timber needs in Baltistan. Therefore deforestation in Basho is a relatively recent phenomenon. Although internal factors, for example grazing and the conversion of forest land to agriculture, have also most likely influenced the forest cover to some degree, these factors are of secondary importance by comparison with the impact of large-scale commercial harvesting. The forest has suffered enormous quantitative losses specifically due to commercial harvesting during the last 30 years. After timber extraction was banned in Basho in 1987, FD officials continued to informally endorse illegal harvesting of timber, as profit opportunities for the timber business were high.

The data collected for this study do not support the Theory of Himalayan Environmental Degradation, which claims that deforestation in the Himalayan region is caused by population growth. The population in the mountain regions of the NAs of Pakistan has increased very slowly due to harsh living conditions in the course of history (tribal wars, famine and diseases) (Afridi 1988; Jettmar 2002). For example, in Basho the average annual population growth from 1951 to 1961 was almost zero (Afridi 1988). According to the local respondents this was because of high mortality rates due to epidemics and the absence of medical facilities. From 1951 to 1981, average population growth in Baltistan was recorded to be 1.7% (GSD 1982), while the population increased at an average rate of 2.5% from 1951 to 1998 (GSD 1999), compared to an average national population growth rate of 3.5% for the same period (Government of Pakistan 2003). Most of the deforestation in Basho occurred from 1974 to 1987, when commercial harvesting was carried out, while population growth was relatively low during this period. These findings concur with those of Schickhoff (1995), who studied forest cover change in the Kaghan valley in the Western Himalaya. In Kaghan, Schickhoff found that deforestation was a long-term process caused by changes in the socioeconomic environment in the early years of British rule, rather than being caused by recent processes of population pressure.

Increased losses of forest cover in the Darel, Tangir and Chilas valleys in the NAs during the last 30 years have been studied by Gohar (2002). Here, increased access and sectarian disputes, followed by mismanagement by the FD are described as the main reasons for

deforestation. Since the FD took over the management of the private forests in Darel, Tangir, and Chilas in 1951, the contractors were given a free hand to exploit the forest. The construction of the Karakorum Highway (KKH), which links Pakistan with China, also played an important role in accelerating deforestation. The KKH facilitated easy and cheap transport of timber to other areas. Similarly, Knudsen (1996) found that harvesting by timber contractors was the main cause of deforestation in the North-West Frontier Province (NWFP) of Pakistan. The above results from other Pakistani mountain valleys also raise questions about the hypothesis that population growth is responsible for deforestation in the Himalayan region.

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PAPER II

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The road to deforestation: An assessment of forest loss and its causes in Basho Valley, Northern Pakistan

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Abstract

Deforestation in the Himalayas is generally seen as caused primarily by population growth. Based on interviews and the analysis of satellite images, we critically examine this view using Basho Valley in the Western Himalayas of Pakistan as a case study. Our findings indicate that the forest of Basho has been reduced by at least 50% after the valley was opened up through the construction of a link road in 1968. Large-scale legal and illegal commercial harvesting was carried out after the construction of the road. While legal commercial harvesting was stopped in 1987, illegal harvesting has since continued with the involvement of the Forest Department. The findings of this study do not support theories in which deforestation is attributed to rapid population growth. Instead, mismanagement and illegal commercial harvesting endorsed by the Forest Department have been the main causes of deforestation in Basho Valley.

Keywords: Deforestation; Forest management; Himalayas; Pakistan

1. Introduction

Forest cover in Pakistan is only 5% of the total land area (Government of Pakistan (GoP), 1991) and is said to be rapidly deteriorating, especially in the mountainous regions (The World Conservation Union (IUCN), 2002). The conventional view on deforestation in Pakistan is that rural people overexploit the forests for local consumptive use (Sheikh and Aleem, 1975; Schweinfurth, 1983; Government of Pakistan (GoP), 1991; Food and Agriculture Organisation (FAO), 1998). This view implies the projection of a simplified relationship between deforestation and population growth in the Hindukush Himalaya region (Eckholm, 1975, 1976; Sterling, 1976; Lall and Moddie, 1981; Myers, 1986), which assumes that rapid population growth is the main factor that has led to loss of forest cover. This 'Theory of Himalayan Environmental Degradation' (THED) became the dominant narrative of the Hindukush Himalaya region during the 1970s and 1980s. THED attributes deforestation in the Hindukush Himalaya region to increased human and livestock populations in the mountains. This, it is argued, leads to increased floods and erosion particularly during the rainy season, disturbance of the hydrological cycle, devastating floods on the plains, and reduced life of water reservoirs because of increased sedimentation. THED has later been criticised based on empirical evidence arguing that the alleged relationship between deforestation and population growth is based on inadequate and questionable data (Thomson and Warburton, 1985; Blaikie and Brookfield, 1987; Ives, 1987, 1989, 2004; Hamilton, 1987; Ives and Messerli, 1989; Hofer, 1993; Blaikie and Muldavin, 2004).

International research on environmental change in the Hindukush Himalaya region continues to reject THED. However, THED continues to influence national environmental policies in the region (Blaikie and Muldavin, 2004). Generalisations and mis-perceptions are still presented especially by the media. Ives (2004) has provided an

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account of current mis-representations and generalisations projected in Hindukush Himalaya regions. He notes that 'generalisations only serve to deflect attention from the extent of poverty, mistreatment of poor minority people, and the cruel and self-destructive violent conflicts that are engulfing large parts of the region' (Ives, 2004, p. 228). Likewise, generalisations have played an important role in the politics of the Hindukush Himalaya region (Blaikie and Muldavin, 2004; Ives, 2004). For example, in India, environmental degradation has been used as an excuse for control over natural resources by the central government in the name of scientific management. While in China, THED has been used for political control over minorities.

This study contributes to the current discussion on Himalayan forest cover change and investigates its causes using Basho Valley (Fig. 1) in Baltistan region in the Northern Areas[1] of Pakistan as a case study. Most of the fieldwork was carried out during 2001–2003 and focused on the effects of local use, commercial harvesting and state management on the forest cover. Earlier studies from Basho Valley have suggested that there is extensive deforestation in the area (Velle, 1998; Gudbrandsson, 2002) and that the government has been involved in both legal and illegal commercial harvesting of timber (Steinsholt et al., 1998; Nyborg, 2002). These findings raise the following questions that are specifically investigated in this study:

- What is the extent of deforestation in Basho Valley and when did this deforestation occur?
- What are the causes of this deforestation?

2. Deforestation in the Northern areas

Until the British occupation of India in the nineteenth century, the forests of the Himalayas are considered to have been relatively intact (Khattak, 1976; Chaturvedi, 1992), but thereafter deforestation increased in many parts of the Himalayas (Tucker, 1982; Schickhoff, 1995). After the British occupation of Punjab in 1849, the troubled Sikh rule ended and people started settling down in farming communities in the northwestern hills. As a result, pressure on forests increased for wood, cultivation, grazing and settlements (Khattak, 1976). At the same time, demand increased in the lowlands for timber from the mountainous regions, as a result of integration between the lowlands and the mountains (Schickhoff, 1995). This increased forest exploitation, especially commercial timber harvesting through private contractors, resulted in considerable loss of forest cover (Tucker, 1982). Therefore, degradation of natural forests in parts of the western Himalayas has been a long-term process influenced by changes in the socio-economic environment (Schickhoff, 1995).

However, unlike the other parts of the Himalayas, deforestation in the Northern Areas is a recent phenomenon (Dani, 1989; Kreutzmann, 1991; Knudsen, 1995; Schickhoff, 1997). The population of the mountainous regions in Pakistan has increased very slowly due to traditional birth control measures (Jettmar, 2002), shortage of food (Afridi, 1988), and wars (Afridi, 1988; Schickhoff, 1995). Therefore, the forests of the western Himalayas and the Karakorum situated in the Northern Areas remained intact until the 1960s (Afridi, 1988; Jettmar, 2002; Gohar, 2002). Large-scale deforestation occurred in this area after the introduction of political and administrative reform[2] during the 1970s, when demand for timber increased for construction of government buildings and bridges (Gohar, 2002). Around the same period the construction of the Karakorum Highway opened up previously isolated forested valleys (Knudsen, 1995; Dittrich, 1997), resulting in the initiation of large-scale legal and illegal commercial harvesting of the natural forests (Kreutzmann, 1991; Schickhoff, 1997). In addition, increased deployment of the army along the border with India increased the demand for wood (Rao and Marwat, 2003). The above-mentioned changes in the Northern Areas also impacted on the forest cover in Basho Valley. The following section examines these changes and attempts to establish their causes.

3. Study area

Basho Valley is located in Baltistan region in the Northern Areas of Pakistan (Fig. 1). The valley ascends from the southern side of the Indus River at an altitude of approximately 2150 m above sea level to the Banak La Mountain at 5520 m. Because of the altitude, the area has a marked seasonal climate comparable to that of the temperate zone. The mean maximum temperature during summer is around 30–35 °C, while temperatures may drop to −25 °C in winter.

People in Basho live in seven villages distributed from top to bottom of the valley along the Khar Nullah stream: Sultanabad, Nazimabad, Meito, Guntho, Khar, Bathang and Matillo. The total number of households in Basho Valley was counted to be 286 during the fieldwork and the total population was estimated to be 1950. The population density was calculated to be 22 people per square kilometre in 2003 compared to 166 for Pakistan as a whole in 1998 (Government Statistic Division (GSD), 1999b). Farming and livestock production are the major sources of liveli-

[1]The Northern Areas is the fifth administrative unit of Pakistan consisting of five districts namely Gilgit, Skardu, Diamar, Ghizar and Ghancha.

[2]The NAs consisted of two Political Agencies in 1971, namely Gilgit and Baltistan. In 1972, these agencies were renamed as districts. Gilgit District was divided into two and three districts in 1972 and 1974, respectively. Baltistan District was divided into two districts namely Skardu and Ghanche in 1974. In each district, two to three sub-districts (officially called sub-divisions) were created. This required large amounts of timber for the construction of government buildings in the newly created districts and sub-divisions.

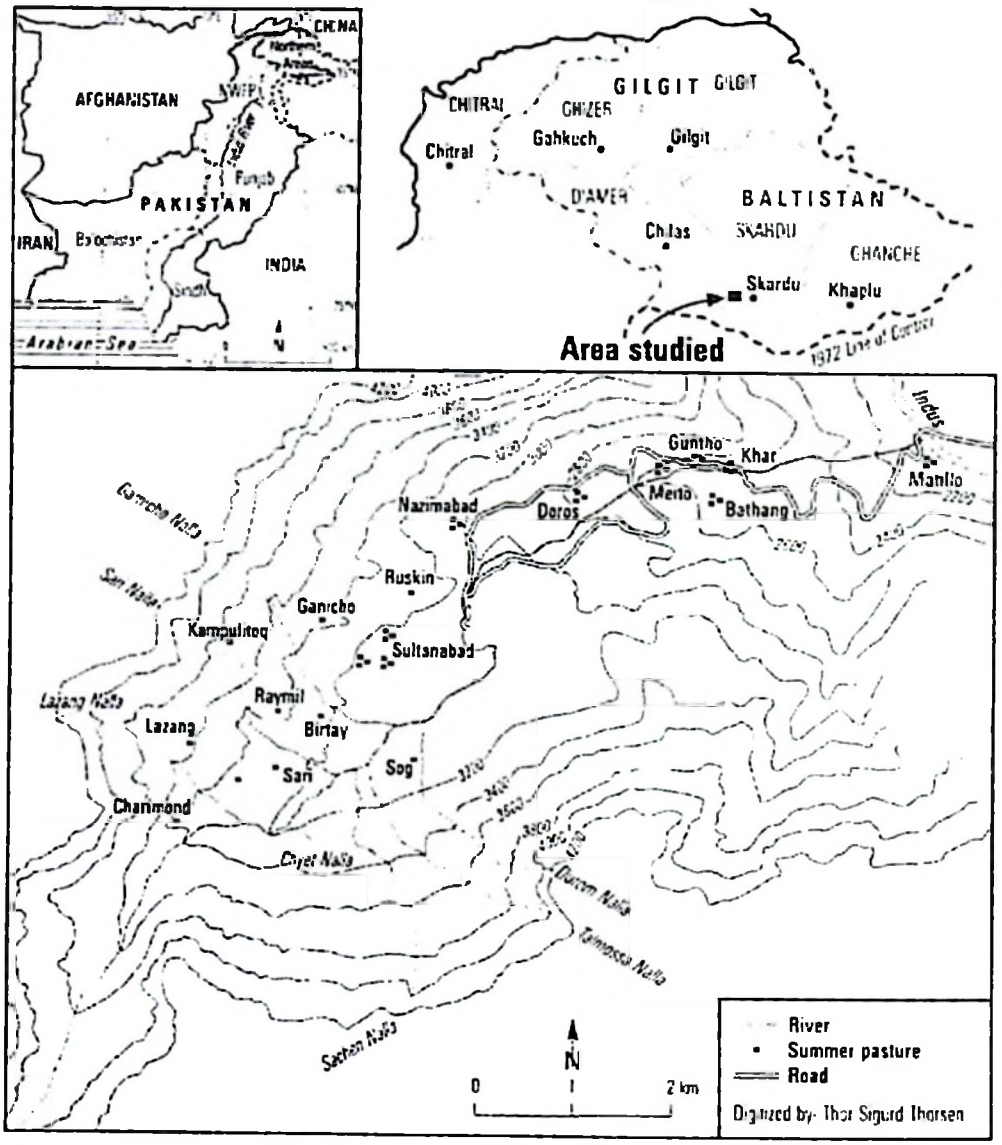

Fig. 1. Map of Basho Valley and its location within Pakistan. Source. Ali and Benjaminsen (2004).

hood. Crop cultivation and plantation of forest trees are based on irrigation carried out by constructing irrigation channels that are fed by glacial snowmelt or springs.

The forests situated in Basho Valley are classified as *protected forest*. This is a legal category, which implies that the government owns the forest, but that all types of use by local communities are allowed unless explicitly restricted by the government (Niazi, 2004). The Basho Valley falls under three vegetation types (Schweinfurth, 1957). The lower northeastern part from the Indus River to about 2500 m elevation is described as sub-tropical semi-desert. The area above the sub-tropical semi-desert is classified as Steppe of Artemisia. The vegetation in the uppermost part of Basho varies greatly from the drier southeastern facing slopes to the moist northwestern slopes. Natural blue pine forest covers the northwestern facing moraine slopes. Grassy slopes and *Juniper macropoda* cover areas where the forest has been cut down.

4. Methodology

The qualitative data for this study were collected by one of the authors during the last 8 years. During this period, the author has formally and informally interacted with the officials of the Government Forest Department, a number of forest contractors and the majority of men and a few women[3] in Basho Valley. Group and individual interviews were conducted during three workshops[4] held in the valley and attended by at least ten male representatives from each village. A list indicating all households and household

[3]Direct access to women informants by the author was difficult due to cultural restrictions.

[4]The workshops were organised by the Aga Khan Rural Support Programme (AKRSP) and the Norwegian University of Life Sciences. The AKRSP is a community-based development organisation that has been working in Northern Areas and Chitral District of the North West Frontier Province in the field of integrated rural development since 1982.

members in the villages was used to interview groups and individuals in each village. Formal group meetings were organised twice in each village. Most of those who were not available during the first round of meetings were interviewed during a second round. In addition, two workshops for men and women were organised to discuss deforestation and future conservation prospects in Basho valley. A total of 30 men and 65 women attended these workshops. During these workshops the men were directly interviewed, while two female colleagues interviewed the women. The qualitative data collected in this process was recorded. The information was further refined through interviewing the following local stakeholders: 16 local elders (14 men and two women), four forest contractors, two local jeep owners who transport wood, members of the Basho Development Organisation (BDO),[5] the opponents[6] of BDO, local conservation volunteers, the owner of the only saw mill in Basho, and 13 Forest Department officials (retired and in service). The local elders were interviewed specifically to understand historical dimensions of forest cover changes. The contractors, Forest Department officials, and the local jeep owners were interviewed to grasp the extent of legal and illegal commercial harvesting. The BDO officials and their opponents were interviewed to understand negotiation processes over access and use of the forest resources. In addition, available records of the Forest Department have been consulted.

However, written records on standing volume, forests and their sizes, history of management and harvesting are not available for the protected forests of the Northern Areas, including Basho (Gohar, 2002). No previous records on standing volume for the protected forests in the Northern Areas are available because forest inventories have not been conducted for these forests except for a part of Basho Valley in 1998 (Velle, 1998). Therefore it was difficult to assess the actual changes in forest cover over time. To overcome this problem, in addition to the oral history by the local elders, two types of Landsat imagery datasets were used to assess change in forest cover during the last decades (Fig. 2). The first type is the Landsat Multispectral Scanner (MSS) image from the 20 July 1976. The second image is a Landsat-7 (ETM+) image from the 16 August 2002. The ETM+ sensor and the MSS have a pixel size of 30 m × 30 m on the ground.

Visual interpretation of digitally enhanced false colour composites was used for the identification of forested areas. Due to the low quality of the MSS data, the comparison was not carried out for the major part of the northwest slope of the valley. To reduce error, estimations have been

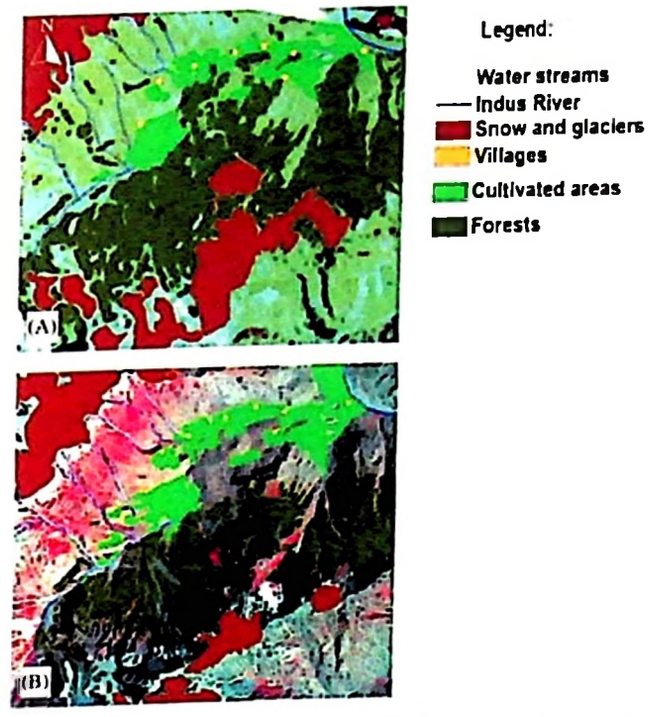

Fig. 2. Interpretation results from the Landsat images. Image A is from 1976 showing a total forest area of 8.70 km^2. Image B is from 2002 showing a total forest area of 4.33 km^2. Scale: Each sub-scene covers an area of 10.2 × 8.5 km.

carried out for areas, which are clearly visible in both the data sets. Forest areas, particularly smaller patches, which were visible in one set of data and not in the other set, have been excluded. Therefore this study mainly estimates forest cover change on the southeast slope of the valley, which is also the main forested area in the Basho Valley.

5. Deforestation in Basho Valley

The forests of Basho Valley are highly vulnerable for two reasons. Firstly, their size is very small. We calculated the total forest area to be 4.33 km^2 in 2002, using the Landsat image. Secondly, the pressure on the forest is high. A local population of about 1950 people depends on the Basho forest for energy needs including heating and cooking (Ali and Benjaminsen, 2004). Wood is needed for heating for at least 7 months per year.

Before the 1960s, access to Basho and other valleys in the Northern Areas was difficult due to their location, hidden high in the Himalayan and Karakorum mountains (Afridi, 1988; Jettmar, 2002). These valleys were opened up through the construction of link roads during late 1960s and early 1970s after the construction of the Karakorum Highway (Kreutzmann, 1991; Dani, 2001). As elsewhere in the Northern Areas, deforestation in Basho started mainly after this development in infrastructure, as reported by the local elders, contractors and Forest Department officials. However, according to the local elders, small amounts of timber from Basho were harvested on a few occasions before 1960 for the construction of a hospital and army

[5]BDO is a local developmental organisation and consists of nominated representatives from all seven villages in Basho valley. The BDO leadership mainly consists of young individuals who support NGO activities initiated for conservation and community development in Basho.

[6]The BDO opponents follow the traditional leadership, which is sceptical of external NGO activities. They see the NGO activities as a threat to religion and local traditions. NGOs working in Basho are the Aga Khan Rural Support Program and the IUCN.

buildings between 1937 and 1960. For example, in 1957 the army harvested around 30 pine trees from Basho. At that time, there was no road to Basho or bridge over the Indus River to cross the valley. The army therefore dragged timber down the valley to reach the Indus. From here, timber was pulled across the Indus using ropes and thereafter transported to Skardu town. Harvesting wood from such an inaccessible area indicates that Basho was the only source near Skardu to obtain quality timber.

5.1. Administrative reforms and deforestation

During the 1960s, the government increased its developmental budget for Baltistan and established new departments, which needed construction of offices and residences for the newly recruited staff (Afridi, 1988). To meet the increased demand for timber for construction, the Forest Department built a bridge over the Indus River and a road into Basho Valley in 1968 to harvest timber. The impact of the construction of the Karakorum Highway and link roads to deeper valleys on 'people and spaces' has been described by Haines (2000): 'The construction of the Karakorum Highway in the 1970s became the ultimate expression of re-routing the nation state of integrating, the now, Northern Areas, into Pakistan' (p. 14). The Karakorum Highway has greatly transformed the economy, society and the resources, particularly the forests, livestock farming and wildlife of the Northern Areas (Schaller, 1980; Allan, 1989; Kreutzmann, 1991; Schickhoff, 1997). However the construction of Karakorum Highway occasionally met with resistance by local people. Therefore, the government had to change the alignment of the road to avoid conflict with local people in some of the areas. For example, the road alignment was changed from Nagar Valley to Hunza Valley by constructing a bridge over the Hunza River. The people of Nagar Valley are considered more conservative in terms of resisting change than the people of Hunza Valley (King, 1993; Shaw, 1996). The people of the present Kohistan district 'were formidable opponents to the construction of the Karakorum Highway because they knew that they would forfeit their autonomy in their 'protected' tribal area' (Allan, 1989, p. 133). According to the village elders interviewed for this study, as elsewhere in the Northern Areas, the majority of the people in Basho were not happy with the construction of the road for many reasons. For example, the bridge and the road construction was a major development in a valley, which had remained relatively isolated for centuries. Therefore, the people were not used to such rapid and major developments. The alignment of the road is such that it passes through the middle of three villages, which was not acceptable to the people of these villages. Women's interaction with outsiders especially with men is socially unacceptable in Basho.[7] The road was therefore considered disruptive to village life, particularly women's mobility. For example, the crop fields are situated on either side of the road and women carry out most of the agricultural activities. The potential visits by outsiders as a result of the construction of the road was seen as restricting women's mobility during the agricultural season. Finally, an important reason for the opposition to the construction of the road was that the road was primarily constructed for harvesting timber. But despite the disagreement by the people of Basho Valley, the government built the road. However, the elders of Basho Valley reportedly predicted that construction of the road would result in harvesting of the forest by outsiders and restrictions on local use.

In Basho Valley, after the completion of the forest road in 1968, the Forest Department started commercial harvesting of the forests (Steinshol et al., 1998). Meanwhile the government introduced administrative and political reforms in Baltistan in 1974 (Dani, 2001). According to the Forest Department staff these new developments further increased the government's demand for timber from Basho. Commercial harvesting was increased to match the new demands for timber. Initially, timber was harvested by contractors for the construction of administrative buildings, a high school, a rest house and government residential quarters in Skardu town. Later, timber from Basho was harvested for the construction of government buildings and bridges in other parts of the newly created districts and sub-divisions as a result of the political and administrative reforms. Estimates by local elders indicate that the contractors harvested around ten times more than their official quota for the construction of government buildings and bridges. They sold the excess timber in the Skardu market and many built their own houses and shops. Given the inherent scarcity of natural forests in Baltistan, wood, especially timber, is expensive. The local elders remember that contractors from other parts of the Northern Areas were also attracted to the lucrative timber business generated due to initiation of commercial harvesting in Basho. The valley soon became a money-earning place both for the Forest Department staff and the contractors, a characteristic of commercial harvesting reported from other regions of Pakistan (Yusufzai, 1992; Knudsen, 1996; Gohar, 2002). The construction of private houses and shops on a large scale in Skardu town around the same period (Afridi, 1988), when commercial harvesting was carried out in Basho, supports the estimates made by local people. Many of these buildings have been built using blue pine timber, which was only available at that time in Skardu District in the Basho and Ganji Valleys. In 1987, after realising that commercial harvesting of timber in Basho had led to serious deforestation, the government banned all cutting of green wood in the valley. However illegal harvesting still continues although with less intensity. The ban also restricted local use of timber. Evidence from other areas in the Hindukush Himalaya region suggests that the ban on logging remains ineffective and reduces the livelihood

[7] See Nyborg (2002) for a detailed discussion on social restriction on women in Basho.

options of poor and marginalised people (Blaikie and Saadeque, 2000; Gohar, 2002). One reason for the ineffectiveness of regulations has been the ability of the 'forest mafia' to evade bans (Knudsen, 1996) through bribing the local police who provide protection for illegal harvesting operations (Rangan, 1995).

5.2. *The State's involvement in deforestation*

Contractors, who harvested wood in Basho during 1968–1987, said that obtaining permission from the government to harvest timber was only a formality. It was carried out in good faith as the government wanted fast development of Baltistan, which needed construction of buildings to meet the increasing demands for offices and residences. The then Political Agent of Baltistan, Banat Gul Afridi, who is famous for his contribution to the development of the region, distributed free land in Skardu town for the construction of shops and houses. Afridi visited most of the forested valleys in Baltistan to survey the availability of timber to be harvested commercially (Afridi, 1988). Taking advantage of the flexibility given by the government to speed up the development of the area, the contractors harvested more than what was needed for the construction of government buildings. Therefore, records were not kept for the extra illegal harvesting.

The local elders in describing the extent of forest extraction during the period of commercial harvesting (1968–1987) said '*Loot much ghai thee*' (the forest was looted). They also said that before the commercial extraction the local people had no idea of the economic value of the forest except in terms of small household products. Timber was not sold outside Basho. It was after the initiation of commercial harvesting that people realised the economic importance of the forests. The Forest Department staff posted in other areas of Baltistan also came to Basho to harvest trees to sell or to build their own houses in their respective villages. The contractors transported timber for the Forest Department staff free of charge.

In addition to the green trees, a large amount of dead and fallen wood was also given free of charge without formal permits. For this purpose, the Forest Department officials issued informal hand written permits called *chits*. The word *chit* is derived from the Urdu word *Chitthe* meaning a letter. A *chitthe* is generally written using a full page, while a *chit* could be written on any size or type of paper depending on what is available. The local people have use rights in Basho forests for collection of firewood for local use, therefore they do not need *chits* or formal permits to harvest firewood. The Forest Department officials issue formal permits to outsiders charging a nominal tax for collection of limited quantities of firewood for domestic use. By mis-using legal powers, the Forest Department officials allocated a considerable amount of wood through *chits* to influential people (both locals and outsiders), officials and wood traders who could either offer direct payments or share the income from the wood sale with the Forest Department officials. *Chits* are used to transport wood through the checkpoints where junior forest officials check vehicles carrying wood. Those who can produce a formal permit or a *chit* can pass through. The formal permits and *chits* indicate the amount of wood allowed for transportation. However our observations from Basho and a few other checkpoints in the Northern Areas indicate that the junior officials at the check points allow more wood than what is permitted by the senior officials. Therefore the *chit* holder could bribe both the senior officials who issue the *chits* and the junior officials at the checkpoints. Hence, the *chit* holders would make a good profit by selling the wood in the market. For example, the firewood harvested using *chits* and formal permits was sold in Skardu for PKR 350 per 100 kg while the government tax to be paid for formal permits is only PKR 7.5 per 100 kg (Ali and Benjaminsen, 2004). *Chits* do not go through the formal legal procedure as required for a formal permit therefore even the nominal government tax is not charged. The Forest Department does not keep records for *chits*, whereas for official permits, the government tax has to be charged and therefore records are generally maintained. Collection of timber using informal permits has also been reported in other studies from Basho (Nyborg, 2002).

Corruption through mis-use of legal powers by officials is widespread in many developing countries (Dauvergne, 1994; Tropical Rainforest Programme (TRP), 2000; Duperouzel, 2003; Fenner et al., 2003; Ferrieux-Patterson, 2003). Robbins (2000) suggested that corruption in natural resource management will be common in situations where officials have monopoly over environmental goods and when relatively few officials have exclusive rights to issue permits. Taking advantage of such opportunities, the officials could issue preferential licences and demand bribes. The Baltistan Forest Department was newly established at the time of commercial harvesting (Afridi, 1988) and was operating with a small number of officials. According to the Forest Department officials interviewed, there were around ten Forest Department officials including two senior officials in Baltistan in 1968 compared to 130 including seven senior officials in 2004. Therefore it is likely that the few Forest Department officials mis-used legal powers during the commercial harvesting. In addition, the Forest Department official also would have taken advantage of the district administration's push for logging to fulfil timber needs for construction in Baltistan. In such instances, one sector may develop at the cost of another sector (Food and Agriculture Organisation (FAO), 2002). For example, construction of bridges and government buildings in Baltistan at the expense of deforestation in Basho. Following Smith et al. (2003), the large-scale illegal harvesting carried out in Basho, particularly using the *chits* could be classified as 'collusive corruption'. In collusive corruption, government officials and contractors collude to appropriate public property. This is done, for example,

through allowing contractors harvest and transport wood without formal permits and payment of government taxes in return of sharing income generated through illegal transactions.

5.3. Local perceptions of deforestation

According to the village elders, dead and fallen wood is no longer easily available in the forest as it was in the past. Therefore, people (mostly young girls responsible for collection of firewood) have to travel longer distances to collect wood. According to the two elderly women interviewed who have been collecting wood in the forest for the last 40 years, before the period of commercial harvesting, dead and fallen wood in nearby forest areas was sufficient to meet local firewood needs. People did not need to cut standing trees for this purpose. At the same time a few standing trees were cut annually for the construction of houses locally. Because there was no tradition of building big houses, timber was needed in limited quantities. The majority of houses built before the 1980s consist of a single room partitioned into a bedroom and a kitchen. Since the 1980s, people's standard of living has improved and some houses have been built with several rooms. A village elder, aged 75, who has been visiting the forest for the last 60 years, remembered well the start of commercial harvesting in the valley. 'The contractors carried out a *qatle aam* (massacre) of the forest and it is incredible to see that some trees are still surviving', he said. He estimated that the forest had been reduced by 60% during the last 60 years and remembered that the forest was well intact until the road was built and contractors started exploiting the forest in 1968. 'The contractors behaved like a cat' he continued. 'The cat will not drink a little if she finds a pot full of milk'. The other 15 elders interviewed estimated a reduction in forest cover of 30–45% during the last 30 years. Those elders who live close to the forest however estimated a 45–60% loss. The estimations made by the local elders closely match the estimation made using the satellite data. The dataset from 20 July 1976 shows that the total forest area at that time was 8.70 km^2. The second set of data from 16 August 2002 indicates a total forest area of 4.33 km^2. The reduction in forest cover between the two dates was calculated to be 50.2%. If it had been possible to quantify the change in smaller patches as well and to assess changes in forest density, this percentage would presumably have been larger.

5.4. Struggle for control: community vs. state

The struggle for control over natural resources in the Hindukush Himalaya region has a long history (Tucker, 1984). Traditionally, the forests were managed by the local resource users. In 1865 the British created the Forest Department to take control of the commercially important forests to ensure a continued supply of timber. The Forest Department thus began a process of taking control of the forests throughout India and Pakistan. However, in remote areas with less commercial forests, the Forest Department was established much later. For example, in the Baltistan region commercially valuable forests are scarce and are situated high up in the inaccessible valleys. The Forest Department in Baltistan was established in 1968 when the central government increased its political and administrative control in the Northern Areas (Afridi, 1988). Soon after its establishment, the Forest Department initiated commercial harvesting in many valleys. Since then, the Forest Department has increased regulations for greater control, while the communities have struggled to regain control of the forests and other natural resources (Wegge, 1988; Knudsen, 1993; Gohar, 2002). For example, in 1985 the people of Basho Valley demonstrated against continued commercial harvesting and met the military authorities (the army ruled the country during that period) in Skardu town. The community activists also contacted NGOs to influence the government. The ban on commercial harvesting in 1987 was the result of these efforts. Commercial exploitation continued illegally, however, although with less intensity. To stop this exploitation, the BDO made a verbal agreement with the Forest Department for the protection of the remaining forest in 1998. The World Conservation Union (IUCN) and the AKRSP supported the agreement. As a result, the BDO appointed seven community guards to detect illegal wood transportation. The Forest Department and the BDO had agreed that wood confiscated would be sold and the guards would be paid from this income. The community guards worked for a year but stopped working due to lack of payments by the Forest Department. Later, both the Forest Department and the community guards have been observed transporting timber to Skardu. Failure of agreements between the Forest Department and communities has also been reported from other valleys in the Northern Areas (Gohar, 2002). In fact, these agreements were made in response to occasional agitation by the community supported by NGOs, rather than a change in policy to involve the communities in forest management. Therefore the agreements were dishonoured by the Forest Department once local pressure ceased or after the transfer or retirement of the Forest Department officials who made the agreements.

In December 2000, the BDO made a second attempt to stop illegal transportation of wood from Basho to Skardu. With the consent of the Forest Department, they established a checkpoint near Basho Bridge (the exit point from Basho). Two Forest Department guards and a community appointed guard were assigned to monitor illegal wood transportation at the checkpoint. But this attempt was also unsuccessful, mainly because of involvement of Forest Department staff and locals in the sale of wood. Some BDO supporters and opponents were found transporting wood to Skardu during the night. These incidences intensified the conflicts between the rival groups, resulting in occasional fights. After a recent scuffle, the police briefly took activists of both parties in custody and later released

them on bail. This could imply that it has now become easier for offenders to transport wood outside Basho. Their opponents would not dare to stop them, because activists of the both parties have been bound by the police not to create problems for each other. Whoever would begin a fight with the offenders in an effort to stop illegal wood transportation would lose the bail money. The BDO activists claim that some police staff get a share both in cash and in kind from the BDO opponents. Therefore the police staff has an incentive to close their eyes to illegal wood transportation from Basho. The BDO opponents, on the other hand, claim that the BDO leaders get a share from the wood sold by BDO supporters.

Currently large-scale illegal harvesting of wood from the Basho forest including using the *chits* has ceased as a result of community agitation and the ban by the government on harvesting. However, it appears that it would be difficult to stop illegal harvesting completely because the government staff (Forest Department and police) and local powerful people have economic interests in the illegal harvesting of the forests. A limited quantity of wood is still transported illegally using *chits*. Also, applying for a *chit* has become a norm that can be illustrated by the following example: In August 2003, the AKRSP organised a workshop for community leaders in Basho. An official of the Forest Department also participated. The objective of the workshop was to create awareness regarding forest conservation. The workshop participants unanimously adopted a resolution asking the Forest Department to stop issuing *chits*. At the end of the workshop, three participants requested the Forest Department official to write a *chit* for them on the spot, but the official denied it. However such events indicate that corruption in resource management has become a norm. Corruption, particularly in forest management, is widespread in developing countries (Yusufzai, 1992; Corbridge and Kumar, 2002; Contreras-Hermosilla, 2002; Rosenbaun, 2002; Smith et al., 2003; Ali and Benjaminsen, 2004). The Pakistan Anticorruption Bureau (PAB) reports that, 'corruption is largely socially accepted as a norm and regarded as inevitable' (Government of Pakistan (GoP), 2002, p. 5). The PAB report shows that during the last 4 years, around 400 people have been convicted for corruption in Pakistan, most of them government officials for mis-using authority. Robbins (2000) suggests that 'corruption is an institution. Corruption transforms equitable rules of resource management into inequitable ones through the establishment and reproduction of persistent institutions along strong networks of cooperation between elites and the officials' (p. 18). Robbins further explains that the traditional view of corruption sees it as arising from the lack of legitimate state power. Therefore officials are appointed to monitor the behaviour of existing officials, which creates an additional layer of corrupt officials. To avoid this, institutional reforms have been suggested giving more powers to the resource users who themselves could increase accountability of both the officials and local resource users (Hohley, 1996; Agrawal and Ribot, 1999; Robbins, 2000; Sarin, 2001; Castren, 2005).

6. Implications of the study

Much of the debate on environmental changes in the Hindukush Himalaya region for the last three decades has been focussed on Nepal and India. The environmental history of India and Pakistan has been relatively similar because of the similar colonial origins of environmental policies in both countries (Champion, 1953). Like India, Pakistan also still manages its forests using the colonial regulations, particularly the Forest Act 1927 (Knudsen, 1995; Gohar, 2002). For forest officials, the 'status' of the Act is 'almost that of a holy text, a bastion, of order, and a reasonable and just regulation in the face of declining environmental management, unwarranted meddling by populist politicians, and uninformed local protest' (Blaikie and Muldavin, 2004, p. 531). THED has also been instrumental in formulating environmental policies in Pakistan. Therefore this study is an effort to contribute to the current discussion concerning environmental change in the Hindukush Himalaya region. It brings empirical evidence on the causes of deforestation in one valley in the Hindukush Himalaya region.

Unlike THED, which attributes deforestation to local use, this study verifies the findings of earlier studies conducted in the Northern Areas (Knudsen, 1995; Schickhoff, 1997; Gohar, 2002; Ali and Benjaminsen, 2004) that attribute environmental changes to increased accessibility due to road construction, corruption and failed government policies. Therefore, this study adds empirically to the research base undermining the dominating policy narrative regarding environmental change in the Hindukush Himalaya region. This study also contributes to the debate on community-based conservation of natural resources, particularly forests. Currently, efforts are underway to involve resource users in community-based conservation in the Hindukush Himalaya regions (D'Silva and Nagnath, 2002; Damodaran and Engel, 2003; Rao and Marwat, 2003). Large areas have been designated as conservation areas for this purpose (Ali, 2002; Ives, 2004). The local communities and the Forest Department are seen as the key actors in community-based conservation. However, similar efforts in the past have not been successful, partially because the government institutions managing the natural resources are corrupt and resist devolution of control over resources (Knudsen, 1996; Blaikie and Muldavin, 2004; Ives, 2004; Castren, 2005). In addition, the Forest Department in Pakistan being a corrupt institution (Knudsen, 1995; Gohar, 2002; Nyborg, 2002; Ali and Benjaminsen, 2004), it adheres to a rigid model of forest management, 'fortress forestry', and continues to work with the protectionist style of management designed centuries ago (Myers and Bass, 1999). Therefore our findings question the implementation of community-based conservation in the Northern Areas without institutional reforms. In many parts of the world,

community-based conservation has failed to achieve its goals and has mainly served the interests of officials and elites (Sarin, 2001; Corbridge and Kumar, 2002; Kumar and Vashisht, 2005). In many of these cases, forest services see community-based conservation as a challenge to their professional skills and income, which they earn through collusion with wood traders (Castren, 2005). To overcome these problems, Agrawal and Ribot (1999) suggest that community-based conservation need to be based on accountability. And accountability, they argue, could be best accomplished if powers to make decisions regarding natural resources management are given to institutions (for example locally elected community representatives) that are downwardly accountable to their constituents instead of officials who are upwardly accountable to senior officials.

For Basho Valley, a plan for community-based conservation of natural resources was developed in 1999 (The World Conservation Union (IUCN), 1999). One objective of the plan was 'to promote forest conservation through management for environmental benefits and to meet genuine needs of the local community'. However, except for a trophy hunt for which the community received their share of trophy income, it has not been possible to implement anything, because of the absence of enabling policies and regulations. Blaikie and Muldavin (2004) argue that the National Conservation Strategies in some of the Hindukush Himalaya countries 'consists of shopping lists of desirable things, which are rhetorically called into existence for public consumptions but rather less for implementation' (p. 527). Although empirical evidence shows mis-management of natural resources by the state, the Forest Department still controls the forests in Pakistan. The management system on the ground has not changed, despite calls in the National Conservation Strategy for devolution of control over resources to 'revitalise community-based management for the sustainable use of common resources and infrastructure' (GoP, 1991, p. 140).

7. Conclusions

Reliable estimates of forest cover change in the Himalayas can best be made using a combination of methods. Unlike in parts of India and Nepal, where forest cover change has a long history, deforestation in Basho Valley is a recent phenomenon. Until the 1960s, the forest in Basho Valley remained relatively intact, but in 1968 commercial harvesting was initiated following the construction of a jeep road up the valley that linked it with the Karakorum Highway. As a result of this increased access to a valuable forest and the corrupt behaviour of government staff, the forest has been reduced considerably during the last 30 years. Deforestation due to construction of roads and commercial harvesting has also been reported by Schickhoff (1998) from other valleys in the Northern Areas. He found that thick forest stands are situated in valleys with no roads, while degraded forest patches are found where valleys have been linked with roads to the Karakorum Highway.

People have inhabited Basho Valley for centuries and grazing, collection of wood for local use and conversion of forests for cultivation may have influenced forest cover. However, the population of Baltistan (including Basho) has increased very slowly during the last 50 years. For example, for the period 1951–1961 the average population growth for Basho was recorded as almost zero (Afridi, 1988). According to the local elders this was because of high mortality rates due to epidemic diseases. The annual average population growth rate of Baltistan between 1951 and 1981 was also very low, reported as 1.7% (Government Statistic Division (GSD), 1982). Even for the longer period of 1951–1998, the population growth of Baltistan was relatively low, at 2.5% per year (Government Statistic Division (GSD), 1999a) compared to the national population growth rate of 3.5% for the same period (Government of Pakistan (GoP), 2003). Therefore, the influence of local use on forest cover seems minimal compared to the enormous commercial harvesting carried out during the last decades.

We found that improved accessibility combined with mis-management of the forest by the Forest Department during the period of commercial harvesting have been key factors in deforestation in Basho Valley. The Forest Department supported large-scale illegal commercial harvesting by the contractors who harvested the forest at will. The contribution of contractors in deforestation endorsed by the Forest Department has also been documented from other parts of Pakistan. For example, a serious decrease in forest cover has been attributed to over-cutting by contractors with the cooperation of the Forest Department staff in Nagar and Chilas Valleys in the Northern Areas (Gohar, 2002).

Considerable damage to the forest in Basho Valley has occurred due to the legal powers of the Forest Department officials. Most of the dead, fallen and green wood from Basho forest was taken out by contractors and other outsiders using informal permits called *chits*. Issuing *chits* has become an established practice. The Forest Department officials benefit from this system through receiving payments.

Using oral sources as well as satellite imagery this study estimates at least a 50% loss of forest cover over the last 30 years. The theory of massive deforestation due to rapid population growth is not supported by the data collected for this study. Mis-management and illegal harvesting endorsed by the Forest Department have been the main causes of deforestation. Local communities and NGOs have argued for devolution of control over resources in order to involve local resource users for sustainable management of the remaining forest. However the Forest Department has increased its control over forested areas and has imposed a ban on all kinds of harvesting including for local use. Deforestation blamed on local communities has served as a justification for the ban. 'If deforestation

and accelerated erosion are regularly being reported, there are continuing grounds for attempting to maintain or increase regulations and to exclude local control and management' (Blaikie and Muldavin, 2004, p. 532). There are many other examples in northern Pakistan where the government has mis-managed the forest and has blamed the local users for deforestation (Knudsen, 1993; Gohar, 2002). Basho is therefore not the only case where deforestation is the result of mis-management by the government and not of population growth and local use.

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PAPER III

Submitted for publication.

Corruption or Just an Alternative System? Re-assessing the Role of the Forest Department in the Northern Areas of Pakistan

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ABSTRACT

During the last two decades, considerable attention has been paid to the issue of local participation and government involvement in community-based conservation. Forest services have been sidelined, mainly on the premise that they are too corrupt and ineffective to play a useful role in natural resource management. In this paper, we expose the limitations of conventional ideas of corruption in understanding forestry services. We analyze how forest agents, faced with severe shortages of resources, engage in what we call an 'alternative system' in order to perform official tasks. We argue that a better understanding of these issues will help to both reform and redefine the role of forest services so that they can become viable actors in community-based conservation.

KEYWORDS: Corruption, forest services, community-based conservation, Pakistan

1. INTRODUCTION

During the last two decades, the devolution of control over natural resources and the importance of the involvement of local communities in development and conservation initiatives have been highlighted in a number of international policy forums (WCED, 1987; Conroy & Litvinoff, 1988; World Bank, 1988; GoP, 1992; GoI, 1992). Agenda 21 and the Desertification Convention (UNCCD), for example, strongly recommend involving resource users in order to combat environmental degradation (Holmberg, Thomson & Timberlake, 1993). This approach is based on the premise that decentralized decision-making and control over resources will lead to better protection and more sustainable use of forest resources (WCED, 1987; World Bank, 1988). Community participation and devolution have now become essential parts of the environmental polices of most national governments (GoP, 1992; GoI, 1992; Carter et al., 2003). Models of devolution suggest community-based conservation, with a certain degree of shared responsibilities between state institutions and local resource users (Berkes, 1995; Baland & Platteau, 1996; Borrini-Feyerabend, 1996).

Designing systems where decision-making and management responsibility are shared in practice, however, has proven to be a daunting task, and thus continues to be the major challenge facing policymakers and resource managers, particularly in forest management. Reviews of the literature on community-based forest management initiatives reveal few successes (Lawbuary, 1999; D' Silva & Nagnath, 2002), while the failures are many. Community-based conservation initiatives have faced criticism on many fronts: lack of community empowerment; lack of democratic decentralization; marginalization of the poor, particularly certain social groups and women (Hobley, 1992; Sarin, 1995; Edmunds & Wollenberg, 2001; Ribot, 2001); a focus on conservation rather than community development (Damodaran & Engel, 2003); rigidity of state institutions (Kumar & Vashisht, 2005); control of forest services over exploitation of resources and decision making (Ribot, 1999; Ives, 2004); and forest services treating communities as passive recipients (Pimbert & Pretty, 1995).

Besides this rather broad range of criticisms, the most common complaint has been against the forest services, which have been accused of maintaining a centralized approach, and being bureaucratically rigid, inefficient and corrupt (Benjaminsen, 1997; Sarin, 2001; Corbridge & Kumar, 2002; Johnson & Forsyth, 2002; Blaikie & Muldavin, 2004). As a result, some researchers suggest decentralization/devolution to the extent that most of the decision-making powers should be removed from the forestry service and given to those who are downwardly accountable to resource users, with a greater role in political decision making being allocated to local resource users (Agrawal & Ribot, 1999; Agrawal & Ostrom, 2001). Some authors even suggest that the forestry service has become totally redundant (Gohar, 2002), and in some places has been replaced by forest contractors and NGOs (UNDP, 1999; Blaikie & Sadeque, 2002). Do these NGOs, however, offer a viable alternative to government services?

Where state institutions are weak, international conservation agencies have tended to capitalize on their own agenda, thus sidelining both the state and community institutions (UNDP, 1999). Reliance on projects run by conservation agencies has thus been questioned mainly because they depend on external financial support, are short term, depend on the expertise of foreigners, and tend to take a centralized approach, despite their apparent support of local resource management (Western, Wright & Strum, 1994; Pimbert & Pretty, 1995; Agrawal & Ribot, 1999). As a result, once the projects are completed, no support remains for the communities, and the forest services may be in a further state of decay.

For the reasons mentioned, national governments still foresee an active role for their forest services in community-based conservation (GoP, 1992; GoI, 1992). No matter what the criticisms of their performance, state institutions will remain important stakeholders and actors in resource management. Once there is acceptance of a legitimate role for the forest services in resource management, studies need to shift attention from an almost exclusive focus on community issues, to more in-depth investigation of the potential and problems of the forest services, and their interaction with communities. For example, the causes of corruption need to be discussed, and the lack of capacity of the forest services to deal with changing realities on the ground. Furthermore, any analysis of the forestry services should be context specific,

and go beyond mere organizational structure and efficiency arguments. The problems faced by the forest services and their employees, as actors on the scene, need to be considered. Previous analyses of the forest services have neglected the employees - their different motivations, frustrations, strategies, and power plays in their attempts to balance their many professional and personal obligations in the face of extremely limited resources. It is precisely these aspects, however, that form the basis of 'alternative systems' of forest management. These aspects are highly contextual, and are not necessarily based on patriarchy, caste etc., as they are in other South Asian contexts (Robbins, 2000).

This paper therefore chooses an actor-oriented approach (Long, 1992) in analyzing these issues, using the Forest Department (FD) of the Northern Areas (NAs) of Pakistan and its employees as a case study. The paper analyzes the workings of the FD, particularly how FD staff functions, both within the current organizational structure, and with limited resources. We argue that these issues are important in understanding causes of corruption in the forest sector, and the degree to which the FD can become a more viable actor in community-based resource management in the NAs of Pakistan. We also argue, however, that there are more fundamental questions of governance in the Northern Areas underlying these issues of actors and how they function. In a system where outsiders are appointed rather than elected to key decision-making positions, and locally elected representatives have limited responsibilities, the prospects of comprehensive reform in forest management institutions are severely limited.

2. THE STUDY AREA AND ADMINISTRATION

The NAs is the fifth administrative unit of Pakistan. The population of the NAs is around one million and the total area is 72,496 km² (GoP, 2003). The economy of the NAs is based mainly on subsistence farming, which contributes about 50% to the total household income, the remaining income being generated from off-farm activities (Streefland, Khan, & Lieshout, 1995). Due to its placement at the crux of Central and South Asia, lodged between Afghanistan, China, India and the rest of Pakistan, the NAs has been important strategically throughout history: as a crossroads on the Silk Route during the colonial period, the cold war and the Great Game[i], and most recently

due to events in Afghanistan and Kashmir. The NAs has also been a focus area of international conservation agencies due to its high concentration of mountains[ii], the presence of the world's largest glaciers outside the polar region, and its unique fauna and flora. As a result, around 47 percent of the total land area has been put under conservation[iii] (UNDP, 1999; Virk, Sheikh & Marwat, 2003).

The NAs is a disputed territory between India and Pakistan and is administered by the central government in Islamabad (Haines, 2000). The government of the NAs is appointed rather than elected. Elections are, however, held for local bodies and the NAs Legislative Council. These institutions have no authority in political decision making, and therefore function within the limits of administrative and financial powers delegated by the central government (Dani, 2001). The Minister for Kashmir and NAs Affairs, an elected member of the parliament belonging to areas other than the NAs, heads the NAs Legislative Council and acts as the Chief Executive for the NAs. The Chief Executive and the Chief Secretary[1], a bureaucrat essentially not from the NAs (Dani, 2001), form the government of the NAs. The government is assisted by the Deputy Chief Executive elected from the members of the NA Legislative Council, and the advisors (including Advisor: Forest), nominated by the Chief Executive from among the members of the NA Legislative Council. The Chief Secretary is also assisted by his deputies, including the Secretary of Food, Agriculture and Forests (Secretary: Forest, from here onwards).

3. METHODOLOGY

This study is based mainly on interviews conducted during 2001-2004 with Forest Department (FD) staff in the Baltistan Forest Division of the Northern Areas (NAs). Out of a total of 130 staff, 45 were interviewed, including nine senior and 36 junior officials. Additional qualitative data was recorded during frequent interactions with the FD staff over a period of eight years, including daily interaction with some officials for a period of three months each year during 2001 and 2002. To further refine the information, the head of the FD and 14 officials posted in other forest

[1] Representative of the central government and head of civil administration in the NAs.

divisions in the NAs were interviewed. Therefore this data reflects the perceptions of the staff of the NAs forest services, particularly those posted in Baltistan.

The Director General of the Pakistan Forest Institute, the only institution for degree-level forest studies in Pakistan, was also interviewed. In addition, a few officials of IUCN, the main conservation agency in the NAs, were interviewed. Considerable time was spent collecting and connecting the trail of unpublished records of the FD, in order to analyze by whom and how decisions are made. Not only was it difficult to find staff for interviews due to poor communication and transportation facilities in a relatively vast mountainous region, but accessing unpublished records was even more difficult due mainly to old methods of record keeping that the FD adheres to, as a result of a shortage of resources.

4. RESULTS

4.1. The inner workings of the Forest Department

This section explores the inner workings of the FD, and in particular, how FD staff functions in the context of the unique situation of the NAs. We begin by describing the historical rise and demise of the FD, from a relatively strong colonial institution to a predominantly weak and ineffective government service. This is followed by a discussion of its current organizational setup, including promotion and incentive structures, systems such as salary payments, resource availability, and channels of decision making. The human resource base of the FD is also discussed, with a focus on the role of competence, and building competence among staff. We argue that all these factors greatly influence the functioning of the individual employees and the organization as a whole.

4.2. Historical rise and demise of the Forest Department

Forestry management during British rule in the sub-continent was regarded as relatively advanced compared to the rest of the world, because of a well-defined policy, and qualified and well-trained staff (Champion, 1953). Tucker describes the forest services of British India as the "world's first and ultimately most sophisticated

Forest Department" (Tucker, 1984:343). However the quality of the forest services decreased soon after the independence of India and Pakistan from British rule in 1947. After independence, forest officers lost opportunities for education and training abroad and the forest services faced shortages of finances and research activities (Champion, 1953). Despite these shortcomings, the forest services in India are still considered relatively organized and competent as they mainly develop forestry related policy making documents and actively contribute to decision making concerning forest management and conservation in the country (Chhatre, 1996; Blaikie & Muldavin, 2004). Furthermore, in recent years, newer legislation on environmental management has actually further strengthened the power of this state institution in India.

Although the FD of Pakistan continued the pre-independence model of forest policies, it is no longer a strong institution. This fact is evident in the active role taken by conservation agencies in terms of the formulation of conservation polices, the development of policy documents and the implementation of conservation projects. This is especially true for the FD of the NAs, where the deteriorating power of the FD means that it now plays a subsidiary role in policy development (Blaikie & Sadique, 2000). Political changes following independence in 1947 placed the control of the NAs under the central government, adding an additional layer of administration and decision making. This left little decision-making power with the FD and created additional complexities in terms of its functioning. The resources available to the FD have been significantly reduced, leaving staff unable to perform the basic duties expected of them. Consequently, the FD in these areas no longer has the power and impact in terms of resource management that it had in the past. It has no institutional capacity to manage forest operations (Blaikie & Sadeque, 2000), and it is considered to be inefficient and corrupt (Knudsen, 1995; Ali & Benjaminsen, 2004; Ali et al., 2005), and therefore redundant (Gohar, 2002).

The weaknesses of the FD surfaced during the 1970s after the initiation of conservation projects in the NAs. The fast pace of deterioration of wildlife in the area was recognized as early as the 1960s (Mountfort, 1969), and urgent conservation activities were suggested thereafter (Schaller, 1980). The first visible initiative by the government was the establishment of the Khunjerab National Park (KNP), which

created considerable controversy and confusion about use rights (grazing and hunting) of the communities, as well as park boundaries (Knudsen, 1999). Conservation agencies were actively involved in the establishment of the KNP; however, at that time they followed a purely protectionist policy, denying use rights to the local communities (Knudsen, 1999). At the same time, this approach reinforced British colonial approaches to forest conservation that were inherent in the FD. This was despite the fact that no competition between wildlife and domestic animals was reported (Wegge, 1988). The conservation agencies took a leading role in the discussions and decisions around the controversy of the KNP and the FD was used merely to legitimize such decisions. This and other incidents pitched the communities against the FD (Knudsen, 1999; Gohar, 2002), further weakening their authority in the communities.

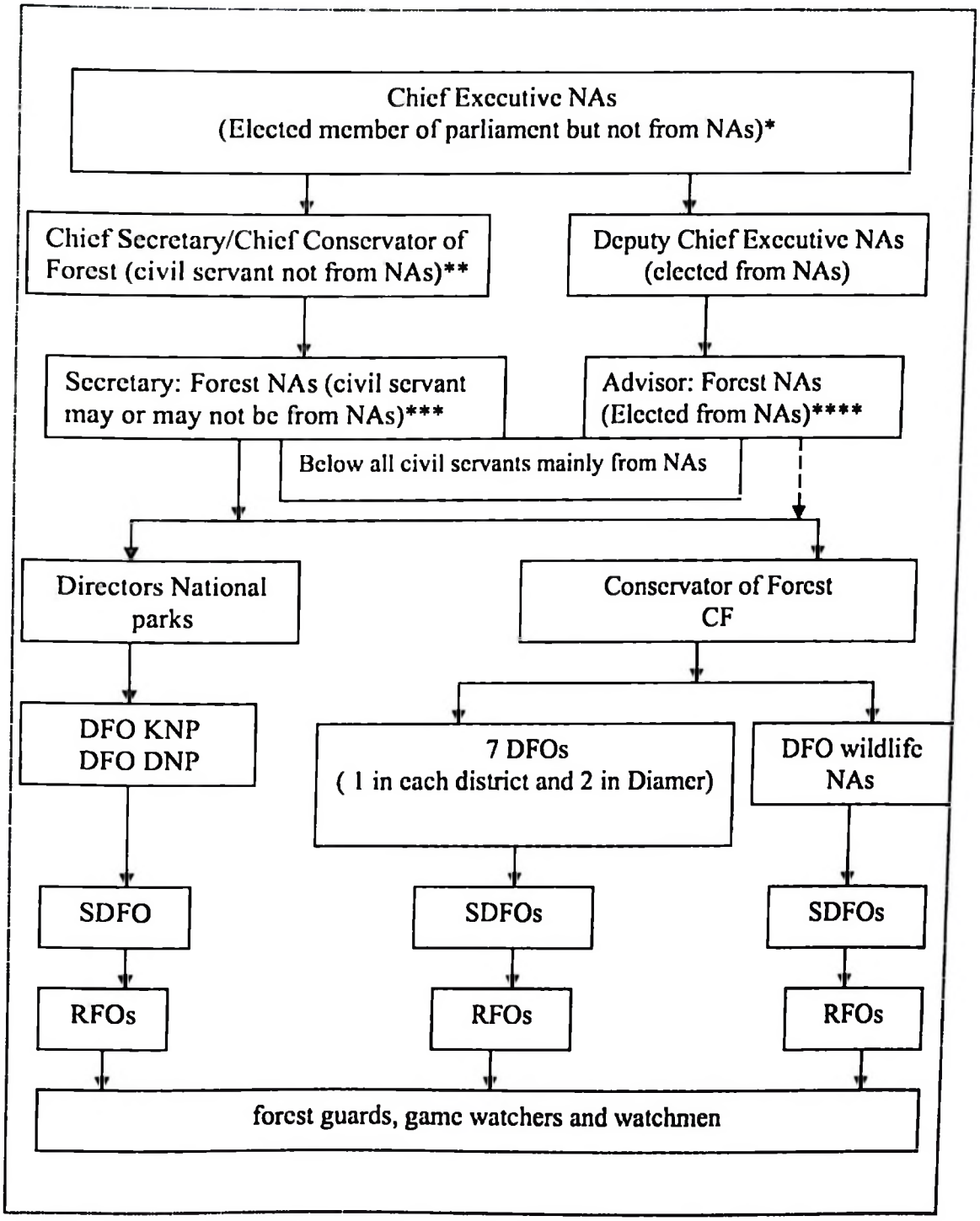
In the years that followed, the FD had to retreat from several other valleys where local communities took control of the use of the forests (Gohar, 2002; per. obs.). Taking advantage of the weakening position of the FD, conservation agencies were quickly established in the NAs and ultimately undertook a major role in conservation activities (UNDP, 1999; IUCN, 2000; Shackleton, 2001). The intellectual degradation of the FD in the NAs is evident from the fact that almost all the documents regarding conservation programs were developed by consultants and conservation agencies, with negligible input from the FD[iv]. Likewise, the many large-scale conservation programs that have been initiated in the NAs have effectively sidelined the FD, giving them almost a symbolic role in projects, while at the same time expecting the FD to be able to take over the conservation activities at the end of the project period (UNDP, 1999).

4.3. The organizational setup and incentive structure of the Forest Department

The organizational structure of the FD is complex (Figure 1). Unlike in other provinces, where a Chief Conservator of Forests (CCF) heads the Forest Department, the FD in the NAs is directed by the Conservator of Forests[v] (CF). The CF reports to the Secretary Forests, who is the immediate head of the FD, while the Advisor Forest, as a public representative (a member of the NAs Legislative Council), influences the forest administration and management, both directly and indirectly. Because of the

absence of the CCF post in the NAs, the powers of the CCF are ultimately vested in the Chief Secretary. Thus the FD in the NAs has four supervisors: the Chief Secretary, the Secretary: Forest, the Advisor: Forest and the CF. The FD has an internal accounting department. However, government Revenue Department controls finances, including monthly staff salaries and benefits.

Fig 1. Organogram of the NAs Forest Department (FD)



*A member of parliament based in Islamabad. Elected from outside NAs, as the NAs has no representation in the parliament. Accountable to his constituents outside the NAs and the Prime Minister of Pakistan.
** Civil servant, representative of the central government in Islamabad, Head of the NAs administration, not accountable to anyone in the NAs
***Civil servant, appointed by the federal government, accountable to the Chief Secretary, NAs
****Member of the NAs Legislative Council, accountable to Deputy Chief Executive with advisory role on forest issues

Administratively, the FD is divided into four forest divisions. Each division is headed by a Divisional Forest Officer (DFO) and is further divided into subdivisions. The junior staff requires approval from the DFOs to draw their monthly salaries and other benefits, for which they have to travel to the divisional offices. Travel from the valleys where the staff are posted, together with the official formalities of getting their salaries approved, takes 3 to 5 days, or longer if the DFO is not available (a common problem). No allowances are provided to the employees for such travel, besides which these trips can be risky. For example, it has occurred that the salaries of staff posted in valleys have been snatched from them during their journeys.

For the past 20 years the staff of the FD, as well as locally elected politicians responding to their constituents, have been trying to persuade the government to either create additional DFO posts for the subdivisions or to transfer powers from the DFOs to the officials based in the sub-divisional offices, so that staff can draw their salaries without having to travel to the divisional offices. Thus, despite the responsiveness of elected officials to the problems of their constituents, they lack the influence necessary to implement effective reforms. Likewise, although the FD has shown some willingness to reform, it has not been able to make such arrangements as a result of bureaucratic complications and the lack of resources.

Unlike the FDs in the provinces of Pakistan, which have undergone reorganization and expansion over the past 20 years, the FD in the Northern Areas has remained stagnant in terms of posts and promotions. The officials of the FD compete with each other intensively for promotions to senior posts, particularly to the one post of CF. Because there are few opportunities for promotion to senior positions; such contests become intense and sometimes end up in the courts. For example, three officials interviewed for this study, who joined the department more than 20 years ago as sub-Divisional Forest Officers (SDFOs), have had only one chance of promotion to the

posts of Divisional Forest Officers (DFOs). Most of the DFOs serve for long periods until their retirement, because of no other opportunities for promotion. Six Range Forest Officers (RFOs) out of the 12 interviewed for this study were recruited in 1976. Four of them are still working in the same grade while two have been promoted one step further to the post of SDFOs. Contrary to this situation, their former classmates from the Pakistan Forest Institute working in other provinces have since been promoted to DFO and CF positions. The remaining six RFOs interviewed joined the department after 1995 and none of them have been promoted either.

Staff can be posted to other departments, for example, in the provincial secretariats and the Federal Ministry of the Environment. In the rest of the country, the FDs are organized such that there are more positions of CF, which allows for more promotion opportunities throughout the hierarchy. What exacerbates the rare opportunities for promotion in the NAs, is the fact that there is no system of rewards for good performance. Therefore staff become discouraged, particularly the honest and hardworking employees.

4.4 Staff competence and lack of opportunities for competence building

Despite the introduction of several large resource management projects in the region, the FD staff of the NAs remains, on the whole, ill-equipped to respond to changing approaches to resource management. They continue to embrace regulations and theories that originated during the 18th century when the FD was created by the British, mainly for managing forests for commercial harvesting (Tucker, 1984). The essence of their knowledge is rooted in the Forest Act of 1927, from which they can cite, in detail, the rules and regulations governing forest resources. Their ability, however, to incorporate newer concepts of community participation and resource management as stipulated, for example, in the National Conservation Strategy (GOP, 1992) is limited, since they have little knowledge of the content of such documents. The FD staff educated mainly at the Pakistan Forest Institute, which still offers centuries-old curricula incite in staff a military-like role in the communities. Most of the forest officials have never attended any refresher course, workshop or exposure trip since their recruitment to the department.

The impact of the lack of refresher training courses is that forest officials find it difficult to cope with changing realities on the ground, as well as policy changes at higher levels. For example, many officials still consider pine forests and game animals (animals hunted for their meat, skins and trophies) as being the only valuable resources to be protected. A complicating factor is that what is considered valuable differs for different actors. FD officials consider it strange to protect carnivores, such as the snow leopard and brown bear, which appear on the list of protected animals in the Wildlife Preservation Act, Northern Areas (GoP, 1975). Instead they consider these animals a threat to other wildlife - the animals hunted for meat. For FD officials, 'wildlife' has a different meaning to that understood by the IUCN and WWF, their partners in conservation, who consider endangered animals, including the snow leopard and brown bear, to be the focus of conservation in Pakistan, particularly in the NAs (IUCN, 2000; WWF, 2005). Furthermore, FD officials do not realise the importance of protecting trees other than pine. Some of the officials interviewed said that NGO employees recently told them that juniper is an endangered species and needs to be protected. However they still consider juniper to be inferior to pine, since juniper does not produce timber and is not sold commercially.

In general, FD officials still work with concepts that originated 200 years ago when the forest services were established in British India to protect the commercially important forests and animals of the Himalayas.

5. DISCUSSION

5.1 Corruption or an alternative system?

Faced with such difficult conditions, FD employees choose different strategies in performing their duties, many of which may be considered illicit or corrupt. However, the concept of 'corruption', as is often used in the literature in describing the forest sector, focuses mainly on analyzing the workings of the powerful timber mafia, and the apparent need for increased control and regulation. This concept is less useful in describing the situation faced by these mainly low-level employees in areas of less commercial value. Robbins (2000) argues that in the literature concerning natural resource management, traditional definitions and analyses of corruption ignore the

complex networks of corruption, as well as corruption due to a lack of resources and organizational complexities. The term 'corruption' in natural resource management is used to describe extra-legal harvesting of common pool resources. Since the term is a normative one and carries negative connotations, those who are involved in such transactions are considered to be villains; therefore no attention is paid to their lives or circumstances. Such summary treatment of the term corruption encourages increased regulations to curb it, thereby discouraging the formulation of policies based on understanding as to why certain organizations and individuals become involved in corruption. It also does not consider the different contexts under which corruption might emerge.

In this study, we examine different uses of the term 'corruption' by both analysts and the government, and how it may fail to provide the most useful understanding of people's behavior. Instead, we introduce the concept of an 'alternative system' to describe many of the extra-legal transactions that take place in forest management in the NAs of Pakistan. Through analyzing the motivations and frustrations of the employees of the FD in performing their duties in an institution unable to provide adequate support, we describe how such an alternative system has developed. A thorough examination of the life worlds of FD employees reveals that officials of all ranks are compelled to resort to an alternative system, both for promotions and for securing resources to accomplish official tasks. By studying the emergence of this alternative system, we argue that one gains a more thorough understanding of the workings of the FD, which goes beyond simplified narratives of corruption, and opens the way for different and hopefully more effective, solutions.

5.2 Corruption and commercial timber

Much of the international literature focuses on the problems associated with the regulation of timber mafia interests, particularly in areas of high-value commercial timber (Rosenbaum, 2002; Smith et al., 2003; Global Witness, 2004; McElwee, 2004). This discussion focuses mainly on corruption and the government's inability to be effective in resource management in an environment that is highly politicized and economically profitable. In such areas the timber mafia (senior government officials and politicians), may be involved in resource misappropriation; thus stakes in these

areas could be high. The solutions suggested in such areas are many, including decentralization, stronger government control of local use, and restrictions on exports to other countries. For example, the EU Forest Law Enforcement, Governance and Trade (FLEGT) action plan focuses on the strict regulation of timber exports to the EU through licensing, banning, and high export taxes, in the belief that this will decrease illegal logging[2].

While such measures might reduce illegal logging in some contexts, they do not address many of the important issues specific to Pakistan, since most of the timber is marketed within the country. Furthermore, attempts in Pakistan to decentralize in highly valuable timber areas, in order to curb excessive cutting by the timber mafia and local communities, have not been successful. For example, Forest Cooperative Societies consisting of local stakeholders were established in the Hazara Division by the government (FD) during the 1980s. It was shown after some time, however, that the cooperative societies were in fact not representative of the local users; the community had no managerial skills; and there was evidence of large scale harvesting by powerful interests (Ahmed & Mahmood, 1998). The cooperative societies in Hazara generated a lot of controversy, and were eventually abolished. It was recommended after this experience, that pilot projects should be initiated before involving communities in resource management (Ahmed & Mahmood, 1998). Likewise, the high value private forests situated in the Diamer District in the Northern Areas, which are co-managed by the government and the communities, have been equally degraded due to uncontrolled harvesting by influential contractors (Blaikie & Sadeque, 2000; Gohar, 2002).

There are, however, areas where timber is scarce and may not be of much interest to these actors, for example in the NAs[vi] (Gohar, 2002). In these areas, decentralization might be relatively easier than in the high value timber areas, since the political and economic interests are less intense. Problems with decentralization persist, however, even in these areas. When the overriding problems of the timber mafia decrease, other more basic problems in the institutional set-up and level of resources (which characterize both systems) become more apparent in the low-value areas. This can

[2] For detailed information on the EU FLEGT and related documents, refer to www.illegal-logging.org.

also lead to misappropriation of resources and corruption. However, a distinction between corruption due to high commercial interests and corruption due to lack of resources, is generally not made. Assuming that corruption emerges due to weak states and lack of order, regulations are increased, codes of conduct are set and more resources are allocated to institutions that control corruption (Marcelo, 2003; Upadhyay, 2003). Much of the anti-corruption strategies in Pakistan and elsewhere in South Asia (e.g. NAB, 2002; Upadhyay, 2003) are based on preconceived ideas of the effects of curbing corruption through regulation. They do not consider other scenarios, for example, that officials in some areas have little choice but to engage in corruption, due to a complex institutional set-up and lack of resources. The next two sections illustrate the difficult conditions faced by the forestry staff, and how they choose to cope through the development of an alternative system.

5.3 An alternate system for solving transportation challenges

Transportation facilities are scarce in the FD. For example, there are two vehicles in the Baltistan Forest Division for a total of 130 staff. The Wildlife Department, which is responsible for wildlife protection in the entire NAs, has one vehicle. All three vehicles are old and worn out. Their condition is such that they cannot be used on the steep, dirt roads that are common in the valleys of the Himalayas and Karakorum mountains. The departments have no funds for repairs and the funds for fuel are insufficient; therefore the staff has to contribute towards purchasing fuel. Most of the FD staff travel on foot or arrange taxis for field trips, for which the department makes no refunds, because funds are not available. For example, a forest guard interviewed for this study was asked by a senior forest official to travel to a remote valley about 230 km away to investigate a forest offence case. Hiring a taxi for such a destination costs around PKR 5,000, which is almost equal to the guard's monthly salary. Most of the FD staff frequently faces similar situations. Since they cannot afford taxi charges from their private accounts, an alternate system has evolved. The way it works is that offenders of forest policies are asked to arrange transportation for officials. For example, wood harvesting offenders may first dispose of the illegally cut wood to cover traces of the offence, and then arrange a taxi for the forest official to visit the site of the alleged offence. Alternatively, the forest staff member may ask a former offender still under investigation, to finance a trip for the investigation of a new

offence. The case against the former offender is then either withdrawn, or nominal fines are charged. If neither of these options is possible, then forest staff pay for taxis themselves. However they may recover the costs from other sources, for example, through taking bribes from offenders, which are generally described as 'gifts'.

Newly recruited officials in particular, with relatively low salaries and limited networks, find themselves with no choice but to comply with such an alternative system because of the absence of resources in the department for official duty. For example, a newly recruited official who condemned the alternative system; was asked to visit a remote valley to investigate a forest offence case. There was no means of transportation available for the trip. The official then asked an experienced junior official how to arrange transportation for the trip. The junior official, who was not happy with the newly recruited official condemning the alternative system, suggested hiring a taxi, which charged PKR 3,000. Although the new recruit paid for this taxi out of his own pocket on this occasion, he would eventually find it difficult to continue financing such expensive official trips and would have to yield to using the alternative system.

The DFO responsible for the management of wildlife in the NAs usually borrows vehicles from friends and NGOs for official field trips. The government has recently initiated trophy hunting in the NAs again, without providing the required resources to the FD for its management. When we interviewed the DFO, we met a team of foreign and national hunters who were given licenses for trophy hunting and had contacts with senior officials in the NAs administration. The DFO was supposed to send wildlife staff to the field for preparations for the hunt, but had to request vehicles from the IUCN and other NGOs. Foreign hunters pay from $ 5,000 to $ 25,000 for a single hunt, depending on the species hunted. The FD receives a share of this income. However, the department is not allowed to earmark this income for the management of trophy hunting – it goes into a common budget. The FD has accumulated approximately $ 1.0 million in the common budget, in the form of taxes levied on commercial wood, fines and trophy hunting. This amount is supposed to be spent on forest operations and staff development. However the department has not been able to use this money due to the fact that the committee which has the authority to approve the FD common budget has not convened a meeting for the last five years. The

members of the committee include representatives of the NAs administration, the Ministry of Finance and the Revenue Department – the FD has no influence on any of these departments and thus cannot demand that a meeting should be held.

5.4 An alternate system for coping with low salaries and insecure jobs

The staff posted in remote valleys are supposed to live permanently in the valleys, except for holidays. They are expected to buy food and arrange transportation and accommodation at their own expense. Their average monthly salary is PKR 6,000. Food alone costs them around PKR 4,000 per month[vii]. Therefore they save only PKR 2,000 to cover the rest of their expenses, including supporting their families. Because of such difficulties, the forest staff spend only a few days a month in the valleys. Since facilities for accommodation, heating and cooking are scarce in the valleys, the staff often have to stay and eat with villagers, some of whom may be involved in the illegal timber trade. There is no public transport in most of the valleys. Therefore the forest staff either walk, or take a free ride with the few local jeeps ferrying between the valleys and the towns. Some of the jeeps are known for transporting illegal timber from the valleys to the towns. A free ride could mean that the staff have to make concessions to the jeeps carrying illegal wood.

There is no proper accommodation for staff at most checkpoints. They usually live in tents, both during the summer, and in extreme temperatures in winter. For example, at one forest checkpoint there are three staff members, all low-paid, temporary employees. They do not have shelter, heating or cooking facilities. Through personal connections, they may have been able to secure a room in an adjacent building. For heating and cooking, the forest staff have to obtain wood from the villagers, again often illegally harvested wood. The staff do not have proper clothing. The FD is supposed to provide uniforms to the field staff. However, the department does not have sufficient funds for this. For example, in Baltistan an amount of PKR 2,000 is allocated annually for buying uniforms for 40 to 50 field-based staff. This amount was based on the needs of the 10 staff of the FD 30 years ago, and has not been increased, while the staff numbers have increased to 130. The actual annual cost today of two uniforms would be PKR 40,000. Since the staff at the checkpoints are temporary, they have no rights to annual leave and other benefits provided to permanent employees,

and they are supposed to be on duty for 24 hours, including weekends. However, through a mutual understanding amongst the staff, they take turns and go on vacation without permission. Therefore an alternate system has also evolved for food, shelter, heating and vacation.

The funds of the FD fluctuate based on the total annual development budget allocation by the central government for the NAs; the total budget is then further divided among the individual departments. The department's income also depends on the availability of funding for development projects, which has been unstable and unpredictable, due to the ever-changing and unstable policies of perpetually unstable governments in Pakistan. Moeen, a temporary employee posted at a checkpoint, is the father of five children and has been working with the FD for the last 25 years. Moeen's monthly salary fluctuates between PKR 500 and 3,000, which the senior officials attribute to the unavailability of funding within the department. During the spring season, Moeen spends a month or two working along the roadside plantations, which are 30 to 60 km away from his home. To reach the plantations, Moeen walks or hitches rides from passing trucks. After finishing the bread that Moeen takes with him from home, he depends for food on the people living in the nearby villages. Due to the unavailability of funds with the FD, Moeen was made redundant for two and a half years. During that period, Moeen continued working without payment, in order to qualify as a volunteer for future opportunities. The two other temporary staff members posted at the checkpoint, who have also been employed for the last 20 years, have a similarly turbulent job history.

If the DFO (Wildlife) does not find an alternative system to arrange for influential hunters to conduct hunting trips, then the DFO has to face the consequences of not being productive. Those who do not conform to alternative systems are not able to perform official tasks and are therefore regarded as being inefficient. The demands of official tasks, together with the scarcity of resources, creates a situation that those who are capable of finding an alternative system are considered to be efficient and competent. Since officials of all ranks face more or less the same situation, all of them have to find alternative systems of income for official tasks; therefore engaging in alternative systems has become a norm.

5.5 Attempts to address corruption

The government of Pakistan does not differentiate between those who would engage in corruption for reasons of maximizing personal wealth, and those who are compelled to seek alternative systems to generate resources in order to accomplish official tasks. The government has initiated a massive campaign to purge corruption by means of coercion and increased regulations (Hafiz, 2003). For this purpose, the National Accountability Bureau (NAB), an addition to the normal judiciary system and investigating agencies, was established in 1999. From 1999 till 2002, around 350 people were convicted by the NAB for corruption, most of them government officials (NAB, 2004). However, corruption continues and the involvement of forest officials in illegal forest harvesting is frequently reported (Daily Jang, 2004). Nevertheless, the NAB seems to remain optimistic in trying to curb corruption through coercion. For example, the NAB's anti-corruption strategy states: "many of the population at large, even those benefiting from corruption, do appear to genuinely wish the situation would change. We came across stories and islands of integrity within the country that give rise to optimism. If provided with the tools, and if they are convinced that others will change also, 2002 could see the start of a gradual transition towards increased integrity in public life" (NAB, 2002:8). While this statement is hopeful, it assumes that people are engaged in corruption because they choose to be, and that people need to be convinced to change. This seems to be a superficial assessment, which ultimately results in measures that encourage governments to increase regulation and overlook situations where people may be compelled to engage in 'corruption' in the absence of enough resources to perform official tasks.

From the examples presented in this study, officials of the FD do not necessarily engage in corruption from choice, or because they do not know about the tools to change, as assumed by the NAB. The NAB's approach results in treating all kinds of corruption alike, with the same regulations being formulated for addressing forest contractors and officials engaging in corruption to maximize their wealth, as for those who engage in alternative systems in order to perform their duties. There is also evidence elsewhere that incidents of taking bribes increase with decreasing chances of promotion (Robbins, 2000). In the absence of a reward and incentive system for better performance and with no hope of promotion, efforts to curb alternative systems would

likely be futile. In fact, the elimination of alternative systems through coercion, without providing government resources, would paradoxically serve only to curtail the functioning of the FD, particularly field-based activities, which are their main function. It is also likely to result in new forms of alternative systems emerging, since junior officials cannot resist orders from senior officials to perform field duties.

In addition to the lack of resources and promotion opportunities that foster alternative systems, there could be other reasons for the emergence and prevalence of corruption in forest management in the NAs, which are beyond the scope of this paper. For example, Robbins (2000) notes various factors in Latwara, India, although these do not seem to be relevant in the NAs. Robbins (*ibid.*) suggests that corruption in India emerges due to the social capital that exists in society because of the caste system. He shows that the forest officials in Latwara belong to the elite castes, who collude with the elite of the villages to misuse forest resources. The poor cooperate with the elite forest officials in return for small favors, though the poor are denied their actual legal rights. Therefore, Robbins (*ibid.*) argues that corruption continues because it is rooted in existing institutions that are based on patriarchy, class privilege, and caste power that controls the social system in Latwara.

In the NAs of Pakistan however, despite some differentiation based on gender and wealth, the society is regarded as relatively homogenous; a caste system along the lines of that in India does not exist (Nyborg, 2002). And unlike in Latwara, where the poor conform to unjust systems of resource exploitation, the communities in the NAs have agitated, successfully in some areas, against the illegal harvesting by forest officials and contractors, in order to reassert their local tenurial arrangements (Knudsen, 1999; Gohar, 2002; Ali & Benjaminsen, 2004). Furthermore, the forest officials in the NAs belong to a range of different ethnic and religious groups and are from different geographical areas. Therefore pre-determined social associations are relatively weak in the NAs. Forest officials have to cooperate with anyone who is prepared to provide resources for the accomplishment of official tasks, regardless of caste, ethnicity and social status. However, cooperation emerging from the need to perform one's duties could, of course, easily develop into a motive for personal gain.

5.6 Reorganization of the Forest Department

The FD was reorganized[3] in 1998 on the recommendation of the IUCN, based on the assumption that this would improve the functioning of the department, and hence forest management, which was particularly important after the introduction of conservation and resource management projects in the area. Because of a powerless FD and the antagonistic attitudes of its officials, the IUCN faced problems in the legitimization and implementation of its projects. As a result, the IUCN wanted to induct a senior official to the FD who would have more powers and could tame the forest officials to facilitate the smooth implementation of the IUCN's projects. It also established separate social forestry and commercial forestry departments. The reorganization therefore created two temporary posts of Chief Conservator Forests (CCF) and Conservator Forests (CF), in addition to the existing CF post. The two CFs were assigned to the departments of social forestry (under which most of the IUCN projects were assigned) and commercial forestry. A retired forest official from outside the NAs, to be paid by the IUCN, was appointed as CCF to head the NAs FD. The FD officials previously in control viewed the reorganization sponsored by the IUCN and the induction of an outsider as a threat to their powers, since the CCF would report directly to the Chief Secretary. Also, since the posts were temporary and did not fit into the existing accounting system, the revenue office raised objections regarding the financial powers of the CCF and the additional CF. Eventually the reorganization was withdrawn, leaving the FD with the administrative setup which had existed before the reorganization.

In 2001, the FD initiated a second proposal for reorganization of the FD facilitated by the IUCN, along almost the same lines as was suggested in the first proposal (GoP, 2002). The second proposal suggested an orientation of the FD along functional lines i.e. the creation of three circles (departments): social forestry, commercial forestry and wildlife, headed by two CFs and a Director, under a CCF. The proposal, however, had serious deficiencies. It simply suggested distributing the existing staff among these circles; the functional competence and qualifications of staff were not considered. For example, the CF, all the DFOs and RFOs currently employed with the

[3] The re-organization was in fact directed at re-structuring the department instead of introducing much needed reforms.

FD studied at the Pakistan Forest Institute[viii], where the curriculum is based on the protection of forests, silviculture, and harvesting techniques of commercially important tree species. Wildlife and social forestry are not focus subjects. The proposal did not allocate resources for the education and training of employees in these disciplines.

The proposal argued that the FD was understaffed. Yet, it suggested the creation of very few new posts – the majority of which were to be filled through the promotion of senior staff, a rare opportunity in the FD. Furthermore, no improvements were proposed for the communication system, such as the purchase of computers and telephone lines. Instead the proposal suggested the addition of three Dak Runners[ix] in addition to the existing 28. The 31 Dak Runners carry files and messages from one official to another, mainly within the same building, a common practice in most government offices, particularly where telephone and computer networks are poor or non-existent. The proposal suggested that the CCF should be funded through the seven years (1999 - 2006) Mountain Area Conservancy Project (MACP), which was implemented in the NAs by the IUCN (UNDP, 1999). The proposal assumed that thereafter the CCF post would be regularized and funded by the government, although there is no guarantee to this effect. It also mentioned that the creation of the CCF post was important for the smooth implementation of the MACP, pointing to the fact that the reorganization was, again, suggested in order to ease the implementation of the IUCN projects.

It is clear that both proposals to restructure the FD focused mainly on the upper echelons of the department. While this is undoubtedly an important part of improving the workings of the FD, we question the somewhat limited focus of the proposed restructure, in the light of the issues uncovered in our analysis of the actors at the various levels of the department, and the political context of the NAs. For example, the proposed reorganization did not include the provision of any resources to support the regular activities of the staff, identified as critical for improving the everyday workings of the FD and discouraging the development of alternative systems. Nor were powers transferred to the officials based at sub-divisional offices so that the employees could draw salaries without traveling to the regional offices. In the second proposal, however, the upgrading of Sub-DFOs to DFOs would have had the same

effect, without having to devolve control to lower levels, which was strongly resisted by senior staff.

The proposed reorganization did not provide resources for training and education. This need is exacerbated by the fact that conservation agencies have generally ignored the fact that forest education in Pakistan needs to be updated and the curriculum revised. There is a need to understand the reasons for forest services still working according to centuries-old beliefs of forest conservation, which continue to be based on strict protection and conservation principles. One would expect that NGOs, which facilitate decentralization and influence central governments to work towards re-organization of the forest services, would also attempt to improve the outdated curriculum offered at forest education institutions. However this has not happened in Pakistan; therefore the forest institutions continue teaching according to curricula based on protection and exclusion, instead of decentralization and participation.

In the NAs, change in organizational structures, whether for the purpose of devolution of control in shifting powers to junior ranks, or for decentralization to facilitate community participation, involves elements of internal politics, as well as changes in tasks, roles, attitudes and behavioral patterns (Sanwal, 1987). Furthermore, such changes influence the complex system of overt and covert incentives, which form a part of any government institution (Hobley, 1996). By not recognizing these incentives, many efforts to address organizational issues within forest conservation institutions will be misguided. For example, it must be recognized that the disreputable actions of high level officials in securing public resources for personal use can very likely serve as one 'incentive' for the development and persistence of alternative systems at lower levels.

It is also important to understand the overall political context. Adding the position of CCF, for example, simplifies the line of command within the NAs; however, the power of the CCF is not on the same level as his provincial counterparts because of the special administrative structure of the NAs, in which the CCF reports directly to the Chief Secretary, who reports to the Minister of Kashmir Affairs based in Islamabad. Under this system, important policy decisions about the NAs are made by the Chief Secretary and the Minister, neither of whom are from the NAs. They are not

elected by the people of the NAs and thus are not directly accountable to them, nor do they promote their interests. One of the key reasons why none of the proposed restructuring have been adopted to date, could be ultimately rooted in the fact that the power to make such far-reaching restructuring rests with the Minister of Kashmir and NAs Affairs, based in Islamabad, and not in the NAs where discussions have been focused until now. The Minister is, in fact, accountable to the constituents of his own area, and is thus obliged to serve their interests; thus the interests of the NAs are of secondary importance. During the last 26 years several reforms have been introduced to empower the NAs Legislative Council, but these reforms have only increased the number of members and advisors, and the decision-making powers still rest with the central government in Islamabad.

6. CONCLUSION

Despite the ongoing push for more decentralization, natural resource management in most post-colonial countries is controlled by and large by the forest services (Chhatre, 1996; Benjaminsen, 2000; Ribot, 2001; Blaikie & Muldavin, 2004). For both the government and conservation agencies, decentralization has, in practice, meant community participation in implementation, rather than devolving real decision-making powers to the communities. Governments, in particular, continue to believe that the forest services should play a major role in community-based natural resource management. Also, despite their criticisms of the forest services, conservation agencies need the support of these services to legitimize their actions, both vis-a-vis the government and the local communities.

Where local actors have been given extensive decision-making powers, resources have often been over-exploited and appropriated by elites, thus marginalizing the poor and women (Ahmed & Mahmood, 1998; Ghate, 2000; Ogra, 2000; Gohar, 2002). Such controversies have led to the re-centralization of forest management in both India and parts of Pakistan. In the light of these experiences, the current role and functioning of the FD in forest management need to be reassessed. In Pakistan, the state, through the FD, still has an important role to play in conservation and resource management, despite the move towards increased participation of local communities. One aspect of the role of the FD is technical support, which it has traditionally carried

out. Secondly, conflict resolution has always been a role of the FD, which has become more important in the light of increasing conflicts connected with community-based resource management. Thirdly, the FD can play a role in the equitable distribution of benefits from community-based resource management. Finally, the FD continues to have a role in the formulation and implementation of policy and legislation. The ultimate challenge is how to manage all these roles in the future.

Where forest services are weak, conservation programs have been dominated by international conservation agencies, which have taken over a wide range of resource management functions and thus sidelined both the forest services and often the communities as well (UNDP, 1999; Shackleton, 2001). If this situation continues, state institutions may decay further by the time the NGOs accomplish their time-bound projects, thus leaving an institutional gap which could be detrimental to natural resource management in the future.

How then could the functioning of the FD be improved in order to fill its roles, as stated above? Conventional analyses focus on corruption and weaknesses of the forest services, without analyzing the actual functioning and causes of corruption. Such analyses consider the FD to be irreparably corrupt and inefficient. We claim, however, that such a superficial approach to analyzing the forest services could, in reality, be detrimental to the goal of more sustainable natural resource management. Instead, attention to the actual, everyday functioning of the FD gives a clearer picture of the challenges and opportunities to 'repair' the FD as an institution, in order for it to fill its roles in supporting emerging policies of conservation and resource management based on community participation.

Our study reveals three main areas where interventions could be made to improve the functioning of the FD in the NAs. The first area concerns the need for a substantial increase in the resources available to the forest department. Resources for field activities in the FD have basically remained constant over the last 30 years, while the number of employees and their expected activities have increased significantly. We found that the resources are currently so scarce that they can in no way support the activities employees are expected to perform in the field. This has resulted in the emergence of an alternative system, whereby employees obtain the resources they

need to perform their duties through extra-legal activities. This alternative system is a form of corruption that is quite different from that described in most of the literature on forest management, and therefore requires a different approach. A conventional approach to corruption would focus on regulation and control, or clamping-down on the offenders. While such an approach could serve to halt some forms of corruption, we argue that it would, in effect, result in the complete cessation of FD field activities since the FD currently has no resources to compensate the loss of resources generated from the alternative system. Instead, we argue that resources need to be increased to a realistic level, based on the actual needs of the FD in terms of the current level of staffing and activities.

The second area concerns the need for improving the competence of FD staff. The importance of this aspect has not been seriously considered in any of the conservation and resource management policy documents produced thus far for the NAs. The lack of staff competence in the areas where they are expected to function, undermines any attempts at developing new systems of resource management. There is not only a lack of technical expertise, but also a lack of competence in dealing with modern fundamental concepts of resource management and local participation. We found, for example, that the FD and the conservation agencies have different perceptions of conservation. For example, forest officials consider only commercially important wildlife as species worth conserving, while conservation agencies focus on endangered species, including carnivores. Furthermore, FD staff has little experience in interacting with communities in ways other than as a regulatory actor. One of the keys to addressing these issues is the provision of training and education opportunities for FD staff to keep them abreast of emerging concepts in resource management. This will, however, require a thorough reform of the existing forestry training and education system. In the education institutions, centuries-old curricula still dominate, giving foresters a military-like role in the communities. This contributes little to the encouragement of local participation as promoted in newer resource management policies.

The third area concerns the need for a new and different strategy for reforming the FD in the NAs. There are two aspects here which need to be considered. The first aspect is the need to design any institutional reorganization based on the actual problems and

challenges faced by all the different actors within the FD, not only those in the upper echelons. Our analysis showed that where restructuring has been attempted, it facilitated mainly the implementation of conservation projects, instead of improving the overall functioning of the FD. The second aspect of institutional reform concerns the reform process itself. So far, restructuring have been attempted; however, neither of them was successful. There are many reasons for this. On the one hand, the current organizational structure of the FD of the NAs is so complex and ridden by rival internal politics, that decision making is extremely difficult. Thus, while one part of the FD may support certain restructuring, others try to prevent them. There is, in fact, no authority based in the Northern Areas with the power to make major, binding decisions about reforms. Those with real decision-making power are not based in the NAs and are not accountable to the people and institutions of the NAs. Therefore, those attempting to reform such a major institution as the FD should choose a strategy that moves beyond the ineffective administrative loops in the NAs, and rather influence those with the real power to make such decisions, in this case the central government. While there are ongoing political efforts to empower the Northern Area Legislative Council, which could result in reforms in decision-making processes, such changes may be a long time coming, since they are linked directly to a resolution of the Kashmir dispute, the status of which remains undetermined.

In conclusion, we have shown that conventional analyses focus on the deficiencies of the forest services and fail to offer constructive, realistic assessments of the potential role of these services in community-based resource management. Portraying the forest services in an exclusively negative light will result in their deterioration, and be detrimental to sustainable resource management, which will further widen the gap between the community and the forest services. Instead, we argue for an analysis which not only uncovers the deficiencies, but considers as well the potentially positive role of the forest services. These state institutions remain important actors in forest management. Such an approach will yield a better understanding of how forest services, particularly in post-colonial countries, might be strengthened, in order for them to become viable partners in community-based conservation and resource management.

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[i] The 'Great Game' is a term used to describe the rivalry and strategic conflict in the 1800s between the British Empire and the Tsarist Russian Empire for supremacy in Central Asia.

[ii] Three of the world's largest mountain ranges, the Himalayas, Karakorum and Hindukush, meet in this region. Some of the world's highest peaks, including K2, the second highest mountain in the world, are situated here.

[iii] This calculation does not include the Chilas and Daril/Tangir Valleys, where the forests are privately owned and therefore remain outside this major conservation initiative.

[iv] This is comparable with the situation in Nepal (Blaikie & Muldavin, 2004).

[v] According to the official hierarchy of the Forest Department in Pakistan, the Chief Conservator of Forest is the most senior official, followed by the Conservator of Forest, Divisional Forest Officer and Range Forest Officer.

[vi] In Diamir, timber of commercial value still exists. In the past, when the forests of the remaining areas of the NAs were relatively intact, the government harvested them commercially as well (Gohar, 2002, Ali & Benjaminsen, 2004). Now, however, these forests are scarce and of less commercial interest, and are harvested mainly for local use and sale in local markets.

[vii] This figure is calculated on the basis of actual costs incurred for a period of three months during the summer.

[viii] Only two of the officials have foreign degrees in addition to their degree from the Pakistan Forest Institute.

[ix] 'Dak Runner' is a term used to describe staff who carry mail from one destination to another. The term originated during the colonial rule. Each Dak Runner was supposed to carry (run) mail for a distance of approximately four to six miles, and then pass it on to another runner. This system still exists in the NAs, since transportation does not exist in many of the valleys.

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Co-author: Tor A. Bejaminsen

Co-author's contribution: Contribution to the theoretical discussion, comments on data interpretation and conclusion, and editing.

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Title. The road to deforestation: An assessment of forest loss and its causes in Basho Valley, Northern Pakistan.

Candidate: Jawad Ali

Contribution of the candidate: Data collection from the field, analysis of data, interpretation of data, write up, discussions and conclusion. Assistance in searching satellite images, contribution in delineation of forest area from that of cultivated fields and settlements (based on candidates familiarity with the topographic and physical feature of the area), contribution in estimation of forest loss using satellite images, writing of results from satellite images, interpretation, conclusions and arranging meetings of the contributors.

Co-author: Tor A. Benjaminsen

Co-author's contribution: Contribution to the whole paper - contribution in organizing meetings of contributors to the section on satellite images in the initial stage for arranging satellite images; comments on interpretations of results; contribution to the theoretical discussion and conclusions, and editing of the entire paper.

Co-author: Ahmed A. Hammad

Co-author's contribution: Contribution to the section on satellite images - contribution in preparation of satellite images for interpretation and estimation of forest loss using satellite images.

Co-author: Øystein B. Dick

Co-author's contribution: Contribution to the section on satellite images – main contribution in identification and purchase of satellite images and preparation of satellite images for interpretation and estimation. Contribution in estimating forest loss and interpretation of the results from satellite images and editing the section on satellite image.

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Co-author Ahmed A. Hammad is not reachable any more. TAB

... ...

Signature of candidate

Co-author's signatures:

TABen			Øystein B. Dick
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Article no.: 3

Title. Corruption or Just an Alternative System? Re-assessing the Role of the Forest Department in the Northern Areas of

Candidate: Jawad Ali
Contribution of the candidate: Data collection from the field, analysis of data and interpretation, write up, discussions and conclusion.

Co-author: Ingrid L. P. Nyborg
Co-author's contribution: Contribution to theoritical discussion; comments on interpretation, discussion, results, conclusions; and editing.

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.....	.....	.....	.....
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